

GOVERNMENT OF MANIPUR  
SECRETARIAT: TRADE, COMMERCE & INDUSTRIES  
DEPARTMENT

N O T I F I C A T I O N

Imphal 12<sup>th</sup> November, 2020.

No. 35/2/2014-Com & Ind: In exercise of the powers conferred by section 112 of the Factories Act, 1948 (Central Act No.63 of 1948), the State Government proposes to make the following Rules i.e. the Manipur Factories Rules, 2019 and under section 115 of the said Act, notice is hereby given that any person who is likely to be affected by the proposed Rules may submit his objections/suggestions to the undersigned within 45(forty five) days from the date of publication of these Rules in the Official Gazette.

Any suggestions/objections which may be received after the expiry of the stipulated period will not be considered.

**DRAFT MANIPUR FACTORIES RULES, 2019**

**CHAPTER I  
PRELIMINARY**

1. Short title, extent and commencement: - (1) These rules may be called the Manipur Factories Rules, 2019.

(2) These rules shall extend to the whole of the State of Manipur.

(3) They shall come into force from the date of their publication in the Official Gazette.

2. Definitions:

In these rules, unless there is anything repugnant in the subject or context:-

(a) "Act" means the Factories Act, 1948 (Central Act No. 63 of 1948);

(b) "Appendix" means an Appendix appended to these rules;

(c) "artificial humidification" means the introduction of moisture into the air of a room by any artificial means whatsoever, except the unavoidable escape of steam or water vapour into the atmosphere directly due to a manufacturing process:

Provided that the introduction of air directly from outside through moistened mats or screens placed in openings at times when the temperature of the room is 26.5 degrees centigrade or more, shall not be deemed to be artificial humidification;

(d) "belt" includes any driving strap or rope;

(e) "degrees" means the degrees of temperature on the centigrade scale;

(f) "District Magistrate" means the District Magistrate of the District concerned and includes such other officer as may be appointed by the State Government in that behalf;

(g) "Form" means the Form appended to these rules;

(h) "fume" includes gas or vapour;

(i) "Health Officer" means the Municipal Health Officer or District Health Officer or such other Officers as may be appointed by the State Government in that behalf;

(j) "Hygrometer" means an accurate wet and dry bulb hygrometer conforming to the prescribed conditions as regards construction and maintenance;

(k) "maintained" means maintained in an efficient state, in efficient working order and in good repair;

(l) "manager" means the person responsible to the occupier for the working of the factory for the purpose of the Act;

(m) "Schedule" means the Schedule appended to these rules;

(n) "section" means the section of the Act.

(o) "State Government" means the Government of Manipur

(p) "Chief Inspector" or "Chief Inspector of Factories" means the Chief Inspector of Factories, Manipur.

3. *Competent Persons.*- (1) The Chief Inspector may recognise any person as a 'competent person' within such area and for such period as may be specified for the purposes of carrying out tests, examinations, inspections and certification for such buildings, dangerous machinery, hoists and lifts, lifting machines and lifting tackles, pressure plant, confined space, ventilation system and such other process or plant and equipment as stipulated in the Act and the Rules made thereunder, located in a factory, if such a person possesses the qualifications, experience and other requirements as set out in Schedule A:

Provided that the Chief Inspector may relax the requirements of qualifications in respect of a 'competent person' subject to approval of the State Government and such a person after being so recognised shall not have powers of an 'Inspector':

Provided further that the 'competent person', recognised under this provision shall not be above the age of 62 years and shall be physically fit for the purpose of carrying out the tests, examination and inspection.

(2) The Chief Inspector may recognise an institution of repute, having persons possessing qualifications and experience as set out in the schedule annexed to sub-rule (1) for the purpose of carrying out tests, examinations, inspections and certification for buildings, dangerous machinery, hoists and lifts, lifting machines and lifting tackles, pressure plant, confined space, ventilation system and such other process or plant and equipment as stipulated in the Act and the Rules made thereunder, as a 'competent person' within such area and for such period as may be specified.

(3) The Chief Inspector on receipt of an application in Form A from a person or an institution intending to be recognised as a 'competent person' for the purposes of this Act and the Rules made thereunder, shall register such application and within a period of sixty days of the date of receipt of application, either after having satisfied himself as regards competence and facilities available at the disposal of the applicant recognise the applicant as a 'competent person' and issue a certificate of competency in Form B or reject the application specifying the reasons therefore.

(4) The Chief Inspector may, after giving an opportunity to the competent person of being heard, revoke the certificate of competency:-

- (i) if he has reason to believe that a competent person-
  - (a) has violated any condition stipulated in the certificate of competency; or
  - (b) has carried out a test, examination and inspection or has acted in a manner inconsistent with the intent or the purpose of this Act or the Rules made thereunder; or has omitted to act as required under the Act and the Rules made thereunder; or
- (ii) for any other reason to be recorded in writing.

(5) The Chief Inspector may, for reasons to be recorded in writing, require recertification of lifting machines, lifting tackles, pressure plant or ventilation system, as the case may be, which has been certified by a competent person outside the State.

4. *Submission of plans.* – The Chief Inspector of Factories may require, for the purposes of the Act, submission of plans of any factory which was either in existence on the date of commencement of the Act or which has not been constructed or extended since then. Such plans shall be drawn to the scale showing -

- (a) the site of the factory and immediate surroundings including adjacent buildings and other structure, roads, drains, etc.
- (b) the plan, elevation and necessary cross sections of the factory buildings indicating all relevant details relating to natural lighting, ventilation and means of escape in case of fire, and the position of the plant and machinery, aisles and passageways; and
- (c) such other particulars as the Chief Inspector, as the case may be, may require.

5. *Approval of plans.*- (1) No site shall be used for the location of a factory or no building in a factory be constructed, reconstructed, extended or taken into use as a factory or part of a factory, or any other extension of plant or machinery carried out in a factory unless previous permission in writing is obtained from the Chief Inspector.

(2) Application for such permission shall be made in Form 1 which shall be accompanied by the following documents:-

- (a) a flow chart of the manufacturing process supplemented by a brief description of the process in its various stages
- (b) plans, in duplicate, drawn to scale showing -
  - (i) the site of the factory and immediate surroundings including adjacent building and other structures, roads, drains, etc.; and
  - (ii) the plan, elevation and necessary cross-sections of the various buildings indicating all relevant details relating to natural lighting, ventilation and means of escape in case of fire. The plans shall also clearly indicate the position of the plant and machinery, aisles and passageways; and
- (c) such other particulars as the Chief Inspector may require.

(3) If the Chief Inspector is satisfied that the plans are in consonance with the requirements of the Act he shall, subject to such conditions as he may specify, approve them by signing and returning to the applicant one copy of each plan or he may call for such other particulars as he may require to enable such approval to be given.

6. *Certificate of Stability.*- (1) No manufacturing process shall be carried on in any building of a factory constructed, reconstructed or extended, or in any building which has been taken into use as a factory or part of a factory until a certificate of stability in respect of that building in Form C has been sent by the occupier or manager of the factory to the Chief Inspector, and accepted by him.

(2) The certificate of stability referred to in sub-rule (1) shall be signed by a competent person:

Provided that where no such competent person has been recognised, the certificate of stability may be signed by one of the following categories of persons, namely,-

- (i) A member or associate member of Institute of Civil Engineer; or
- (ii) A member of the Institute of Structural Engineer; or
- (iii) A fellow member or associate member of the Institute of Engineers (India); or
- (iv) Civil Engineers of the State or Central Government Departments including retired Civil Engineer not below the rank of Executive Engineers.

7. *Applications for registration and grant of licence:*

The occupier of every factory shall submit to the Chief Inspector an application in triplicate in Form 2 for the registration of the factory and grant of a licence:

Provided that the occupier of premises in use as a factory on the date of the commencement of these rules shall submit such application within 30 days from the date of commencement of these rules.

8. *Grant of licence.*- (1) A licence to open a factory may be granted by the Chief Inspector in Form 3 prescribed for the purpose and on payment of the fees specified in the Schedule B:

Provided that, where the Chief Inspector refused to grant or renew a licence, he shall record in writing the reasons for such refusal and communicate the same to the occupier.

(2) Every licence granted under this chapter shall remain in force upto the 31<sup>st</sup> December of the tenth year from the date of issue

9. *Renewal of licence.* - (1) A licence may be renewed by the Chief Inspector.

(2) Every application for the renewal of a licence shall be in Form 2, in duplicate, and shall be made not less than two months before the date on which the licence expires, and, if the application is so made, the premises shall be held to be duly licenced until such date as the Chief Inspector renews the licence.

(3) The same fee shall be charged for the renewal of a licence as for the grant thereof :

Provided that if the application for renewal is not received within the time specified in sub-rule (2), the licence shall be renewed only on payment of a fee 25 (twenty five) percent in excess of the fee ordinarily payable for renewal of the licence.

(4) Every licence renewed under this Rule shall remain in force upto the 31<sup>st</sup> December of the tenth year for which the licence is renewed.

10. *Amendment of licence.* - (1) A licence granted under rule 8 or renewed under rule 9 may be amended by the Chief Inspector.

(2) A licensee who desires to have his licence amended shall submit it to the Chief Inspector with an application stating the nature of the amendment and reasons therefor.

(3) The fee for the amendment of a licence shall be rupees one hundred plus the amount (if any) by which the fee that would have been payable if the licence had originally been issued in the amended form, exceeds the fee originally paid for the licence :

Provided that no amendment fee shall be payable when the amendments are proposed simultaneously with the application for the renewal of the licence:

Provided further that the occupier of premises in use as a factory on the date of the commencement of these rules shall submit such application within 30 days from the date of the commencement of these rules.

11. *Transfer of licence.*- (1) The holder of a licence may, at any time before the expiry of the licence, apply for permission to transfer his licence to another person.

(2) Such application shall be made to the Chief Inspector who shall, if he approves of the transfer, enter upon the licence, under his signature, make an endorsement to the effect that the licence has been transferred to the person named.

(3) A fee of rupees one hundred each shall be charged for such application.

12. *Procedure on death or disability of licensee.*- If a licensee dies or becomes insolvent, the person carrying on the business of such licensee shall not be liable to any penalty under the Act for exercising the powers granted to the licensee by the licence during such time as may reasonably be required to allow him to make an application for the amendment of the licence under rule 10 in his own name for the unexpired portion of the original licence.

13. *Loss of licence.* - Where a licence granted under these rules is lost or accidentally destroyed, a duplicate may be granted on payment of a fee of rupees one hundred.

14. *Payment of fees.*- (1) Every application under these rules shall be accompanied by a treasury receipt showing that the appropriate fee has been paid into the local treasury, under the head of account:

0851 Village & Small Industries  
102 Small Scale Industries

(2) If an application for the grant, renewal or amendment of licence is rejected, the fee paid shall be refunded to the applicant.

15. *Prohibition of use of premises as factory without a valid licence.*- An occupier shall not use any premises as a factory or carry on any manufacturing process in a factory unless a licence has been issued in respect of such premises and is in force for the time being :

Provided that if a valid application for renewal of licence has been submitted and the required fee has been paid the premises shall be deemed to be fully licenced until such date as the Chief Inspector grants or renews the licence or refuse in writing to grant or renew the licence.

16. *Notice of occupation.* - The notice of occupation shall be in Form 2.

17. *Notice of change of manager.* - The notice of change of manager shall be in Form 4

18. *Guidelines, Instructions and Records.*-(1) Without prejudice to the general responsibility of the occupier to comply with the provisions of section 7(A), the Chief Inspector may, from time to time, issue guidelines and instructions regarding the general duties of the occupier relating to health, safety and welfare of all workers while they are at work in the factory.

(2) The occupier shall maintain such records, as may be prescribed by the Chief Inspector, in respect of monitoring of working environment in the factory.

## **CHAPTER II : Inspecting Staff**

19. *Qualifications of an Inspector.*- No person shall be appointed as an Inspector for the purpose of the Act unless he possesses the qualifications as hereunder :-

(a) he must not be less than 23 years or more than 35 years of age;

(b) he must have –

(i) had a good general education up to the pre-degree standard of a recognised university;

(ii) secured a degree, or diploma equivalent to a degree of a recognised university, in any branch of engineering, technology or medicine and preferably with practical experience of at least two years in a workshop or a manufacturing concern of good standing and in the case of Medical Inspector an experience of at least two years in a public hospital or factory medical department or alternatively a diploma in Industrial Medicine; and

(c) where for a particular post special knowledge, to deal with special problems, is required, the Government may, in addition to the basic qualifications, prescribe appropriate qualifications for such a post.

20. *Powers of Inspectors.*- An Inspector shall, for the purpose of the execution of the Act, have power to do all or any of the following things, that is to say –

(a) to photograph any worker, to inspect, examine, measure, copy, photograph, sketch or test, as the case may be, any building or room, any plant, machinery, appliance or apparatus, any register or document, or anything provided for the purpose of securing the health, safety or welfare of the workers employed in a factory;

(b) in the case of an Inspector who is a duly qualified medical practitioner, to carry out such medical examinations as may be necessary for the purposes of his duties under the Act; and

(c) to prosecute, conduct or defend before a Court any complaint or other proceeding arising under the Act or in discharge of his duties as an Inspector.

21. *Duties of Certifying Surgeon.*- (1) For the purpose of the examination and certification of young persons who wish to obtain certificates of fitness, the Certifying Surgeon shall arrange a suitable time and place for the attendance of such persons, and shall give previous notice in writing of such arrangements to the manager of factories situated within the local limit assigned to him.

(2) The Certifying Surgeon shall issue his certificates in Form 5. The foil and counterfoil shall be filled in and the signature or the left thumb impression of the person in whose name the certificate is granted shall be taken on them. On being satisfied as to the correctness of the entries made therein and of the fitness of the person examined, he shall sign the foil and initial the counterfoil and shall deliver the foil to the person in whose name the certificate is granted. The foil so delivered shall be the certificate of fitness granted under section 69. All counterfoils shall be kept by the Certifying Surgeon for a period of at least 2 years after the issue of the certificate.

(3) The Certifying Surgeon shall, upon request by the Chief Inspector, carry out such examination and furnish him with such report as he may indicate, for any factory or class or description of factories where-

(a) cases of illness have occurred which it is reasonable to believe are due to the nature of the manufacturing process carried on, or other conditions of work prevailing therein; or

(b) by reason of any change in the manufacturing process carried on, or in the substances used therein, or by reason of the adoption of any new manufacturing process or of any new substance for use in a manufacturing process, there is a likelihood of injury to the health of workers employed in that manufacturing process; or

(c) young persons are, or are about to be, employed in any work which is likely to cause injury to their health.

(4) For the purpose of the examination of persons employed in processing covered by the rules relating to dangerous operations, the Certifying Surgeon shall visit the factories within the local limits assigned to him at such intervals as are prescribed by the rules relating to such dangerous operations.

(5) At such visits, the Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be kept in the custody of the manager of the factory. The record of each

examination carried out under sub-paragraphs (1) and (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(6) If the Certifying Surgeon finds as a result of his examination that any person employed in such process is no longer fit for medical reasons to work in that process, he shall suspend such person from working in that process for such time as he may think fit and no person after suspension shall be employed in that process without the written sanction of the Certifying Surgeon in the health register.

(7) The manager of a factory shall afford to the Certifying Surgeon facilities to inspect any process in which any person is employed or is likely to be employed.

(8) The manager of a factory shall provide for the purpose of any medical examination which the Certifying Surgeon wishes to conduct at the factory (for his exclusive use on the occasion of an examination) a room which shall be properly cleaned and adequately ventilated and lighted and furnished with a screen, a table (with writing materials) and chairs.

### CHAPTER III Health

22. *Record of whitewashing, etc.* - The record of dates on which white washing, colourwashing, varnishing, etc. are carried out shall be entered in a register maintained in Form 7.

23. *Cleanliness of walls and ceilings.*- (1) Clause (d) of sub-section (1) of section 11 of the Act shall not apply to the class or description of factories or parts of factories specified in Schedule C:

Provided that they are kept in a clean state by washing, sweeping, brushing, dusting, vacuum cleaning or other effective means.

Provided further that they are kept in a clean state by washing, sweeping, brushing, dusting, vacuum cleaning or other effective means.

Provided also that the said clause (d) shall continue to apply –

- (a) as respects factories or parts of factories specified in part A of Schedule C, to workrooms in which the amount of cubic space allowed for every person employed in the room is less than 14.2 cubic meters;
- (b) as respects factories or parts of factories specified in part B of Schedule C, to workrooms in which the amount of cubic space allowed for every person employed in the room is less than 70.8 cubic meters;
- (c) to engine-houses, fitting shops, lunchrooms, canteens, shelters, creches, cloakrooms, restrooms and wash places; and
- (d) to such parts of walls, sides and tops of passages and staircases as are less than 6 meters above the floor or stair.

(2) If it appears to the Chief Inspector that any part of a factory, to which by virtue of sub-rule (1) any of the provisions of the said clause (d) do not apply, or apply as varied by sub-rule (1), is not being kept in a clean state, he may, by written notice, require the occupier to whitewash or colourwash, wash, paint or varnish the same, and in the event of the occupier failing to comply with such requisition within two months from the date of the notice, sub- rule (1) shall cease to apply to such part of a factory, unless the Chief Inspector otherwise determines.

24. *Disposal of Trade Wastes and Effluents.*- The arrangements made in every factory for the treatment of wastes and effluents due to the manufacturing processes carried on therein shall be in accordance with those approved by the relevant Water and Air Pollution Boards appointed under the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control Of Pollution) Act, 1981 and other appropriate authorities.

25. *Ventilation and temperature.*- (1) In any factory the maximum wet-bulb temperature of air in a workroom at a height of 1.5 meters above the floor level shall not exceed 30 degrees centigrade and adequate air movement of at least 30 meters per minute shall be provided; and in relation to dry-bulb temperature, the wet-bulb temperature in the workroom at the said height shall not exceed that is shown in the schedule below hereto, or as regards a dry-bulb reading intermediate between the two dry-bulb readings that specified in relation to the higher of these two dry-bulb readings :

#### SCHEDULE

<u>Dry-bulb Temperature</u>	<u>Wet-bulb temperature</u>
30 to 34°C	29°C
35 to 39°C	28.5°C
40 to 44°C	28°C
45 to 47°C	27.5°C

Provided that if the temperature measured with a thermometer inserted in a hollow globe of 15 centimeters diameter coated mat black outside and kept in the environment for not less than 20 minutes exceeds the dry-bulb temperature of the air, the temperature so recorded by the globe thermometer shall be taken in place of the dry-bulb temperature:

Provided further that when the reading of the wet-bulb temperature outside in the shade exceeds 27 degrees centigrade, the value of the wet-bulb temperature allowed in the schedule for a given dry-bulb temperature may be correspondingly exceeded to the same extent:

Provided also that this requirement shall not apply in respect of factories covered by section 15 and in respect of factories where the nature of work carried on involves production of excessively high temperatures referred to in clause (ii) of sub-section (1) to which workers are exposed for short periods of time not exceeding one hour followed by an interval of sufficient duration in thermal environments not exceeding those otherwise laid down in this rule.

Provided also that the Chief Inspector, having due regard to the health of the workers, may in special and exceptional circumstances, by an order in writing exempt any factory or part of a factory from the foregoing requirement, in so far as restricting the thermal conditions within the limits laid down in the schedule are concerned, to the extent that he may consider necessary subject to such conditions as he may specify.

- (2) (a) If it appears to the Inspector that in any factory, the temperature of air in a workroom is sufficiently high and is likely to exceed the limits prescribed in sub-rule (1), he may serve on the manager of the factory an order requiring him to provide sufficient number of whirling hygrometers or any other type of hygrometers and direct that the dry-bulb and wet-bulb readings in each such workroom shall be recorded at such positions as approved by the Inspector twice during each working shift by a person especially nominated for the purpose by the manager and approved by the Inspector.
- (b) If the Inspector has reason to believe that a substantial amount of heat is added inside the environment of a workroom by radiation from walls, roof or other solid surroundings, he may serve on the manager of the factory an order requiring him to provide one or more globe thermometers referred to in the first proviso in sub-rule (1) and further requiring him to place the globe thermometers at places specified by him and keep a record of the temperatures in a suitable register.
- (3) (a) In every factory the amount of ventilating openings in a work-room below the eaves shall, except where mechanical means of ventilation as required by clause (b) below are provided, be of an aggregate area of not less than 15% of the floor area and so located as to afford a continued supply of fresh air:

Provided that the Chief Inspector may relax the requirements regarding the amount of ventilating openings if he is satisfied that having regard to the location of the factory, orientation of the workroom, prevailing winds, roof height and the nature of manufacturing process carried on, sufficient supply of fresh air into the workroom is afforded during most part of the working time:

Provided further that this requirement shall not apply in respect of workrooms of factories –

- (i) covered by section 15; or
  - (ii) in which temperature and humidity are controlled by refrigeration.
- (b) Where in any factory owing to special circumstances such as situation with respect to adjacent buildings and height of the buildings with respect to floor space, the requirements of ventilation openings under clause (a) of this sub-rule cannot be complied with or in the opinion of the Inspector the temperature of air in a workroom is sufficiently high and is likely to exceed the limits prescribed in sub-rule (1) he may serve on the manager of the factory an order requiring him to provide additional ventilation either by means of roof ventilators or by mechanical means.
  - (c) The amount of fresh air supplied by mechanical means of ventilation in an hour shall be equivalent to at least six times the cubic capacity of the workroom and shall be distributed evenly throughout the workroom without dead air-pockets or undue draughts caused by high inlet velocities.
  - (d) In the regions where in summer (15<sup>th</sup> March-15<sup>th</sup> July) dry-bulb temperatures of outside air in the shade during most part of the day exceed 35 degrees centigrade and simultaneous wet-bulb temperatures are 25 degrees centigrade or below and in the opinion of the Inspector the manufacturing process carried on in the workroom of a factory permits thermal environments with relative humidity of 50% or more, the Inspector may serve on the manager of the factory an order to have sufficient supply of outside air for ventilation cooled by passing it through water sprays either by means of unit type of evaporative air coolers (desert coolers) or, where supply of outside air is provided by mechanical means through ducts in a plenum system, by means of central air washing plants.

26. *When artificial humidification not allowed.*- There shall be no artificial humidification in any room of a cotton spinning or weaving factory –

- (a) by the use of steam during any period when the dry-bulb temperature of that room exceeds 29.5 degrees centigrade; and
- (b) at any time when the wet-bulb reading of the hygrometer is higher than that specified in Schedule D in relation to the dry-bulb reading of the hygrometer at that time; or as regards a dry-bulb reading intermediate between any two dry-

bulb readings indicated consecutively in the schedule when the dry-bulb reading does not exceed the wet-bulb reading to the extent indicated in relation to the lower of these two dry-bulb readings.

27. *Provision of hygrometers.* - In all departments of cotton spinning and weaving mills wherein artificial humidification is adopted, hygrometers shall be provided and maintained in such positions as are approved by the Inspector. The number of hygrometers shall be regulated according to the following scale :-

- (a) one hygrometer for departments with less than 500 looms, and one additional hygrometers for every 500 or part of 500 looms in excess of 500.
- (b) one hygrometer for each room of less than 8500 cubic meters capacity and one extra hygrometer for each 5670 cubic meters or part thereof, in excess of this.
- (c) one additional hygrometer shall be provided and maintained outside each cotton spinning and weaving factory wherein artificial humidification is adopted, and in a position approved by the Inspector, for taking hygrometer shade readings.

28. *Exemption from maintenance of hygrometers.*- When the Inspector is satisfied that the limits of humidity allowed by the schedule to rule 25 are never exceeded, he may, for any department other than the weaving department, grant exemption from the maintenance of hygrometer. The Inspector shall record such exemption in writing.

29. *Copy of schedule to rule 25 to be affixed near every hygrometer.* - A legible copy of the schedule to rule 25 shall be affixed near each hygrometer.

30. *Temperature to be recorded at each hygrometer.*- At each hygrometer maintained in accordance with rule 25, correct wet and dry-bulb temperature shall be recorded thrice daily during each working day by competent persons nominated by the manager and approved by the Inspector. The temperature shall be taken between 7 a.m. and 9 a.m., between 11 a.m. and 2 p.m. (but not in the rest interval) and between 4 p.m. and 5.30 p.m. In exceptional circumstances, such additional readings and between such hours, as the Inspector may specify, shall be taken. The temperatures shall be entered in a humidity register in the prescribed Form 8, maintained in the factory. At the end of each month, the persons who have taken the readings shall sign the register and certify in the register the correctness of the entries. The register shall always be available for inspection by the Inspector.

31. *Specifications of hygrometer.* - (1) Each hygrometer shall comprise of two mercurial thermometer of wet-bulb and dry-bulb of similar construction, and equal in dimensions, scale and divisions of scale. They shall be mounted on a frame with a suitable reservoir containing water.

(2) The wet-bulb shall be closely covered with a single layer of muslin, kept wet by means of a wick attached to it and dropping into the water in the reservoir. The muslin covering and the wick shall be suitable for the purpose, clean and free from size or grease.

(3) No part of the wet-bulb shall be within 76 millimetres from the dry-bulb or less than 25 millimetres from the surface of the water in the reservoir and the water reservoir shall be below it, on the side of it away from the dry-bulb.

(4) The bulb shall be spherical and of suitable dimensions and shall be freely exposed on all sides to the air of the room.

(5) The bores of the stems shall be such that the position of the top of the mercury column shall be readily distinguishable at a distance of 60 centimetres.

(6) Each thermometer shall be graduated so that accurate readings may be taken between 10 and 50 degrees centigrade.

(7) Every degree from 10 degrees upto 50 degrees shall be clearly marked by horizontal lines on the stem, each fifth degree shall be marked by longer marks than the intermediate degrees and the temperature marked opposite each fifth degree, i.e., 10, 15, 20, 25, 30, 35, 40, 45, 50.

(8) The marking as above shall be accurate, that is to say, at no temperature between 10 and 50 degrees, shall the indicated readings be in error by more than one ninth of a degree.

(9) A distinctive number shall be indelibly marked upon the thermometer.

(10) The accuracy of each thermometer shall be certified by the National Physical Laboratory, Delhi, or some competent authority appointed by the Chief Inspector and such certificate shall be attached to the humidity register.

32. *Thermometers to be maintained in efficient order.*- Each thermometer shall be maintained at all times during the period of employment in efficient working order, so as to give accurate indications and in particular -

- (a) the wick and the muslin covering of the wet-bulb shall be renewed once a week;
- (b) the reservoir shall be filled with water which shall be completely renewed once a day. The Chief Inspector may direct the use of distilled water or pure rain water in any particular mill or mills in certain localities; and
- (c) no water shall be applied directly to the wick or covering during the period of employment.

33. *Inaccurate thermometer not to be used without fresh certificate.* - If an Inspector gives notice in writing that a thermometer is not accurate, it shall not, after one month from the date of such notice, be deemed to be accurate unless and until it has been re-examined as prescribed and a fresh certificate obtained which certificate shall be kept attached to the humidity register.

34. *Hygrometer not to be affixed to wall, etc. unless protected by wood.*- (1) No hygrometer shall be affixed to a wall, pillar, or other surface unless protected therefrom by wood or other non-conducting material at least 12 millimetres in thickness and distant at least 25 millimetres from the bulb of each thermometer.

(2) No hygrometer shall be fixed at a height of more than 170 centimetres from the floor to the top of thermometer stem or in the direct draughts from a fan, window, or ventilating opening.

35. *No reading to be taken within 15 minutes of renewal of water.*- No reading shall be taken for record on any hygrometer within 15 minutes of the renewal of water in the reservoir.

36. *How to introduce steam for humidification.*- In any room in which steam pipes are used for the introduction of steam for the purpose of artificial humidification of the air the following provisions shall apply :-

- (a) the diameter of such pipes shall not exceed 50 millimetres and in the case of pipes installed after 1<sup>st</sup> day of operation the diameter shall not exceed 25 millimetres;
- (b) such pipes shall be as short as is reasonably practicable;
- (c) all hangers supporting such pipes shall be separated from the bare pipes by an efficient insulator not less than half an inch in thickness;
- (d) no uncovered jet from such pipe shall project more than 11.5 centimetres beyond the outer surface of any cover;
- (e) the steam pressure shall be as low as practicable and shall not exceed 5 kilograms per square centimetre; and
- (f) the pipe employed for the introduction of steam into the air in a department shall be effectively covered with such non-conducting material, as may be approved by the Inspector in order to minimise the amount of heat radiated by them into the department.

37. *Lighting of interior parts.*- (1) The general illumination over those interior parts of a factory where persons are regularly employed shall be not less than 65 lux measures in the horizontal plane at a level of 90 centimetres above the floor:

Provided that in any such parts in which the mounting height of the light source for general illumination necessarily exceeds 7.6 meters measured from the floor or where the structure of the room or the position or construction of the fixed machinery or plant prevents the uniform attainment of this standard, the general illumination at the said level shall be not less than 22 lux and where work is actually being done the illumination shall be not less than 65 lux.

(2) The illumination over all other interior parts of the factory over which persons employed pass shall, when and where a person is passing, be not less than 5 lux at floor level.

(3) The standard specified in this rule shall be without prejudice to the provision of any additional illumination required to render the lighting sufficient and suitable for the nature of the work.

38. *Prevention of glare.*- (1) Where any source of artificial light in the factory is less than 4.9 meters above floor level, no part of the light source or of the lighting fitting having a brightness greater than 1.55 candles per square centimetre (4.87 lamberts) shall be visible to persons whilst normally employed within 30 meters of the source, except where the angle of elevation from the eye to the source or part of the fitting as the case may be exceeds 20 degrees.

(2) Any local light, that is to say an artificial light designed to illuminate particularly the area or part of the area of work of a single operative or small group of operatives working near each other, shall be provided with a suitable shade of opaque material to prevent glare or with other effective means by which the light source is completely screened from the eyes of every person employed at a normal working place, or shall be so placed that no such person is exposed to glare therefrom.

39. *Power of Chief Inspector to exempt.*- Where the Chief Inspector is satisfied in respect of any particular factory or part thereof or in respect of any description of workroom or process that any requirement of rules 35 and 36 is inappropriate or is not reasonably practicable, he may by order in writing exempt the factory or part thereof, or description of workroom or process from such requirement to such extent and subject to such conditions as he may specify.

40. *Quantity of drinking water.*- The quantity of drinking water to be provided for the workers in every factory shall be atleast 5 litres per worker employed in the factory and such drinking water shall be readily available at all times during working hours.

41. *Source of supply.*- The water provided for drinking shall be supplied -

- (a) from the public water supply system, or
- (b) from any other source approved in writing by the Health Officer.

42. *Means of supply.*- If drinking water is not supplied directly from taps either connected with public water supply system or any other water supply system of the factory approved by the Health Officer, it shall be kept in suitable vessels, receptacles or tanks fitted with taps and having dust proof covers, and placed on raised stands or platforms in shade and having suitable arrangement of



drainage to carry away the split water. Such vessels, receptacles or tanks shall be kept clean and the water renewed at least once every day. All practicable measures shall be taken to ensure that the water is free from contamination.

43. *Cleanliness of well or reservoir.*- (1) Drinking Water shall not be supplied from any open well or reservoir unless it is so constructed, situated, protected and maintained as to be free from the possibility of pollution by chemical, or bacterial and extraneous impurities.

(2) Where drinking water is supplied from such well or reservoir, the water in it shall be sterilised once a week or more frequently if the Inspector by written order so requires, and the date on which sterilising is carried out shall be recorded:

Provided that this requirement shall not apply to any such well or reservoir if the water therein is filtered and treated to the satisfaction of the Health Officer before it is supplied for consumption.

44. *Report from Health Officer.*- The Inspector may by order in writing direct the manager to obtain, at such time or at such intervals as he may direct, a report from the Health Officer as to the fitness for human consumption of the water supplied to the workers, and in every case to submit to the Inspector a copy of such report as soon as it is received from the Health Officer.

45. *Cooling of water.*- In every factory wherein more than two hundred and fifty workers are ordinarily employed -

(a) the drinking water supplied to the workers shall from the 15<sup>th</sup>. April to the 15<sup>th</sup>. September. in every year, be cooled by ice or other effective method:

Provided that if ice is placed in the drinking water, the ice shall be clean and wholesome and shall be obtained only from a source approved in writing by the Health Officer;

(b) the cooled drinking water shall be supplied in every canteen, lunchroom and restroom and also at conveniently accessible points throughout the factory which for the purpose of these rules shall be called "water centres";

(c) the water centres shall be sheltered from the weather and adequately drained;

(d) the number of water centres to be provided shall be one "centre" for every 150 persons employed at any one time in the factory:

Provided that in the case of a factory where the number of persons employed exceeds 500 it shall be sufficient if there is one such "centre" as aforesaid for every 150 persons up to the first 500 and one for every 500 persons thereafter:

Provided further that the distance between the place of work of any worker shall not be more than 50 meters from the nearest water centre or any distance as may be specified by the Inspector;

(e) every water centre shall be maintained in a clean and orderly condition; and

(f) the means of supply of cooled drinking water shall be either directly through taps connected to water coolers or any other system for cooling of water, or by means of vessels, receptacles or tanks fitted with taps and having dust proof covers and placed on raised stands or platforms in shade, and having suitable arrangement of drainage to carry away the split water. Such vessels, receptacles or tanks shall be kept clean and the water renewed at least once every day.

46. *Latrine accommodation.*- Latrine accommodation shall be provided in every factory on the following scale:-

(a) where females are employed, there shall be at least one latrine for every 25 females;

(b) where males are employed, there shall be at least one latrine for every 25 males:

Provided that where the number of males exceeds 100, it shall be sufficient if there is one latrine for every 25 males up to the first 100, and one for every 50 thereafter.

In calculating the number of latrines required under this rule, any odd number of workers less than 25, or 50, as the case may be, shall be reckoned as 25 or 50.

47. *Latrines to conform to public health requirements.* - Latrines, other than those connected with an efficient water-borne sewage system, shall comply with the requirements of the Public Health authorities.

48. *Privacy of latrines.* - Every latrine shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings.

49. *Sign Boards to be displayed.*- Where workers of both sexes are employed, there shall be displayed outside each latrine block a notice "For Men only" or "For Women only" as the case may be, in the language understood by the majority of the workers. The notice shall also bear the figure of a man or of a woman, as the case may be.

50. *Urinal accommodation.*- Urinal accommodation shall be provided for the use of male workers and there shall be at least one urinal of not less than 60 centimetres in length for every 50 males:

Provided that where the number of males employed exceeds 500, it shall be sufficient if there is one for every 50 male's upto the first 500 employed, and one for every 100 thereafter.

In calculating the urinal accommodation required under this rule any odd number of workers less than 50, or 100, as the case may be, shall be reckoned as 50 or 100.

51. *Urinals to conform to public health requirements.*- Urinals, other than those connected with an efficient water-borne sewage system, and urinals in a factory wherein more than two hundred and fifty workers are ordinarily employed shall comply with the requirements of the Public Health authorities.

52. *Certain latrines and urinals to be connected to sewage system.*- When any general system of underground sewerage with an assured water supply for any particular locality is provided in a municipality, all latrines and urinals of a factory situated in such locality shall, if the factory is situated within 30 meters of an existing sewer, be connected with that sewerage system.

53. *Whitewash, colour washing of latrines and urinals.*- The walls, ceilings, and partitions of every latrine and urinal shall be white washed or colour washed and the whitewashing or colour washing shall be repeated at least once in every period of four months. The dates on which the whitewashing or colour washing is carried out shall be entered in the prescribed register under Form 7:

Provided that this rule shall not apply to latrines and urinals, the walls, ceilings or partitions of which are laid in glazed tiles or otherwise finished to provide a smooth, polished, impervious surface and that they are washed with suitable detergents and disinfectants at least once in every period of four months.

54. *Construction and maintenance of drains.*- All drains carrying waste or sullage water shall be constructed in masonry or other impermeable material and shall be regularly flushed and the effluent disposed off by connecting such drains with a suitable drainage line:

Provided that where there is no such drainage line, the effluent shall be deodorized and rendered innocuous and than disposed of in a suitable manner to the satisfaction of the Health Officer.

55. *Water taps in latrines.* - (1) Where piped water supply is available, a sufficient number of water taps, conveniently accessible, shall be provided in or near such latrine accommodation.

(2) If piped water supply is not available, sufficient quantity of water shall be kept stored in suitable receptacles near the latrines.

56. *Number and location of spittoons.* - The number and location of the spittoons to be provided shall be to the satisfaction of the Inspector.

57. *Type of spittoons.*- The spittoons shall be any of the following types :-

- (a) A galvanized iron container with a conical funnel-shaped cover. A layer of suitable disinfectant liquid shall always be maintained in the container ;
- (b) a container filled with dry, clean sand, and covered with a layer of bleaching powder; or
- (c) any other type approved by the Chief Inspector.

58. *Cleaning of spittoons.*- The spittoon mentioned in clause (a) of rule 57 shall be emptied, cleaned and disinfected at least once every day; and the spittoon mentioned in clause (b) of rule 57 shall be cleaned by scrapping out the top layer of sand as often as necessary or at least once every day.

## CHAPTER IV

### Safety

59. *Further safety precautions.*- Without prejudice to the provisions of sub-section (1) of section 21 in regard to the fencing of machines, the further precautions specified in Schedule E,F,G,H,I,J & K shall apply to the machines noted in each schedule.

60. *Register of workers employed for work on or near machinery in motion.* - In every factory a register shall be maintained in Form 9 in which the name and other particulars of every such worker as may be employed for such examination or operation as referred to in the proviso to sub-section (1) of section 21 shall be entered.

61. *Employment of young persons on dangerous machines.*- The machines specified in sections 28, 29 and 30 and the machines mentioned below shall be deemed to be of such dangerous character that young persons shall not work at them unless the provisions of sub-section (1) of section 23 are complied with -

- (a) Power presses other than hydraulic presses.
- (b) Milling machines used in the metal trades.
- (c) Circular saws.
- (d) Platen printing machines.
- (e) Guillotine machines.

62. *Hoists and lifts.* - (1) A register shall be maintained to record particulars of examination of hoists and lifts and shall give particulars as shown in Form 10.

(2) In pursuance of the provisions of sub-section (4) of section 28, in respect of any class or description of hoist or lift specified in the first column of Schedule L, the requirements of section 28 specified in the second column of Schedule L and set opposite to that class or description of hoist or lift shall not apply.

63. *Lifting machines, chains, ropes and lifting tackles.*- (1) No lifting machine and no chain, rope or lifting tackle, except a fibre rope or fibre rope sling, shall be taken into use in any factory for the first time in that factory unless it has been tested and all parts have been thoroughly examined by a competent person and a certificate of such a test and examination specifying the safe working load or loads and signed by the person making the test and the examination, has been obtained and is kept available for inspection.

(2) Every jib-crane so constructed that the safe working load may be varied by the raising or lowering of the jib, shall have attached thereto either an automatic indicator of safe working loads or an automatic jib angle indicator and a table indicating the safe working loads at corresponding inclinations of the jib or corresponding radii of the load.

(3) A table showing the safe working loads of every kind and size of chain, rope or lifting tackle in use, and, in the case of a multiple sling, the safe working loads at different angles of the legs, shall be posted in the store in which the chains, ropes or lifting tackles are kept, and in prominent positions on the premises, and no chain, rope or lifting tackle not shown in the table shall be used :

Provided that this sub-rule shall not apply in respect of such lifting tackle if the safe working load thereof, or in the case of a multiple sling, the safe working load at different angles of the legs, is plainly marked upon it.

(4) The register to be maintained under clause (a)(iii) of sub-section (1) of section 29 of the Act shall contain the following particulars and shall be kept readily available for inspection :-

- (a) Name of occupier of factory.
- (b) Address of factory.
- (c) Distinguishing number or mark, if any, and description sufficient to identify the lifting machine, chain, rope, or lifting tackle.
- (d) Date when the lifting machine, chain, rope or lifting tackle was first taken into use in the use in the factory.
- (e) Date and number of the certificate relating to any test and examination made under sub-rules (1) and (9) together with the name and address of the person who issued the certificate.
- (f) Date of each periodical thorough examination made under clause (a) (iii) of sub-section (1) of section 29 of the Act and sub-rule (8) and by whom it was carried out.
- (g) Date of annealing or other heat treatment of the chain and other lifting tackle made under sub-rule (7) and by whom it was carried out.
- (h) Particulars of any defects affecting the safe working load found at any such thorough examination or after annealing and of the steps taken to remedy such defects.

(5) All rails on which a travelling crane moves and every track on which the carriage of transported or runway moves shall be of proper size and adequate strength and have an even running surface; and every such rail or track shall be properly laid, adequately supported and properly maintained.

(6) To provide access to rail tracks of overhead travelling cranes suitable passage-ways of at least 50 centimetres width with toe boards and double hand rails 90 centimetres high shall be provided alongside, and clear of, the rail tracks of overhead travelling cranes, such that no moving part of the crane can strike persons on the ways, and the passage-way shall be at a lower level than the crane track itself. Safe access ladders shall be provided at suitable intervals to afford access to these passage-ways, and from passage-ways to the rail tracks:

Provided that the Chief Inspector may, for reasons to be specified in writing, exempt any factory in respect of any overhead travelling crane from the operation of any provision of this sub-rule subject to such conditions as he may specify.

(7) All chains and lifting tackles except a rope sling shall, unless they have been subjected to such other heat treatment as may be approved by the Chief Inspector of Factories, be effectively annealed under the supervision of a competent person at the following intervals :-

- (a) all chains, slings, rings, hooks, shackles and swivels used in connection with molten metal or molten slag or when they are made of 12.5 millimetres bar or smaller, once at least in every six months;
- (b) all other chains, rings, hooks, shackles and swivels in general use, once at least in every twelve months:

Provided that chains and lifting tackle not in frequent use shall, subject to the Chief Inspector's approval, be annealed only when necessary. Particulars of such annealing shall be entered in a register prescribed under sub-rule (4).

(8) Nothing in the foregoing sub-rule (7) shall apply to the following classes of chains and lifting tackles :-

- (a) chains made of malleable cast iron ;
- (b) plate link chains;
- (c) chains, rings, hooks, shackles and swivels made of steel or of any non-ferrous metal;
- (d) pitched chains, working on sprocket or pocketed wheels;
- (e) rings, hooks, shackles and swivels permanently attached to pitched chains, puller blocks or weighing machines;
- (f) hooks and swivels having screw threaded parts or ball bearing or other case hardened parts;
- (g) socket shackles secured to wire ropes by white-metal capping; and
- (h) bordeaux connections :

Provided that such chains and lifting tackles shall be thoroughly examined by a competent person once at least in every twelve months, and particulars entered in the register kept in accordance with sub-rule (4).

(9) All lifting machines , ropes, chains and lifting tackles, except a fibre rope or fibre sling, which have been lengthened, altered or repaired by welding or otherwise, shall, before being again taken into use, be adequately re-tested and re-examined by a competent person and certificate of such test and examination be obtained, and particulars entered in the register kept in accordance with sub-

rule (4).

(10) No person under 18 years of age and no person who is not sufficiently competent and reliable shall be employed as driver of a lifting machine whether driven by mechanical power or otherwise, or to give signals to a driver.

(11) Where the Chief Inspector of Factories is satisfied that in a factory due to shut down or for any other reasons it is not practicable to maintain a minimum distance of 6 meters between the person employed or working on or near the wheel track of a travelling crane and the crane, he may on the request of the manager reduce the distance to such an extent as he may consider necessary and also prescribe further precautions indicating appointment of suitable number of supervisors to ensure the safety of the persons while they are employed or working on or near the track.

64. *Pressure vessels or plant.* - (1) In this rule -

- (a) "design pressure" means the maximum pressure that a pressure vessel or plant is designed to withstand safely when operating normally;
- (b) "maximum permissible working pressure" means the maximum pressure at which a pressure vessel or plant is permitted to be operated or used under this rule and is determined by the technical requirements of the process;
- (c) "plant" means a system of piping that is connected to a pressure vessel and is used to contain a gas, vapour or liquid under pressure greater than the atmospheric pressure, and includes the pressure vessel;
- (d) "pressure vessel" means a vessel that may be used for containing, storing, distributing, transferring, distilling, processing or otherwise handling any gas, vapour or liquid under pressure greater than the atmospheric pressure and includes any pipeline fitting or other equipment attached thereto or used in connection therewith; and
- (e) "competent person" means a person who is, in the opinion of the Chief Inspector, capable by virtue of his qualifications, training and experience, of conducting a thorough examination and pressure tests, as required, on a pressure vessel or plant, and of making a full report on its condition.

(2) Nothing in this rule shall apply to -

- (a) vessels made of ferrous materials having an internal operating pressure not exceeding 1 kilogram per square centimetre;
- (b) steam boilers, steam and feed pipes and their fittings coming under the purview of Indian Boilers Act, 1923;
- (c) metal bottles or cylinders used for storage or transport of compressed gases or liquefied or dissolved gases under pressure covered by the Gas Cylinder Rules, 1981 framed under the Indian Explosives Act, 1884;
- (d) vessels in which internal pressure is due solely to the static head of liquid;
- (e) vessels with a nominal water capacity not exceeding 500 litres connected in a water-pumping system containing air that is compressed to serve as a cushion;
- (f) vessels for nuclear energy application;
- (g) refrigeration plant having a capacity of 3 tons or less of refrigeration in 24 hours; and
- (h) working cylinders of steam engines or prime movers, feed pumps and steam traps; turbine casings; compressor cylinders; steam separators or dryers; steam strainers; steam de-super-heaters; oil separators; air receivers for fire sprinkler installations; air receivers of monotype machines provided the maximum working pressure of the air receiver does not exceed 1.33 kilograms per square centimetre and the capacity 85 litres; air receivers of electrical circuit breakers; air receivers of electrical relays; air vessels on pumps, pipe coils, accessories of instruments and appliances such as cylinders and piston assemblies used for operating relays and interlocking type of guards; vessels with liquids subjected to static head only; and hydraulically operating cylinders other than any cylinder communicating with an air loaded accumulator.

(3) Every pressure vessel or plant used in a factory -

- (a) shall be properly designed on sound engineering practice;
- (b) shall be of good construction, sound material, adequate strength and free from any patent defects; and
- (c) shall be properly maintained in a safe condition:

Provided that the pressure vessel or plant in respect of the design and construction of which there is an Indian standard or a standard of the country of manufacture or any other law or regulation in force, shall be designed and constructed in accordance with the said standard, law or regulation, as the case may be, and a certificate thereof shall be obtained from the manufacturer or from the competent person which shall be kept and produced on demand by an Inspector.

(4) Every pressure shall be fitted with -

- (a) a suitable safety valve or other effective pressure relieving device of adequate capacity to ensure that the maximum permissible working pressure of the pressure vessel shall not be exceeded. It shall be set to operate at a pressure not exceeding the maximum permissible working pressure and when more than one protective device is provided, only one of the devices need be set to operate at the maximum permissible working pressure and the additional device shall be set to discharge at a pressure not more than 5 per cent in excess of the maximum permissible working pressure;
- (b) a suitable pressure gauge with a dial range not less than 1.5 times the maximum permissible working pressure, easily visible and designed to show at all times the correct internal pressure and marked with a prominent red mark at the maximum permissible working pressure of the pressure vessel;
- (c) a suitable nipple and globe valve connected for the exclusive purpose of attaching a test pressure gauge for checking the accuracy of the pressure gauge referred to in clause (b) of this sub-rule;
- (d) a suitable stop valve or valve by which the pressure vessel may be isolated from other pressure vessels or plant or source of supply of pressure. Such a stop valve or valves shall be located as close to the pressure vessel as possible and shall be easily accessible; and

- (e) a suitable drain cock or valve at the lowest part of the pressure vessel for the discharge of the liquid or other substances that may collect in the pressure vessel:

Provided that it shall be sufficient for the purpose of this sub-rule if the safety valve or pressure relieving device, the pressure gauge and the stop valve are mounted on a pipeline immediately adjacent to the pressure vessel and where there is a range of two or more similar pressure vessels served by the same pressure lead, only one set of such mountings need be fitted on the pressure lead immediately adjacent to the range of pressure vessels, provided they cannot be isolated.

- (5) (a) Every pressure vessel which is designed for a working pressure less than the pressure at the source of supply, or less than the pressure which can be obtained in the pipe connecting the pressure vessel with any other source of supply, shall be fitted with a suitable pressure reducing valve or other suitable automatic device to prevent the maximum permissible working pressure of the pressure vessel being exceeded;

(b) To further protect the pressure vessel in the event of failure of the reducing valve or device, at least one safety valve having a capacity sufficient to release all the steam, vapour or gas without undue pressure rise as determined by the pressure at the source of supply and the size of the pipe connecting the source of supply, shall be fitted on the low pressure side of the reducing valve.

- (6) (a) No new pressure vessel or plant shall be taken into use in the factory after coming into force of this rule unless it has been hydrostatically tested by a competent person at a pressure at least 1.3 times the design pressure, and no pressure vessel or plant which has been previously used or has remained isolated or idle for a period exceeding 2 months or which has undergone alterations or repairs shall be taken into use in a factory unless it has been thoroughly examined by a competent person externally and internally, if practicable, and has been hydrostatically tested by the competent person at a pressure which shall be 1.5 times the maximum permissible working pressure :

Provided, however, that the pressure vessel or plant which is so designed and constructed that it cannot be safely filled with water or liquid or is used in service when even some traces of water cannot be tolerated, shall be pneumatically tested at a pressure not less than the design pressure or the maximum permissible working pressure as the case may be:

Provided further that the pressure vessel or plant, which is lined with glass, shall be tested hydrostatically or pneumatically as required at a pressure not less than the design pressure or maximum permissible working pressure as the case may be.

Design pressure shall be not less than the maximum permissible working pressure and shall take into account the possible fluctuations of pressure during actual operation.

- (b) No pressure vessel or plant shall be used in a factory unless there has been obtained from the maker of the pressure vessel or plant or from the competent person a certificate specifying the design pressure or maximum permissible working pressure thereof, and stating the nature of tests to which the pressure vessel or plant and its fittings (if any) have been subjected, and every pressure vessel or plant so used in a factory shall be marked so as to enable it to be identified as to be the pressure vessel or plant to which the certificate relates and the certificate shall be kept available for perusal by the Inspector.
- (c) No pressure vessel or plant shall be permitted to be operated or used at a pressure higher than its design pressure, or the maximum permissible working pressure as shown in the certificate.

- (7) (a) Every pressure vessel or plant in service shall be thoroughly examined by a competent person -

- (i) externally, once in every period of six months;  
(ii) internally, once in every period of twelve months :

Provided that if by reason of the construction of a pressure vessel or plant, a thorough internal examination is not possible, this examination may be replaced by a hydrostatic test which shall be carried out once in every period of two years.

Provided further that for a pressure vessel or plant in continuous process which cannot be frequently opened, the period of internal examination may be extended to four years; and

- (iii) hydrostatically tested once in every period of four years :

Provided that in respect of a pressure vessel or plant with thin walls, such as sizing cylinder made of copper or any other non-ferrous metal, periodic hydrostatic test may be dispensed with subject to the condition that the requirements laid down in sub-rule (8) are fulfilled:

Provided further that when it is impracticable to carry out thorough external examination of any pressure vessel or plant every six months as required in sub-clause (i) of this clause, or if owing to its construction and use a pressure vessel or plant cannot be hydrostatically tested as required in sub-clauses (ii) and (iii) of this clause, a thorough external examination of the pressure vessel or plant shall be carried out at least once in every period of two years, and at least once in every period of four years a thorough systematic non-destructive test like ultrasonic test for metal thickness or other defects of all parts, the failure of which might lead to eventual rupture of the pressure vessel or plant shall be carried out.

- (b) The pressure for the hydrostatic test to be carried out for the purpose of this sub-rule shall be 1.25 times the design pressure or 1.5 times the maximum permissible working pressure, whichever is less.

- (8) (a) In respect of any pressure vessel or plant of thin walls such as sizing cylinder made of copper or any other non-ferrous metal, the maximum permissible working pressure shall be reduced at the rate of 5 percent of the original maximum permissible working pressure for every year of its use after the first five years and no such cylinder shall be allowed to continue to be used for more than twenty years after it was first taken into use.
- (b) If any information as to the date of construction, thickness of walls or maximum permissible working pressure is not available, the age of such pressure vessel or plant shall be determined by the competent person in consultation with the Chief Inspector from the other particulars available with the manager.
- (c) Every new and second hand pressure vessel or plant of thin walls to which repairs likely to affect its strength or safety have been carried out, shall be tested before use to at least 1.5 times its maximum permissible working pressure.
- (9) (a) If during any examination any doubt arises as to the ability of the pressure vessel or plant to work safely until the next prescribed examination, the competent person shall enter in the prescribed register his observations, findings and conclusions with other relevant remarks with reasons and may authorise the pressure vessel or plant to be used and kept in operation subject to a lowering of maximum permissible working pressure, or to more frequent or special examination or test, or subject to both of these conditions.
- (b) A report of every examination or test carried out shall be completed in Form 11 and shall be signed by the person making the examination or test, and shall be kept available for perusal by the Inspector at all hours when the factory or any part thereof is working.
- (c) Where the report of any examination under this rule specified any condition for securing the safe working of any pressure vessel or plant, the pressure vessel or plant shall not be used unless the specified condition is fulfilled.
- (d) The competent person making report of any examination under this rule, shall within seven days of the completion of the examination, send to the Inspector a copy of the report in every case where the maximum permissible working pressure is reduced or the examination shows that the pressure vessel or plant or any part thereof cannot continue to be used with safety unless certain repairs are carried out or unless any other safety measure is taken.
- (10) (a) The requirements of this rule shall be in addition to and without any prejudice to and not in derogation of the requirements of any other law in force.
- (b) Certificates or reports of any examination, or test of any pressure vessel or plant to which sub-rules (7) to (9) do not apply, conducted or required to be conducted under any other law in force and other relevant record relating to such pressure vessel or plant, shall be properly maintained as required under the said law and shall be produced on demand by the Inspector.

65. *Water-sealed gasholder.* - (1) the expression "gasholder" means a water-sealed gasholder, which has a storage capacity of not less than 141.5 cubic meters.

(2) Every gasholder shall be of adequate material and strength, sound construction and properly maintained.

(3) Where there is more than one gasholder in a factory, every gasholder shall be marked in a conspicuous position with a distinguishing number or letter.

(4) Every gasholder shall be thoroughly examined externally by a competent person at least once in a period of 12 months.

(5) In the case of gasholder of which any lift has been in use for more than 10 years, the internal state of the sheeting shall, within one year of the coming into operation of these rules and thereafter at least once in every period of four years, be examined by a competent person by means of electronic or other accurate devices :

Provided that if the Chief Inspector is satisfied that such electronic or other accurate devices are not available, he may permit the cutting of samples from the crown and the sides of the holder:

Provided further that if the above examination raises a doubt, an internal visual examination shall be made.

(6) All possible steps shall be taken to prevent or minimise ingress of impurities in the gasholder.

(7) No gasholder shall be repaired or demolished except under the direct supervision of a person who, by his training, experience and knowledge of the necessary precautions against risks of explosion and of persons being overcome by gas, is competent to supervise such work.

(8) (a) All sample discs cut under sub-rule (5) above shall be kept readily available for inspection.

(b) A permanent register in Form 12 duly signed by the occupier or manager shall be maintained.

- (c) The results of examinations by the competent person carried out as required under sub-rules (4) and (5) shall be recorded in Form 13.
  - (d) A copy of the report in Form 13 shall be kept in the register in Form 12 and both the register and the report shall be readily available for inspection.
- (9) The Inspector of Factories shall inspect the gasholder at least once in a period of 12 months.

66. *Excessive weights.* - (1) No woman or young person shall, unaided by another person, lift, carry or move by hand or on head, any material, article, tool or appliance exceeding the maximum limit in weight set out in Schedule M.

(2) No woman or young person shall engage, in conjunction with others, in lifting, carrying or moving by hand or on head any material, article, tool or appliance, if the weight thereof exceeds the lowest weight fixed by Schedule M for any of the persons engaged, multiplied by the number of the persons engaged.

67. *Protection of eyes.*- Effective screens or suitable goggles shall be provided for the protection of persons employed in or in the immediate vicinity of the following processes :-

- (a) The processes specified in Schedule N annexed hereto, being processes, which involve risk of injury to eyes from particles or fragments thrown off in the course of the processes.
- (b) The processes specified in Schedule O annexed hereto, being processes, which involve risk of injury to eyes by reason of exposure to excessive light or infrared or ultra-violet radiations.

68. *Minimum dimensions of manholes.*- Every chamber, tank, vat, pipe, flue or other confined space, which persons may have to enter and which may contain dangerous fumes to such an extent as to involve risk of the persons being overcome thereby, shall unless there is other effective means of egress, be provided with a manhole which may be rectangular, oval or circular in shape and which shall-

- (a) in the case of a rectangular or oval shape, be not less than 40 centimetres long and 30 centimetres wide; and
- (b) in the case of a circular shape, be not less than 40 centimetres in diameter.

69. *Exemptions.*- The requirements of sub-section (4) of section 37 shall not apply to the following processes carried on in any factory :-

- (a) the operation of repairing a water sealed gasholder by the electric welding process, subject to the following conditions :-
  - (i) the gasholder shall contain only the following gases, separately or mixed at a pressure greater than atmospheric pressure, namely, town gas, coke-oven gas, producer gas, blast furnace gas, or gases other than air, used in their manufacture:

Provided that this exemption shall not apply to any gasholder containing acetylene or mixture of gases to which acetylene has been added intentionally; and

- (ii) welding shall only be done by the electric welding process and shall be carried out by experienced operatives under the constant supervision of a competent person;
- (b) the operations of cutting or welding steel or wrought iron gas mains and services by the application of heat, subject to the following conditions :-
  - (i) the main or service shall be situated in the open air, and it shall contain only the following gases, separately or mixed at a pressure greater than atmospheric pressure, namely, town gas, coke-oven gas, producer gas, blast furnace gas, or gases other than air, used in their manufacture;
  - (ii) the main or service shall not contain acetylene or any gas or mixture of gases to which acetylene has been added intentionally;
  - (iii) the operation shall be carried out by an experienced person or persons and at least 2 persons (including those carrying out the operations) experienced in work on gas mains and over 18 years of age shall be present during the operation;
  - (iv) the site of the operation shall be free from any flammable or explosive gas or vapour;
  - (v) where acetylene gas is used as a source of heat in connection with an operation, it shall be compressed and contained in a porous substances in a cylinder; and
  - (vi) Prior to the application of any flame to the gas main or service, this shall be pierced or drilled and the escaping gas ignited.
- (c) the operation of repairing an oil tank on any ship by the electric welding process shall be subject to the following conditions :-
  - (i) the only oil contained in the tank shall have a flash point of not less than 65.5 degrees centigrade (close test) and a certificate to this effect shall be obtained from a competent analyst;
  - (ii) the analyst's certificate shall be kept available for inspection by an Inspector, or by any person employed or working on the ship;
  - (iii) the welding operation shall be carried out only on the exterior surface of the tank at a place (a) which is free from oil or oil leakage in flammable quantities and (b) which is not less than 30 centimetres below the nearest part of the surface of the oil within the tank; and
  - (iv) welding shall be done only by the electric welding and shall be carried out by experienced operatives under the constant supervision of a competent person.

70. *Fire protection.* - (1) Processes, equipment, plant involving serious explosion and cribbed under serious fire hazards.-

- (a) All processes, storages, equipments, plants, etc. involving serious explosion and flash fire hazard shall be located in segregated buildings where the equipment shall be so arranged that only a minimum number of employees are exposed to such hazards at any one time.
- (b) All industrial processes involving serious fire hazard should be located in buildings or work places separated from one another by walls of fire-resistant construction.
- (c) Equipment and plant involving serious fire or flash fire hazard shall, wherever possible, be so constructed and installed that in case of fire, they can be easily isolated.
- (d) Ventilation ducts, pneumatic conveyors and similar equipment involving a serious fire risk should be provided with flame-arresting or automatic fire extinguishing appliances, or fire-resisting dampers electrically interlocked with heat sensitive/smoke detectors and the air-conditioning plant system.
- (e) In all workplaces having serious fire or flash fire hazards, passages between machines, installations or piles of material should be at least 90 cm. wide. For storage piles, the clearance between the ceiling and the top of the pile should not be less than 2m.

(2) (A) Buildings and plants shall be so laid out and roads, passageways etc. so maintained as to permit unobstructed access for fire fighting.

(b) Doors and window openings shall be located in suitable positions on all external walls of the building to provide easy access to the entire area within the building for fire fighting.

(3) Protection from lightning shall be provided for -

- (a) building in which explosive or highly flammable substances are manufactured, used, handled or stored;
- (b) storage tanks containing oils, paints, or other flammable liquids;
- (c) grain elevators;
- (d) buildings, tall chimneys or stacks where flammable gases, fumes, dust or lint are likely to be present;
- (e) sub-station buildings and out-door transformers and switchyards.

(4) Wherever there is danger of fire explosion from accumulation of flammable or explosive substances in air -

- (a) all electrical apparatus shall either be excluded from the area of risk or they shall be of such construction and so installed and maintained as to prevent the danger of their being a source of ignition;
- (b) effective measures shall be adopted for prevention of accumulation of static charges to a dangerous extent;
- (c) workers shall wear shoes without iron or steel nails or any other exposed ferrous materials which is likely to cause sparks by friction;
- (d) smoking, lighting or carrying of matches, lighters or smoking materials shall be prohibited;
- (e) transmission belts with iron fasteners shall not be used; and
- (f) all other precautions, as are reasonably practicable, shall be taken to prevent initiation of ignition from all other possible sources such as open flames, frictional sparks, overheated surfaces of machinery or plant, chemical reaction and radiant heat.

(5) Where materials are likely to induce spontaneous ignition, care shall be taken to avoid formation of air pocket and to ensure adequate ventilation. The material susceptible to spontaneous ignition should be stored in dry condition and should be in heaps of such capacity and separated by such passage, which will prevent fire. The materials susceptible to ignition and stored in the open shall be at a distance not less than 10 meters away from process or storage buildings.

(6) Cylinders containing compressed gas may only be stored in open if they are protected against excessive variation of temperature, direct rays of sun, or continuous dampness. Such cylinders shall never be stored near highly flammable substances, furnaces or hot processes. The room where such cylinders are stored shall have adequate ventilation.

(7) (a) The quantity of flammable liquids in any workroom shall be the minimum required for the process or processes carried on in such room. Flammable liquids shall be stored in suitable containers with close fitting covers:

Provided that not more than 20 litres of flammable liquids having a flash point of 21 degrees centigrade or less shall be kept or stored in any workroom.

(b) Flammable liquids shall be stored in closed containers and in limited quantities in well-ventilated rooms of fire resisting construction, which are isolated from the remainder of the building by firewalls and self-closing fire doors.

(c) Large quantities of such liquids shall be stored in isolated adequately ventilated building of fire resisting construction or in a storage tanks, preferably underground and at a distance from any building as required in the Petroleum Rules, 1976.

(d) Effective steps shall be taken to prevent leakage of such liquids into basements, sumps or drains and to confine any escaping liquid within safe limits.

(8) (a) Effective steps shall be taken for removal or prevention of the accumulation in the air of flammable dust, gas, fume or vapour to an extent, which is likely to be dangerous.



- (b) No waste material of a flammable nature shall be permitted to accumulate on the floors and shall be removed at least once in a day or shift, and more often, when possible. Such materials shall be placed in suitable metal containers with covers wherever possible.
- (9) (a) In this rule -
- (i) "horizontal exit" means an arrangement which allows alternative egress from a floor area to another floor at or near the same level in an adjoining building or an adjoining part of the same building with adequate separation; and
  - (ii) "travel distance" means the distance an occupant has to travel to reach an exit.
- (b) An exit may be a doorway, corridor, passageway to an external stairway or to a verandah or to an internal stairway segregated from the rest of building by fire resisting walls which shall provide continuous and protected means of egress to the exterior of a building or to an exterior open space. An exit may also include a horizontal exit leading to an adjoining building at the same level.
- (c) Lifts, escalators and revolving doors shall not be considered as exits for the purpose of this sub-rule.
- (d) In every room of a factory exits sufficient to permit safe escape of the occupants in case of fire or other emergency shall be provided which shall be free of any obstruction.
- (e) The exits shall be clearly visible and suitably illuminated with suitable arrangement, whatever artificial lighting is to be adopted for this purpose, to maintain the required illumination in case of failure of the normal source of electric supply.
- (f) The exits shall be marked in a language understood by the majority of the workers.
- (g) Iron rung ladders or spiral staircases shall not be used as exit staircases.
- (h) Fire resisting doors or roller shutters shall be provided at appropriate places along the escape routes to prevent spread of fire and smoke, particularly at the entrance of lifts or stairs where funnel or flue effect may be created inducing an upward spread of fire.
- (i) All exits shall provide continuous means of egress to the exterior of a building or to an exterior open space leading to a street.
- (j) Exits shall be so located that the travel distance to reach at least one of them on the floor shall not exceed 30 meters.
- (k) In case of those factories where high hazard materials are stored or used, the travel distance to the exit shall not exceed 22.5 metres and there shall be at least two ways of escape from every room, however small, except toilet rooms, so located that the points of access thereto are out of or suitably shielded from areas of high hazard.
- (l) Wherever more than one exit is required for any room, space or floor, exits shall be placed as remote from each other as possible and shall be arranged to provide direct access in separate directions from any point in the area served.
- (m) The unit of exit width used to measure capacity of any exit shall be 50 cm. A clear width of 25 cm. shall be counted as an additional half unit. Clear width of less than 25 cm. shall not be counted for exit width.
- (n) Occupants per unit width shall be 50 for stairs and 75 for doors.
- (o) For determining the exits required, the occupant load shall be reckoned on the basis of actual number of occupants within any floor area or 10 square metres per person, whichever is more.
- (p) There shall not be less than two exits serving every floor area above and below the ground floor, and at least one of them shall be an internal enclosed stairway.
- (q) For every building or structure used for storage only, and every section thereof considered separately, shall have access to at least one exit so arranged and located as to provide a suitable means of escape for any person employed therein, and in any such room wherein more than 10 persons may be normally present, at least two separate means of exit shall be available, as remote from each other as practicable.
- (r) Every storage area shall have access to at least one means of exit, which can be readily opened.
- (s) Every exit doorway shall open into an enclosed stairway, a horizontal exit on a corridor or passageway providing continuous and protected means of egress.
- (t) No exit doorway shall be less than 100-cm.in width. Doorways shall be not less than 200 cm. in height.
- (u) Exit doorways shall open outwards, that is, away from the room but shall not obstruct the travel along any exit. No door when opened shall reduce the required width of a stairway or landing too less than 90 cm. Over head or sliding doors shall not be installed for this purpose.
- (v) An exit door shall not open immediately upon a flight of stairs. A landing at least 1.5 m x 1.5 m in size shall be provided in the stairway at each doorway. The level of landing shall be the same as that of the floor, which it serves.
- (w) The exit doorways shall be openable from the side, which they serve without the use of a key.
- (x) Exit corridors and passageways shall be of a width not less than the aggregate required width of exit doorways leading from there in the direction of travel to the exterior.
- (y) Where stairways discharge through corridors and passageways, the height of the corridors and passageways shall not be less than 2.4 metres.
- (aa) A staircase shall not be arranged round a lift shaft unless the latter is totally enclosed by a material having a fire-resistance rating not lower than that of the type of construction of the former.
- (bb) Hollow combustible construction shall not be permitted.

- (cc) The minimum width of an internal staircase shall be 100 cm.
  - (dd) The minimum width of treads without nosing shall be 25 cm. for an internal staircase. The treads shall be constructed and maintained in a manner to prevent slipping.
  - (ee) The maximum height of a riser shall be 19 cm. and the number of risers shall be limited to 12 per flight.
  - (ff) Handrails shall be provided with a minimum height of 100 cm. and shall be firmly supported.
  - (gg) The use of spiral staircase shall be limited to low occupant load and to a building of height of 9 metres, unless they are connected to platforms such as balconies and terraces to allow escapees to pause. A spiral staircase shall be not less than 300 cm. in diameter and have adequate headroom.
  - (hh) The width of a horizontal exit shall be same as for the exit doorways.
  - (ii) The horizontal exit shall be equipped with at least one fire door of self-closing type.
  - (jj) The floor area on the opposite or refuge side of a horizontal exit shall be sufficient to accommodate occupants of the floor areas served, allowing not less than 0.3 square metres per person. The refuge area shall be provided with exits adequate to meet the requirements of this sub-rule. At least one of the exits shall lead directly to the exterior or street.
  - (kk) Where there is difference in level between connected areas for horizontal exit, ramps nor shall more than 1 in 8 slope be provided. For this purpose steps shall not be used.
  - (ll) Doors in horizontal exits shall be openable at all times.
  - (mm) Ramps with a slope of not more than 1 in 10 be substituted for the requirements of staircase. For all slopes exceeding 1 in 10 and wherever the use is such as to involve danger of slipping, the ramp shall be surfaced with non-slipping material.
  - (nn) In any building nor provided with automatic fire alarm a manual fire alarm system shall be provided if the total capacity of the building is over 500 persons, or if more than 25 persons are employed above or below the ground floor, except that no buildings where the entire area is undivided and all parts thereof are clearly visible to all occupants.
- (10) (a) In every factory there shall be provided and maintained adequate and suitable fire fighting equipment for fighting fires in the early stages, these being referred to as first-aid fire fighting equipment in this rule.
- (b) The types of first-aid fire fighting equipment to be provided shall be determined by considering the different types of fire risks which are classified as follows :-
- (i) "Class A fire" - Fire due to combustible materials such as wood, textiles, paper, rubbish and the like.
    1. "Light hazard" - Occupancies like offices, assembly halls, canteens, rest-rooms, ambulance rooms and the like;
    2. "Ordinary hazard" - Occupancies like saw mills, carpentry shop, small timber yards, book binding shops, engineering workshop and the like;
    3. "Extra hazard" - Occupancies like large timber yards, godowns storing fibrous materials, flour mills, cotton mills, jute mills, large wood working factories and the like;
  - (ii) "Class B fire" - Fire in flammable liquids like oil, petroleum products, solvents, grease, paint, etc.
  - (iii) "Class C fire" - Fire arising out of gaseous substances.
  - (iv) "Class D fire" - Fire from reactive chemicals, active metals and the like.
  - (v) "Class E fire" - Fire involving electrical equipment and delicate machinery and the like.
- (c) The number and types of first-aid fire fighting equipment to be provided for 'light hazard' occupancy shall be as given in Schedule P. For "ordinary hazard or extra hazard" occupancies equipment as given in paragraph 12 shall be provided in addition to that given in Schedule P.
- (d) The first-aid fire fighting equipment shall conform to the relevant Indian Standards.
  - (e) As far as possible the first-aid fire fighting equipment shall all be similar in shape and appearance and shall have the same method of operation.
  - (f) All first-aid fire fighting equipment shall be placed in a conspicuous position and shall be readily and easily accessible for immediate use. Generally, these equipment shall be placed as near as possible to the exits or stair landing or normal routes of escape.
  - (g) All water buckets and bucket pump type extinguishers shall be filled with clean water. All sand buckets shall be filled with clean, dry and fine sand.
  - (h) All other extinguishers shall be charged appropriately in accordance with the instructions of the manufacturer.
  - (i) Each first-aid fire fighting equipment shall be allotted a serial number by which it shall be referred to in the records. The following details shall be painted with white paint on the body of each equipment.
    1. Serial number;
    2. Date of last refilling; and
    3. Date of last inspection.
  - (j) First-aid fire fighting equipment shall be placed on platforms or in cabinets in such a way that their bottom is 750 mm above the floor level. Fire buckets shall be placed on hooks attached to a suitable stand or wall in such a way that their bottom is 750 mm above the floor level. Such equipment if placed outside the building, shall be under sheds or covers.
  - (k) All extinguishers shall be thoroughly cleaned and re-charged immediately after discharge. Sufficient refill material shall be kept readily available for this purpose at all times.

- (l) All first-aid fire fighting equipment shall be subjected to routine maintenance, inspection and testing to be carried out by properly trained persons. Periodicity of the routine maintenance, inspection and test shall conform to the relevant Indian Standards.
- (11) (a) In every factory, adequate provision of water supply for fire fighting shall be made and where the amount of water required in litres per minute, as calculated from the following formula  $A+B+C+D$  divided by 20 is 550 (given below) or more, power driven trailer pumps of adequate capacity to meet the requirement of water as calculated above shall be provided and maintained:

#### FORMULA

A = the total area in square metres of all floors including galleries in all buildings of the factory;

B = the total area in square metres of all floors and galleries including open spaces in which combustible materials are handled or stored;

C = the total area in square metres of all floors over 15 metres above ground level; and

D = the total area in square metres of all floors of all buildings other than those of fire resisting construction.

Provided that in areas where the fire risk involved does not require use of water, such areas under B, C or D may, for the purpose of calculation, be halved.

Provided further that where the areas under B, C or D are protected by permanent automatic fire fighting installations approved by any fire association or fire insurance company, such areas may, for the purpose of calculation, be halved.

Provided also that where the factory is situated at not more than 3 kilometres from an established city or town fire service, the pumping capacity based on the amount of water arrived at by the formula above may be reduced by 25%; but no account shall be taken of this reduction in calculating water supply required under clause (a).

- (b) Each trailer pump shall be provided with equipment as per Schedule Q. Such equipment shall conform to the relevant Indian Standards.
- (c) Trailer pumps shall be housed in a separate shed or sheds, which shall be sited, closed to a principal source of water supply in the vicinity of the main risks of the factory.
- (d) In factories where the area is such as cannot be reached by man-hauling of trailer pumps within a reasonable time vehicles with towing attachment shall be provided at the scale of one for every four trailer pumps with a minimum of one such vehicle kept available at all times.
- (e) Water supply shall be provided to give flow of water as required under clause (a) for at least 100 minutes. At least 50% of this water supply or 450,000 litres whichever is less, shall be in the form of static tanks of adequate capacities (not less than 450,000 litres each) distributed round the factory with due regard to the potential fire risks in the factory. (Where piped supply is provided, the size of the main shall not be less than 15 centimetres diameter and it shall be capable of supplying a minimum of 4,500 litres per minute at a pressure of not less 7 kilograms per square centimetre.
- (f) All trailer pumps including the equipment provided with them and the vehicles for towing them shall be maintained in good condition and subjected to periodical inspection and testing as required.
- (12) (a) The first aid and other fire fighting equipment to be provided as required in sub-rules (10) and (11) shall be in charge of a trained responsible person.
- (b) Sufficient number of persons shall be trained in the proper handling of fire fighting equipment as referred to in clause (a) and their use against the types of fire for which they are intended to ensure that adequate number of persons are available for fire fighting both by means of first-aid fire fighting equipment and others. Such persons shall be provided with clothing and equipment including helmets, belts and boots, preferably gumboots. Wherever vehicles with towing attachment are to be provided as required in clause (d) of sub-rule (11) sufficient number of persons shall be trained in driving these vehicles to ensure that trained persons are available for driving them whenever the need arises.
- (c) Fire fighting drills shall be held as often as necessary and at least once in every period of 2 months.

(13) Automatic sprinklers and fire hydrants shall be in addition and not in substitution of the requirements in sub-rules (10) and (11).

(14) If the Chief Inspector is satisfied in respect of any factory or any part of the factory that owing to the exceptional circumstances such as inadequacy of water supply or infrequency of the manufacturing process or for any other reason, to be recorded in writing, all or any of the requirements of the rules are impracticable or not necessary for the protection of workers, he may by order in writing (which he may at his discretion revoke) exempt such factory or part of the factory from all or any of the provisions of the rules subject to conditions in Schedule P or as he may by such order prescribe.

71. *Qualifications, conditions of service, duties, etc. of Safety Officer.*- (1) A person shall not be eligible for appointment as a Safety Officer unless he possesses/has –

- (A)(a) (i) a recognised degree in any branch of engineering or technology and has had practical experience of working in a factory in a supervisory capacity for a period of not less than 2 years; or
- (ii) a recognised degree in physics or chemistry and has had practical experience of working in a factory in a supervisory capacity for a period of not less than 5 years; or

- (iii) a recognised diploma in any branch of engineering or technology and has had practical experience of working in a factory in a supervisory capacity for a period of not less than 5 years;
  - (b) a degree or diploma in industrial safety recognised by the State Government in this behalf; and
  - (c) has adequate knowledge of the language spoken by majority of the workers in the region in which the factory where he is to be appointed is situated
- (B) Notwithstanding the provisions contained in clause (a), any person who -
- (i) possesses a recognised degree or diploma in engineering or technology and has had experience of not less than 5 years in a department of the Central or State Government which deals with the administration of the Factories Act, 1948 or the Indian Dock Labourers Act, 1934; or
  - (ii) possesses a recognised degree or diploma in engineering or technology and has had experience of not less than 5 years, full time, on training, education, consultancy, or research in the field of accident prevention in industry or in any institution;

shall also be eligible for appointment as a Safety Officers :

Provided that the Chief Inspector may, subject to such conditions as may specify, grant exemption from the requirements of this sub-rule, if in his opinion, a suitable person possessing the necessary qualifications and experience is not available for appointment.

Provided further that, in the case of a person who has been working as a Safety Officer for a period of not less than 3 years on the date of commencement of this rule, the Chief Inspector may, subject to such conditions as he may specify, relax all or any of the above said qualifications.

- (2)(a) Where the number of Safety Officers to be appointed in a factory as required by a notification in the Official Gazette exceeds one, one of them shall be designated as the Chief Safety Officer and shall have a status higher than that of the others. The Chief Safety Officer shall be in overall charge of the safety functions as envisaged in sub-rule (3), the other Safety Officers working under his control;
  - (b) The Chief Safety Officer or the Safety Officer in the case of factories where only one Safety Officer is required to be appointed, shall be given the status of a senior executive and he shall work directly under the control of the chief executive of the factory. All other Safety Officers shall be given appropriate status to enable them to discharge their functions effectively;
  - (c) The scale of pay and the allowances to be granted to the Safety Officers including the Chief Safety Officer, and the other conditions of their service shall be the same as those of the other officers of corresponding status in the factory;
  - (d) In the case of dismissal or discharge, a Safety Officer shall have a right to appeal to the State Government whose decision thereon shall be final.
- (3) The duties of a Safety Officer shall be to advise and assist the factory management in the fulfilment of its obligations, statutory or otherwise, concerning prevention of personal injuries and maintaining a safe working environment. These duties shall include the following, namely -
- (i) to advise the concerned departments in planning and organising measures necessary for the effective control of personal injuries;
  - (ii) to advise on safety aspects in all job studies, and to carry out detailed job safety studies of selected jobs;
  - (iii) to check and evaluate the effectiveness of the action taken or proposed to be taken to prevent personal injuries;
  - (iv) to advise the purchasing and stores departments in ensuring high quality and availability of personal protective equipment;
  - (v) to provide advice on matters related to carrying out plant safety inspections;
  - (vi) to carry out plant safety inspections in order to observe the physical conditions of work and the work practices and procedures followed by workers and to render advice on measures to be adopted for removing the unsafe physical conditions and preventing unsafe actions by workers;
  - (vii) to render advice on matters related to reporting and investigation of industrial accidents and diseases;
  - (viii) to investigate selected accidents;
  - (ix) to investigate the cases of industrial diseases contracted and dangerous occurrences reportable under rule 144;
  - (x) to advise on the maintenance of such records as are necessary relating to accidents, dangerous occurrences and industrial diseases;
  - (xi) to promote setting up of safety committees and act as adviser and catalyst to such committees;
  - (xii) to organise in association with the concerned departments, campaigns, competitions, contests and other activities which will develop and maintain the interest of the workers in establishing and maintaining safe conditions of work and procedures; and
  - (xiii) to design and conduct either independently or in collaboration with the training department, suitable training and educational programme for the prevention of personal injuries.

(4) An occupier of the factory shall provide each Safety Officer with such facilities, equipment and information as are necessary to enable him to discharge his duties effectively.

(5) No safety Officer shall be required or permitted to do any work which is inconsistent with or detrimental to the performance of the duties prescribed in sub-rule (3).

72. *Buildings and structures.* - No building, wall, chimney, bridge, tunnel, road, gallery, stairway, ramp, floor, platform, staging, or other structure, whether of a permanent or temporary character, shall be constructed, situated or maintained in any factory in such a manner as to cause risk of bodily injury.

73. *Machinery and plant.* - No machinery, plant or equipment shall be constructed, situated, operated or maintained in any factory in such a manner as to cause risk of bodily injury.

74. *Methods of work.* - No process or work shall be carried in any factory in such a manner as to cause risk of bodily injury.

75. *Stacking and storing of materials, etc.*- No materials or equipment shall be stacked or stored in such a manner as to cause risk of bodily injury.

76. *Ovens and Driers.* -(1) This rule shall apply to ovens and driers, except those used in laboratories or kitchens of any establishment and those, which have a capacity below 325 litres.

(2) For the purpose of this Rule, oven or drier means any enclosed structure, receptacle, compartment or box, which is used for baking, drying or otherwise processing of any article or substance at a temperature higher than the ambient temperature of the air in the room or space in which the oven or drier is situated, and in which a flammable substance is likely to be evolved within the enclosed structure, receptacle, compartment or box or part thereof on account of the article or substance which is baked, dried or otherwise processed within it.

(3) Electrical power supplied to every oven or drier shall be by means of a separate circuit provided with an isolation switch.

(4) (a) Every oven or drier shall be properly designed on sound engineering practice and be of good construction, sound materials and adequate strength, free from any patent defects; properly maintained in a safe condition..

(b) No oven or drier shall be taken into use in a factory for the first time unless a competent person has thoroughly examined all its parts and carried out the tests as are required to establish that the necessary safe systems and controls provided for safety in operation for the processes for which it is to be used and a certificate of such examination and tests signed by that competent person has been obtained and is kept available for inspection.

(c) All parts of an oven or drier which has undergone any alteration or repair which has the effect of modifying any of the design characteristics, shall not be used unless a thorough examination and tests as have been mentioned in clause (b) has been carried out by a competent person and a certificate of such examination and tests signed by that competent person has been obtained and is kept available for inspection.

(5) (a) Every oven or drier shall be provided with a positive and effective safety ventilation system using one or more motor-driven centrifugal fans so as to dilute any mixture of air and any flammable substance that may be formed within the oven or drier and maintain the concentration of the flammable substance in the air at a safe level of dilution.

(b) The safe level of dilution referred to in clause (a) shall be so as to achieve a concentration of the concerned flammable substance in air of not more than 25 percent of its lower explosive limit:

Provided that a level of concentration in air upto 50 percent of the lower explosive limit of the concerned flammable substance may be permitted to exist subject to installation and maintenance of an automatic device which

(i) shows continuously the concentration of the flammable substances in air present in the oven or drier at any instant;

(ii) sounds an alarm when the concentration of the flammable substance in air in any part of the oven or drier reaches a level of 50 percent of its lower explosive limit; and

(iii) shuts down the heating system of the oven or drier automatically when the concentration in air of the flammable substance in any part of the oven or drier reaches a level of 60 percent of its lower explosive limit, is provided to the oven or drier and maintained in efficient working condition.

(c) No oven or drier shall be operated without its safety ventilation system working in an efficient manner.

(d) No oven or drier shall be operated with a level of dilution less than what is referred to in clause (b).

(e) Exhaust ducts of safety ventilation systems should be so designed and placed that their ducts discharge the mixture of air and flammable substance away from the workrooms and not near windows or doors or other openings from where the mixture could re-enter the workrooms.

(f) The fresh air admitted into the oven or drier by means of the safety ventilation system shall be circulated adequately by means of circulating fan or fans through all parts of the oven or drier so as to ensure that there are no locations where the flammable substance can accumulate in the air or become pocketed to any dangerous degree.

(g) Throttling dampers in any safety ventilation system should be so designed by cutting away a portion of the damper or otherwise, that the system will handle atleast the minimum ventilation rate required for safety when they are set in their maximum throttling position.

- (6) (a) Every oven or drier having an internal total space of not less than half cubic metre shall be provided with suitably designed explosion panels so as to allow release of the pressure of any possible explosion within the oven or drier through explosion vents. The area of openings to be provided by means of such vents together with the area of openings of any access doors which are provided with suitable arrangements for their release in case of an explosion, shall be not less than 2200 square centimetre for every one cubic metre of volume of the oven or drier. The design of the explosion panels and doors as above said shall be such as to secure their complete release under an internal pressure of 0.25 kg per square centimetre.
- (b) The explosion releasing panels, shall, as far as practicable, be situated at the roof of the oven or drier or at those portions of the walls where persons do not remain in connection with operation of the oven or drier.
- (7) In each oven or drier efficient inter-locking arrangements shall be provided and maintained to ensure that -
- (i) all ventilating fans and circulating fans whose failures would adversely effect the ventilation rate or flow pattern, are in operation before any mechanical conveyor that may be provided for feeding the articles or substances to be processed in the oven or drier is put into operation;
  - (ii) failure of any of the ventilating or circulating fans will automatically stop any conveyor as referred to in clause (i) as may be provided, as well as stop the fuel supply by closing the shut off valve and shut off the ignition in the case of gas or oil fired oven, and in the case of electrically heated oven switch off the electrical supply to the heaters;
  - (iii) the above said mechanical conveyor is set in operation before the above said shut off valve can be energised; and
  - (iv) the failure of the above said conveyor will automatically close the above said shut off valve in the case of ovens and driers heated by gas, oil or cut off the electrical heaters in the case of electrically heated ovens or furnaces.
- (8) Every oven or drier heated by oil, gas, steam or electrically shall be provided with an efficient arrangement for automatic pre ventilation consisting of at least 3 volume changes with fresh air by operation of safety ventilation fans and the circulating fans (if used) so as to effect purging of the oven or drier of any mixture of air and a flammable substance before the heating system can be activated and before the conveyor can be placed in position.
- (9) Every oven or drier shall be provided with an automatic arrangement to ensure that the temperature within does not exceed a safe upper present limit to be decided in respect of the particular processing being carried on.
- (10) Wherever materials are to be processed in ovens or driers in successive operations, suitable arrangement should be provided to ensure that the operating temperatures necessary for safe operation at each stage are maintained within the design limits.
- (11) Effective arrangements shall be provided in every oven or drier to prevent dripping of combustible substances on electric heaters or burner flame used for heating.
- (12)(a) All parts of every oven and drier shall be properly maintained and thoroughly examined and the various controls as mentioned in this rule and the working of the oven or drier tested at frequent intervals to ensure its safe operation by a responsible person designated by the occupier or manager, who by his experience and knowledge of necessary precautions against risks of explosion, is fit to undertake such work.
- (b) A register shall be maintained in which the details of the various tests carried out from time to time under clause (a) shall be entered and every entry made shall be signed by the person making the tests.
- (13) No person shall be assigned any task connected with operation of any oven or drier unless he has completed 18 years of age and he is properly trained.
- (14) (a) Printed fabric shall be thoroughly dried by passing them over drying cans or through hot flue or other equally effective means, before the same is allowed to pass through polymerising machines.
- (b) Infrared ray heaters of polymerising machines shall be cut off while running the prints.

77. *Shipbuilding and ship-repairing.* - (1) This rule shall apply as respects work carried out in any of the operations as defined in sub-rule(2).

(2) In this rule unless there is anything repugnant in the subject or context thereto-

- (a) "certificate of entry" means a certificate which is given by a person who is a competent analyst and who is competent to give such certificates, and certifies that he has in an adequate and suitable manner tested the atmosphere in the oil-tank or oil-tanks specified in the certificate and found that having regard to all the circumstances of the case, including the likelihood or otherwise of the atmosphere being or becoming dangerous, entry to the oil-tank or oil-tanks without wearing breathing apparatus may in his opinion be permitted;
- (b) 'hot work' means any work which involves -
  - (i) welding, burning, soldering, brazing, sand blasting or chipping by spark producing tools; or
  - (ii) use of non-flameproof electrical equipment or equipment with internal combustion engines;
 and includes any other work which is likely to produce sufficient heat capable of igniting flammable gases or vapours;
- (c) "naked light certificate" means a certificate which is given by a person who is competent analyst and who is competent to give such certificates, and certifies that he has in an adequate and suitable manner tested for the presence of flammable vapour in the oil-tank, compartment, space or other part of the vessel specified in the certificate and found it to be free therefrom and

that having regard to all the circumstances of the case, including the likelihood or otherwise of the atmosphere becoming flammable, the use of naked lights, fires, lamps or heated rivets or any hot work to be carried out may in his opinion be permitted in the oil-tank, compartment, space or other part of the vessel specified in the certificates;

- (d) "oil" means any liquid which has flash point below 132 degrees centigrade and also includes lubricating oils, liquid methane, liquid butane and liquid propane;

Explanation. - Flash point where ever it occurs in this rule shall be flash point as determined by Abel Closed Cup or Pensky-Marten Closed Cup procedures as described in I.S. 1448-1960.

- (e) "oil-tank" means any tank or compartment in which oil has been carried;

- (f) "the operations" means -

- (i) construction, reconstruction, or breaking up of any ship or vessel, repairing, refitting, painting and finishing;
- (ii) the scaling, scuffing or cleaning of its boilers (including combustion chambers or smoke boxes); and
- (iii) the cleaning of its bilge or oil-fuel tanks or any of its tanks last used for carrying oil.

For the purpose of this definition the expression "oil" means oil of any description whether or not oil within the meaning of foregoing definition of that expression;

- (g) "ship and vessel" have the same meanings as in the Merchant Shipping Act, 1958;

- (h) "shipyard" means any yard or dry dock (including the precincts thereof) in which ships or vessels are constructed, reconstructed, repaired, refitted or finished;

- (i) "stage" means any temporary platform on or from which persons employed perform work in connection with the operations, but does not include a boat-swain's chair;

- (j) "staging" includes any stage, and any upright, thwart, thwart pin, wedge, distance piece, belt or other appliance or material, not being part of the structure of the vessel, which is used in connection with the support of any stage, and any guard-rails connected with a stage; and

- (k) "tanker" means a vessel constructed or adopted for carrying a cargo of oil in bulk.

- (3) All main gangways giving general access to a vessel in a shipyard, whether from the ground or from a wharf or quay, and all cross gangways leading from such a main gangway on to the vessel, shall -

- (a) be at least 60 centimetres wide;
- (b) be securely protected on each side to a height of at least 90 centimetres by strongly constructed upper and lower hand-rails and by a secure toe-board projecting at least 15 centimetres above the floor;
- (c) be of good construction, sound material and adequate strength;
- (d) be stable and, where ever practicable, of permanent construction;
- (e) be kept in position as long as required; and
- (f) maintained in good repair.

- (4) (a) Every flight of steps giving access from ground level either to an altar or to the bottom of a dry dock shall be provided throughout on each side with a substantial hand-rail. In the case of an open side, secure fencing to height of at least 90 centimetres shall be provided by means of upper and lower rails, taut ropes or chains, or by other equally safe means. For the purposes of this clause a flight of steps which is divided into two by a chute for materials, with no space between either side of the chute and the steps, shall be deemed to be one flight of steps.

- (b) Such hand-rails and fencing as aforesaid shall be kept in position save when and to the extent to which their absence is necessary (whether or not for the purposes of the operation) for the access of persons, or for the movement of materials or vessels or for traffic or working, or for repair, but hand-rails or fencing removed for any of those purposes shall be kept readily available and shall be replaced as soon as practicable.

- (5) (a) If a ship is lying in a dry dock for the purpose of undergoing any of the operations, there shall be provided as means of access for the use of workers at such times as they have to pass to, or from, the ship or dry dock -

- (i) where reasonably practicable one or more ship's accommodation ladders; or
- (ii) one or more soundly constructed gangways or similar constructions.

- (b) The means so provided shall be not less than 55 centimetres wide properly secured and fenced throughout on each side to a clear height of 90 centimetres by means of upper and lower rails, taut ropes or chains or by any other safe means, except that in the case of the ship's accommodation ladder, such fencing shall be necessary on one side only provided where the other side is properly protected by the ship's side.

- (c) Where at any dry lock, there is a gangway giving access from an alter of the dock to a vessel which is in the dock for the purpose of undergoing any of the altar is unfenced, adequate hand-holds shall be available for any length of the alter which workers commonly use when passing between the gangway and the nearest flight of steps which gives access to ground level.

- (6) Where there is a gangway leading on to a bulwark of a vessel there shall be provided -

- (a) Wherever practicable, a platform at the in-board end of the gangway with safe means of access therefrom to the docks; or

- (b) where such a platform is not practicable, a second gangway or stair way leading from a bulwark on to the dock which are either attached to the first mentioned gangway or placed contiguous to it, in which case means of access, securely protected by fencing, shall be provided from the one to the other.
- (7) (a) Where outside staging is erected in a shipyard, there shall be provided sufficient ladders giving direct access to the stages having regard to the extent of the staging and to the work to be done.
- (b) Where a vessel is under construction or reconstruction and workers are liable to go forward or aft or athwart ship across or along uncovered deck-beams, or across or along floors, sufficient planks shall be provided on those deck-beams or on these floors for the purpose of access to or from places of work, and sufficient and suitable portable ladders shall be provided so as to give access either from the ground or outer bottom plating to the top of the floor.
- (c) Without prejudice to any other provision in this rule requiring a greater width, no foot way or passageway constructed of planks shall be less than 45 centimetres wide.
- (8) (a) Subject to clauses (b) and (c) of this sub-rule, every ladder which affords a means of access, communication or support to a person shall
- (i) be soundly constructed and properly maintained; and
- (ii) be of adequate strength for the purpose for which it is used; and
- (iii) be securely fixed either -
- (aa) as near its upper resting place as possible, or
- (bb) where this is impracticable, at its base, or where such fixing is impracticable a person shall be stationed at the base of the ladder when in use to prevent it from slipping; and
- (iv) unless there is other adequate hand-hold, extend to a height of at least 75 centimetres above the place of landing or the highest rung to be reached by the foot of any person working on the ladder, as the case may be, or, if this is impracticable, to the greatest practicable height.
- (b) Requirements (iii) and (iv) of the preceding clause of this sub-rule shall not apply to fixed ladders of a ship or to rope ladders. Effective measures by means of roping off or other similar means shall be taken to prevent the use of fixed ladders of a ship which do not comply with requirements (i) and (ii) of that clause.
- (c) Any worker who removes any ladder and sets it up in a new position shall, as regards that ladder, comply with requirements (iii) of clause (a) of this sub-rule.
- (d) Rope ladders shall provide foot-hold of a depth including any space behind the ladder of not less than 12 centimetres and, so far as is reasonably practicable, suitable provision shall be made for preventing such ladders from twisting.
- (9) (a) A fibre rope, or a rope made with strands consisting of wire cores covered with fibre, shall not be used to secure a ladder used for the purpose of the operations.
- (b) A wire rope shall not be used to secure any such ladder unless its ends are ferruled, but this provision shall not apply in the case of an end which is so situated or protected that a person using the ladder is not liable to come into contact with it so as to suffer injury.
- (10) (a) A sufficient supply of sound and substantial material and appliances shall be available in a convenient place or places for the construction of staging.
- (b) All planks and other materials and appliances intended to be used or re-used for staging shall be carefully examined before being taken into use or re-use in any staging. Every examination required by this clause shall be carried out by a person competent for the purpose.
- (11)(a) All staging and every part thereof shall be of good construction, of suitable and sound material and of adequate strength for the purpose for which it is used and shall be properly maintained, and every up-right and thwart shall be kept so fixed, secured or placed in position as to prevent, so far as is reasonably practicable, accidental displacement.
- (b) All planks forming stages shall be securely fastened to prevent them from slipping unless they extend 45 centimetres or more beyond the inside edge of the thwart or support on which they rest.
- (c) All staging used in connection with the operations shall be inspected before use, and thereafter at regular and frequent intervals, by a responsible person.
- (d) All dry dock altars and shoring sills on or from which persons perform work in connection with the operations shall be of sound construction and properly maintained.
- (e) All parts of stages, all parts of foot ways or passageways constructed of planks, and all parts of dry dock altars or shoring sills, being parts on or from which persons perform work in connection with the operations, shall so far as is reasonably practicable, be kept clear of all substances likely to make foot-hold or hand-hold insecure.
- (12)(a) If any upright forming part of staging is used as a fixing for a pulley block for hoisting materials -
- (i) it shall be properly housed in the ground or shall otherwise be adequately secured so as to prevent it from raising; and



- (ii) it shall be suitably protected against damage by the action of the chain or wire or other means of securing the pulley block to the upright.
  - (b) No upright forming part of staging shall be used as an anchorage for a load pulley block, unless the upright is not likely to be displaced by such use.
- (13) Planks supported on the rungs of ladders shall not be used to support stages.
- (14)(a) Stages suspended by ropes or chains shall be secured as far as possible so as to prevent them from swinging.
- (b) A fibre rope, or a rope made of strands consisting of wire cores covered with fibre, shall not be used for suspending a stage except that fibre ropes may be used in the case of a stage of which the suspension ropes are reeve through blocks.
  - (c) Chains, ropes, blocks and other gear used for the suspension of stages shall be of sound material, adequate strength and suitable quality, and in good condition.
  - (d) Appropriate steps shall be taken to prevent ropes or chains used for supporting a stage from coming into contact with sharp edges of any part of a vessel.
- (15)(a) Boatswains' chairs and chains, ropes or other gear used for their suspension shall be of sound material, adequate strength and suitable quality and the chains, ropes or other gear shall be securely attached.
- (b) Suitable measures shall be taken to prevent wherever possible the spinning of a boatswain's chair, to prevent the tipping of a boatswain's chair and to prevent any occupant falling therefrom.
- (16) All planks forming a rising stage at the bow end of a vessel shall be securely fastened to prevent them from slipping.
- (17) Without prejudice to the other provisions of these sub-rules, all stages shall be of sufficient width as is reasonable in all the circumstances of the case to secure the safety of the persons working thereon.
- (18)(a) This sub-rule applies to stages from which a person is liable to fall a height of more than 2 meters or into water in which there is a risk of drowning.
- (b) Every stage to which this sub-rule applies -
    - (i) shall so far as is reasonably practicable be closely boarded, planked or plated;
    - (ii) shall be so constructed or placed that a person is not liable to fall as aforesaid through a gap in the staging not being a gap necessary and no larger than necessary having regard to the nature of the work being carried on, and
    - (iii) shall be at least 45 centimetres wide.
  - (c) Every side of a stage to which this sub-rule applies shall-
    - (i) if it is not a side immediately adjacent to any part of a vessel, be fenced (subject to the provisions of clauses (d) to (g) of this sub-rule) with a guard-rail or guard-rails to a height of at least 1 metre above the stage, with rail or rails shall be so placed as to prevent so far as practicable the fall of persons from the stage or from any raised standing place on the stage; or
    - (ii) if it is a side immediately adjacent to any part of a vessel, be placed as near as practicable to that part having regard to the nature of the work being carried on and to the nature of the structure of the vessel.
  - (d) In the case of stages which are suspended by ropes or chains, and which are used solely for painting, the fencing required by sub-clause (i) of the preceding clause may be provided by means of taut guard-rope or taut guard-ropes.
  - (e) No side of stage or, as the case may be, no part of the side of a stage need be fenced in pursuance of clause (c) (i) of this sub-rule in cases where and as long as, the nature of the work being carried on makes the fencing of that side or, as the case may be, that part impracticable.
  - (f) Guard-rails provided in pursuance of clause (c) (i) of this sub-rule may be removed for the time and to the extent necessary for the access of persons or for the movement of materials, but guard-rails removed for either of these purposes shall be replaced as soon as practicable.
  - (g) Where it is not reasonably practicable to comply with the provisions of clause (c) (i) of this sub-rule, workers shall be provided with suitable safety belts equipped with life lines which are secured with a minimum amount of slack to a fixed structure.
- Further precautions against fall of persons, materials and articles.
- (19)(a) Fencing shall be provided at or near the edges of a dry dock at ground level, including edges above flights of steps and chutes for materials. The height of such fencing shall at no point be less than 1 metre.
- (b) Such fencing as aforesaid shall be kept in position save when and to the extent to which its absence is necessary (whether or not for the purposes of the operations) for the access of persons, or for movement of materials or vessels or for traffic or working, or for repair, but fencing removed for any of these purposes shall be kept readily available and shall be replaced as soon as practicable.
- (20)(a) Every side or edge of an opening in a deck or tank top of a vessel, being a side or edge which may be a source of danger to workers shall, except where and while the opening is securely covered or where the side or edge is protected to a height of not less than 75 centimetres by a coaming or other part of the vessel, be provided with fencing to a height of not less than

90 centimetres above the edge or side and such fencing shall be kept in position save when and to the extent to which its absence is necessary (whether or not for the purposes of the operations) for the access of persons, or for the movement of materials, or for traffic or working, or for repair, but fencing removed for any of these purposes shall be kept readily available and shall be replaced as soon as practicable.

(b) clause (a) of this sub-rule shall not apply-

- (i) to that part of an opening in a deck or tank top which is at the head of a stairway or ladderway intended to be used while the operations are being carried on; or
- (ii) to parts of a deck or tank top which are intended to be plated, except such parts where the plating has necessarily to be delayed so that the opening may be used for the purpose of the operations.

(21) Where workers are at work outside a vessel on a stage adjacent to part of the structure of the vessel and other workers are at work directly beneath that stage, the planks of the stage shall be in such a position that no article liable to cause injury to the workers can fall between the planks, and the inside plank of the stage shall be placed as near as practicable to the structure of the vessel having regard to the nature of the work being carried on.

(22)(a) Boxes or other suitable receptacles for rivets, nuts, bolts and welding rods shall be provided for the use of workers.

(b) It shall be the duty of the workers to use, so far as practicable, the boxes or other suitable receptacles so provided.

(23)(a) Subject to the provisions of clause (b) of this sub-rule, parts of staging, tools and other articles and materials shall not be thrown down from a height where they are liable to cause injury to workers, but shall be properly lowered.

(b) When the work to be done necessarily involves the throwing down from a height of articles or materials, conspicuous notice shall be posted to warn persons from working or passing underneath the place from which the articles or materials may fall, or the work shall be done under the direct supervision of a competent person in authority.

(c) No person shall throw down any articles or materials from a height except in accordance with the requirements of this sub-rule.

(24) So far as practicable, steps shall be taken to minimise the risk arising from loose articles or materials being left lying about in any place from which they may fall on workers or persons passing underneath.

(25)(a) Loads shall be securely suspended or supported whilst being raised or lowered, and all reasonable precautions shall be taken to prevent danger from slipping or displacement.

(b) Where by reason of the nature or position of the operations load is liable, whilst being moved by a lifting machine or lifting tackle, to come into contact with any object so that the object may become displaced, special measures shall be adopted to prevent the danger so far as is reasonably practicable.

(26) Every lifting machine and all lifting tackle shall be adequately and suitably supported or suspended having regard to the purpose for which it is used.

(27) No wire rope shall be used if in any length of ten diameters the total number of visible broken wires exceeds five percent of the total number of wires, or if the rope shows signs of excessive wear or corrosion or other serious defect.

(28) A thimble or loop slice made in any wire rope shall have at least three tucks with a whole strand of the rope and two tucks with one half of the wires cut out of each strand. All tucks shall be against the lay of the rope:

Provided that this sub-rule shall not operate to prevent the use of another form of splice which can be shown to be as efficient as the form of splice specified in this sub-rule.

(29) (a) No chain or wire rope shall be used when there is a knot tied in any part thereof.

(b) No chain which is shortened or joined to another chain by means of bolts and nuts shall be used:

Provided that this does not exclude the use of a chain bolted or joined to another chain by an approved and properly constructed attachment.

(30) Appropriate steps shall be taken to prevent, so far as practicable, the use of chains or ropes for raising or lowering in circumstances in which they are in or liable to come into contact with sharp edges of plant, materials or loads, or with sharp edges of any part of the vessel on which work is being carried out.

(31) No load shall be left suspended from a lifting appliance other than a self-sustaining, manually operated lifting appliance unless there is a competent person in charge of the appliance while the load is so left.

(32) Where there is reason to believe that a load being lifted or lowered on a lifting appliance weighs more than 20 tonnes its weight shall be ascertained by means of an accurate weighing machine or by the estimation of a person competent for the purpose, and shall be clearly marked on the load:

Provided that this sub-rule shall not apply to any load lifted or lowered by a crane which has either a fixed or a derricking jib and which is fitted with an approved type of indicator in good working order which-

- (a) indicates clearly to the driver or person operating the crane when the load being carried approaches the safe working load of the crane for the radius of the jib at which the load is carried; and

- (b) gives an efficient sound signal when the load moved is in excess of the safe working load of the crane at that radius. Precautions against asphyxiation, injurious fumes or explosions.
- (33) A space shall not be certified under section 36(3) (a) of the Act unless-
- (a) effective steps have been taken to prevent any ingress of dangerous fumes;
  - (b) any sludge or other deposit liable to give off dangerous fumes has been removed and the space contains no other material liable to give off dangerous fumes; and
  - (c) the space has been adequately ventilated and tested for dangerous fumes and has a supply of air adequate for respiration:  
Provided that no account shall be taken for the purposes of clause (b), any deposit or other material liable to give off dangerous fumes in insignificant quantities only.
- (34) No person shall enter or remain in any confined space in a vessel, being a confined space in which there is reason to apprehend that the proportion of oxygen in the air is so low as to involve risk of persons being overcome, unless either -
- (a) the space has been and remains adequately ventilated and a responsible person has tested it and certified that it is safe for entry without breathing apparatus; or
  - (b) he is wearing a suitable breathing apparatus and a safety belt securely attached to a rope, the free end of which is held by a person standing outside the confined space.
- (35) (a) Rivet fires shall not be taken into or used in or remain in any confined space on board or in a vessel unless there is adequate ventilation to prevent the accumulation of fumes.
- (b) No person employed shall move a rivet fire into any confined space on board or in a vessel unless he has been authorised by his employer to move the fire into that space.
- (36) (a) No cylinder which contains or has contained oxygen or any flammable gas or vapour at a pressure above atmospheric pressure and no acetylene generating plant, shall be installed or placed within 5 meters of any substantial source of heat (including any boiler or furnace when alight) other than the burner or blow-pipe operated from the cylinder or plant.
- (b) No such cylinder and no such plant shall be taken below the weather deck in the case of a vessel undergoing repair, or below the top most completed deck in the case of a vessel under construction, unless it is installed or placed in a part of the vessel which is adequately ventilated to prevent any dangerous concentration of gas or fumes.
- (37) (a) The following provisions shall be observed as respects any acetylene generating plant:-
- (i) no such plant shall be installed or placed in any confined space unless effective and suitable provision is made for securing and maintaining the adequate ventilation of that space so as to prevent, so far as practicable, any dangerous accumulation of gases;
  - (ii) any person attending or operating any such plant shall have been fully instructed in its working and a copy of the maker's instructions for that type of plant shall be constantly available for his use;
  - (iii) the charging and cleaning of such plant shall so far as practicable be done during daylight;
  - (iv) partly spent calcium carbide shall not be re-charged into an acetylene generator.
- (b) No person shall smoke or strike a light or take a naked light or a lamp in or into any acetylene generator house or shed or in or into dangerous proximity to any acetylene generating plant in the open air or on board a vessel:  
Provided that this clause shall not apply as respects a generator in the open air or on board a vessel which, since it was last charged, has been thoroughly cleaned and freed from any calcium carbide and acetylene gas.
- (c) A prominent notice prohibiting smoking, naked lights and lamps shall be exhibited on or near every acetylene generating plant whilst it is charged or is being charged or is being cleaned.
- (38) (a) Pipes or hoses for the supply of oxygen or any flammable gas or vapour to any apparatus for cutting, welding or heating metal shall be of good construction and sound material and be properly maintained.
- (b) Such pipes or hoses shall be securely attached to the apparatus and other connections by means of suitable clips or other equally effective appliances.
- (c) Efficient reducing and regulating valves for reducing the pressure of the gases shall be provided and maintained in connection with all cylinders containing oxygen or any flammable gas or vapour at a pressure above atmospheric pressure while the gases or vapours from such cylinders are being used in any process of cutting, welding or heating metal.
- (d) Where acetylene gas is used for cutting, welding or heating metal-
- (i) a properly constructed and efficient back pressure valve and flame arrester shall be provided and maintained in the acetylene supply pipe between each burner or blow-pipe and the acetylene generator, cylinder or container from which it is supplied, and shall be placed as near as practicable to the burner or blow-pipe, except that these requirements shall not apply where an acetylene cylinder serves only one burner or blow-pipe; and
  - (ii) any hydraulic valve provided in pursuance of the preceding sub-clause shall be inspected on each day by every person who uses the burner or blow-pipe on that day and it shall be the duty of every worker who used the burner or blow-pipe to inspect the hydraulic valve accordingly.
- (e) The operating valves of burners or blow-pipes to which oxygen or any flammable gas or vapours is supplied for the purpose of cutting, welding or heating metal shall be so constructed, or the operating mechanism shall be so protected, that the valves cannot be opened accidentally.

- (39)(a) In the case of apparatus on board a vessel and used for cutting, welding, or heating metal with the aid of oxygen or any flammable gas or vapour supplied at a pressure above atmospheric pressure, the precautions specified in the following clauses of this sub-rule shall be taken when such cease for the day or for a substantial period and the apparatus is to be left on board, but need not be taken when such use is discontinued merely during short interruptions of work. The requirements in clauses (a) and (d) of this sub-rule shall not apply during a meal interval, provided that a responsible person is placed in charge of the plant and equipment referred to therein.
- (b) Supply valves of cylinders, generators and gas mains shall be securely closed and the valve key shall be kept in the custody of a responsible person.
- (c) Movable pipes or hoses used for conveying oxygen or flammable gas or vapour and the welding and cutting torches shall, in the case of a vessel undergoing construction, be brought to the top most completed deck, or in the case of a vessel undergoing repair, to a weather deck or in the either case to some other place of safety which is adequately ventilated to prevent any dangerous concentration of gas or fumes:
- Provided that where, owing to the nature of the work, it is impracticable to comply with the foregoing requirements of this clause, the pipes or hoses shall be disconnected from cylinders, generators or gas mains, as the case may be.
- (d) When the cylinders or acetylene generating plant have been taken below deck as permitted by clause (b) of sub-rule (36) such cylinders or acetylene generating plant shall be brought to a weather deck or, in the case of a vessel undergoing construction, to the top most completed deck.
- (40)(a) Subject to the provisions of clause (b) of this sub-rule and to the provisions of sub-rule (48), and without prejudice to the provisions of sub-rules (46) and (47), no naked light, fire or lamp (other than a safety lamp of a type approved for the purpose of this sub-rule)-
- (i) shall be permitted to be applied to, or to be in, or any hot work permitted to be carried out in any part of a tanker, unless since oil was last carried in that tanker, a naked light certificate has been obtained and is in force in respect of those parts of the tanker for which, in the opinion of a competent analyst, a naked light certificate is necessary:
- Provided that a naked light, fire or lamp of a kind specified in writing by a competent analyst may be applied to, or be in, or any hot work of a type specified by him carried on, any part of the tanker so specified;
- (ii) shall be permitted -
- (aa) to be in any oil tanker on board or in a vessel in which oil-tank the oil last carried was oil having a flash point of less than 23 degrees centigrade or was liquid butane, nor any hot work permitted to be carried out in any such oil tank or vessel, unless a naked light certificate has previously been obtained on the same day and is in force in respect of that oil tank and of any oil tank, compartment or space adjacent thereto;
- (bb) to be applied to the outer surface of any oil-tank on board or in a vessel in which oil-tank the oil last carried was such oil as aforesaid nor any work of such a nature which is likely to produce sufficient heat capable of igniting flammable gases or vapours permitted to be carried out on the outer surface of such oil-tank or vessel, unless a naked light certificate has previously been obtained on the same day and is in force in respect of that oil-tank;
- (cc) to be applied to the outer surface of, or to be in, any compartment or space adjacent to an oil-tank on board or in a vessel in which oil-tank the oil last carried was such oil as aforesaid, nor any hot work permitted to be carried out in such compartment or space as aforesaid, nor any work of such nature which is likely to produce sufficient heat capable of igniting flammable gases or vapours, permitted to be carried out on the outer surface of such compartment or space, unless a naked light certificate has previously been obtained on the same day and is in force in respect of that compartment or space:
- Provided that where in any such case referred to in paragraphs (aa) (bb) or (cc) of this sub-clause a competent analyst has certified that daily naked light certificate are unnecessary or are necessary only to a specified extent, such a daily certificate need not be obtained or, as the case may be, need only be obtained to the specified extent;
- (iii) shall be permitted to be applied to the outer surface, or to be in, any oil-tank on board or in a vessel nor any hot work permitted to be carried out in any such oil-tank or vessel, nor any work of such nature which is likely to produce sufficient heat capable of igniting flammable gases or vapours, permitted to be carried out on the outer surface of the oil tank or vessel, unless, since oil was last carried in that oil-tank, a naked light certificate has been obtained and is in force in respect of that oil-tank;
- (iv) shall be permitted to be applied to the outer surface of, or to be in, any compartment or space adjacent to an oil-tank on board or in a vessel nor any hot-work permitted to be carried out in any such compartment or space, nor any work of such nature which is likely to produce sufficient heat capable of igniting flammable gases or vapours, permitted to be carried out on the outer surface of any such compartment or space, unless, since oil was last carried as cargo in that oil-tank, a naked light certificate has been obtained and is in force in respect of that compartment or space.
- (b) Notwithstanding anything in clause (a) of this sub-rule, heated rivets may be permitted in any place without naked light certificate being in force in respect of that place if expressly so authorised by a competent analyst who certifies that after adequate and suitable testing, he is satisfied having regard to all the circumstances of the case, including the likelihood or otherwise of the atmosphere becoming flammable, that the place is sufficiently free from flammable vapour; but such heated rivets shall, where practicable, be passed through tubes.

- (c) No person shall introduce, have or apply naked light, fire or lamp (other than safety lamp of a type approved for the purpose of this sub-rule) into, in or to any place where they are prohibited by this sub-rule.
  - (d) No person shall carry out hot work or any work of such nature which is likely to produce sufficient heat capable of igniting flammable gases or vapours, in any place or any surface where they are prohibited by this sub-rule.
  - (e) In this sub-rule the expression 'competent analyst' means an analyst who is competent to give a naked light certificate.
- (41)(a) No person (other than an analyst entering with a view to issuing a certificate of entry) shall, unless he is wearing a breathing apparatus of a type approved for the purpose of this sub-rule, enter or remain in an oil-tank on board or in a vessel unless, since the oil-tank last contained oil, a certificate of entry has been obtained and is in force in respect of the tank.
- (b) Without prejudice to clause (a) of this sub-rule, no person (other than an analyst entering as aforesaid) shall be allowed or required to enter or remain in an oil-tank on board or in a vessel in which oil-tank the oil last carried was oil having a flash point of less than 23 degrees centigrade unless, since the oil-tank last contained oil, an analyst has certified that the atmosphere is sufficiently free from flammable mixture.
- (c) The provisions of this sub-rule are without prejudice to the requirements of sub-rule (34).
- (42) Any naked light certificate or certificate of entry may be issued subject to a condition that it shall not remain in force after a time specified in the certificate.
- (43) Every occupier for whom a naked light certificate or a certificate of entry is obtained shall ensure that the certificate or a duplicate thereof is posted as soon as may be and remains posted in a position where it may conveniently be read by all persons concerned.
- (44)(a) When conditions in an oil-tank in respect of which a naked light certificate has been issued, are such that there is a possibility of oil vapour being released from residues or other sources, test shall be carried out by a competent analyst at such intervals as may be required so as to ensure that the conditions in the tank are maintained safely.
- (b) Whenever hot work is carried on or a naked light, fire or lamp is allowed to be, on the weather deck over spaces, in respect of which a naked light certificate has not been issued, all covers of manholes and openings on deck and all valves (except those which are connected to high vent pipes) connecting the weather deck with the said spaces, shall be closed.
- (c) A record of all the tests carried out for the purpose of sub-rules (34), (40) and (41) shall be maintained in a register which should furnish the date, time, location and results of the tests.
- (45)(a) Subject to the provisions of sub-rule (48), before a test for flammable vapour is carried out with a view to the issue of a naked light certificate for the purposes of sub-rule (40) in respect of an oil-tank on board or in a vessel, that oil-tank shall, since oil was last introduced into the tank, be cleaned and ventilated in accordance with clause (b) of this sub-rule.
- (b) The said cleaning and ventilation shall be carried out by the following methods:-
- (i) the oil-tank shall be treated in such manner and for such periods as will ensure the vaporisation of all volatile oil;
  - (ii) all residual oil and any sludge or other deposit in the oil-tank shall be removed therefrom;
  - (iii) after the oil-tank has been so cleaned,-
    - (aa) all covers of manholes and other openings therein shall be removed and it shall be thoroughly ventilated by mechanical or other efficient means with a view to the removal of all oil vapour; and then
    - (bb) the interior surfaces, if any deposit remains thereon, shall be washed or scraped down.
- (46)(a) If during the course of work in, or to the outer surface of, any part of a tanker or aircraft carrier, any pipe or tank joint is opened or broken or any other event occurs so that there is a risk of oil vapour entering or arising in that part of the tanker or aircraft carrier, that work shall be suspended and thereafter any certificate of entry previously issued in respect of any oil-tank in that part and any naked light certificate previously issued in respect of that part shall be no longer in force.
- (b) If (in case of a vessel other than a tanker or aircraft carrier) during the course of work in any oil-tank or in any compartment or space adjacent thereto, any pipe or tank joint is opened or broken or any other event occurs so that there is a risk of oil vapour entering or arising in the oil-tank or in any compartment or space adjacent thereto that work shall be suspended and thereafter any certificate of entry previously issued in respect of the oil-tank or any compartment or space adjacent thereto shall be no longer in force.
- (47)(a) Without prejudice to the other provisions of this rule, if the presence of oil in such quantity and in such position as to be likely to give rise to fire or explosion is detected in any part of a vessel, being a part to which this sub-rule applies and in which repairs of the following kind are to be or are being undertaken, that is to say, repairs involving the use of a naked light, fire or lamp (other than a safety lamp of a type approved for the purpose of sub-rule (40), or involving hot work, such repairs shall not be started or continued until a naked light certificate has been issued or, as the case may, reissued in respect of that part of the vessel.
- (b) This sub-rule shall apply to bilges, shaft tunnels, pump rooms, and to compartments and spaces other than those to which clause (a) (iv) of sub-rule (40) applies.
- (48) If the Chief Inspector is satisfied, by reasons of the nature of the work and the circumstances in which it is carried out, that any provisions of sub-rules (33) to (45) or part thereof can be suspended or relaxed without danger to the health or safety of any person, he may grant suspension or relaxation in writing specifying such conditions as he may consider fit. Any such suspension or relaxation may be revoked at any time.

- (49) Electrical energy other than that generated by an independent generating unit on board shall not be taken for use, or used in, or in connection with any of the operations unless that body of the ship is securely earthed in such a manner as to ensure an immediate and safe discharge of energy to the earth. A ship or vessel shall not be considered as securely earthed for the purpose of this sub-rule only on account of it being partly submerged in water.
- (50)(a) Electric welding shall not be carried on in connection with any of the operations unless separate and fully insulated welding return conductor or conductors as the case may be, of adequate electrical capacity are provided for return of the current to the transformer or generator of the welding set.
- (b) The return end of the source of the welding current shall not be earthed.
- (c) All work on which welding is carried on shall be securely earthed independently to an earth electrode by means of a conductor or conductors as the case may be, of adequate capacity, unless all such work are connected to any structure of the ship or vessel in such a manner as to ensure adequate connection to earth as aforesaid.
- (51) Electrical energy shall be cut off from all portable electric tools and manual electrode holders within any tank, compartment or space referred to in sub-rules (34) and (40) or in any other confined space during all times when such tools or holders are not in operations:
- Provided that for determining whether any such portable electric tool or electrode holder is not in operation, no account shall be taken of brief interruptions of work occurring during normal working:
- Provided further that energy may not be cut off from any such equipment if a responsible person is left in charge of it in such tank, compartment or space concerned.
- Provided also that cutting of all electrical energy by operation of any switch or control provided on the portable tool or electrodes itself should not be taken as fulfilling the requirement of this sub-rule.
- (52) All parts of a vessel and all other places where the operations are being carried on, and all approaches to such parts and to places to which a worker may be required to proceed in the course of his employment, shall be sufficiently and suitably lighted. Provided in such lighting, due regard shall be given to avoidance of glare and formation of shadows, to the safety of the vessel and cargo, of the navigation of other vessels, and to any local statutory requirements as to the lighting of the harbour or dock.
- (53)(a) No work shall be permitted in any boiler, boiler-furnace or boiler-flue until it has been sufficiently cooled to make work safe for the workers.
- (b) Before any worker enters any steam boiler which is one of a range of two or more steam boilers-
- (i) all inlets through which steam or hot water might otherwise enter the boiler from any other part of the range shall be disconnected from that part; or
- (ii) all valves or taps controlling such entry shall be closed and securely locked.
- (c) While workers remain in any steam boiler to which clause (b) of this sub-rule applies all such inlets as are referred to in that clause shall remain disconnected or all such valves or taps as are therein referred to shall remain closed and securely locked.
- (d) No worker shall be allowed or required to enter or remain in, and no person shall enter or remain, in any steam boiler to which clause (b) of this sub-rule applies unless the provisions of that clause are being complied with.
- (54) The hatch beams of any hatch in use for the operations shall, if not removed, be adequately secured to prevent their displacement.
- (55) Bolts which have been jumped-up and re-screwed shall not be used for securing plates on the sides of vessels, and no worker shall use such bolts for this purpose.
- (56)(a) Before workers are permitted to work in or on any life boat, either stowed or in suspended position, precautions shall be taken to prevent the boat from falling due to accidental tripping of the releasing gear or movement of the davits, and capsizing of the boat if in the chocks.
- (b) Workers shall not be permitted to remain in life boats while the life boats are being hoisted into final stowed position.
- (57) Adequate protection for the hands shall be available for all workers when using cutting or welding apparatus to which oxygen or any flammable gas or vapour is supplied at a pressure greater than atmospheric pressure or when engaged in machine caulking or machine riveting or in transporting or stacking plates or in handling plates at machines.
- (58)(a) Suitable goggles fitted with tinted eye-pieces shall be provided and maintained for all persons employed when using cutting or welding apparatus to which oxygen or any flammable gas or vapour is supplied at a pressure above atmospheric pressure.
- (b) There shall be provided and maintained for the use of all persons employed when engaged in the process of electric welding -
- (i) suitable helmets or suitable head-shields or suitable hand shields to protect the eyes and face from hot metal and from rays likely to be injurious; and
- (ii) suitable gauntlets to protect the hands and forearms from hot metal and from rays likely to be injurious.
- (c) When electric welding is in progress at any place and persons other than those engaged in that process are employed in a position where the rays are likely to be injurious to their eyes, screens shall, where practicable, be provided at that place for the protection of those persons. Where it is not practicable to provide effective protection of those persons by screening, suitable goggles shall be provided for their use.
- (59) Suitable goggles or effective screens shall be provided to protect the eyes of all workers in any of the following processes:-
- (a) the cutting out or cutting off of cold rivets or bolts from boilers or other plant or from ship;

- (b) the chipping, scaling or scurfing of boiler or ships' plates;
- (c) drilling by means of portable machine tools; and
- (d) dry grinding of metals.

(60) When workers are employed in areas where there is danger of falling objects they shall be provided with suitable safety helmets.

(61)(a) Whenever any worker is engaged on work at a place from which he is liable to fall more than 2 metres, he shall be provided with safety belts equipped with life lines which are secured with a minimum of a slack, to a fixed structure unless any other effective means such as provision of guard rails or ropes are taken to prevent his falling.

(b) All safety belts and life lines shall be examined at frequent intervals by a competent person to ensure that no belt or life line which is not in good condition is used.

(62) No young person shall be employed in -

- (a) the application of asbestos by means of a spray;
- (b) the breaking down for removal of asbestos lagging;
- (c) the cleaning of sacks or other containers which have contained asbestos;
- (d) the cutting of material containing asbestos by means of portable power driven saws; or
- (e) the scaling, scurfing or cleaning of boilers, combustion chambers or smoke box, where his work exposes him to dust of such a character and to such an extent as to be likely to be injurious or offensive to persons employed in such work.

(63)(a) Lead paint shall not be applied in the form of a spray in the interior painting of any part of a ship or vessel.

(b) Wherever lead sheathing work is carried on for making cold storage chambers in the ships, efficient exhaust draughts with portable extractors should be provided to remove the lead fumes from the confined spaces.

(64)(a) In every shipyard they shall be provided and kept readily available-

- (i) a sufficient number of suitably constructed sling stretchers or other similar appliances for raising injured persons;
- (ii) a sufficient number of carrying or wheel stretchers; and
- (iii) a sufficient supply of suitable reviving apparatus and oxygen, and the stretchers, appliance and apparatus so provided shall be properly maintained.

(b) In every shipyard there shall always be readily available during working hours a responsible person or responsible persons whose duty it is to summon an ambulance or other means of transport if needed in cases of accident or illness. Legible copies of a notice indicating that person or, as the case may be, those persons shall be affixed in prominent positions in every shipyard.

(c) In every shipyard other than a dry dock available for hire,-

- (i) in which the number of persons employed normally exceeds five hundred; or
  - (ii) in which the number of persons employed normally exceeds one hundreds and which is more than ten miles from a hospital;
- there shall be provided and maintained in good order and in clean condition a properly constructed ambulance room containing at least the equipment prescribed in the rules framed under section 45 of the Act. The room shall be used only for the purpose of treatment and rest and shall be in the charge of a suitably qualified person who shall always be readily available during working hours, and record shall be kept of all cases of accident or sickness treated at the room.

78. *Young persons.* - (a) No young person shall, until he has been employed in a shipyard or shipyards for at least six months, be employed in connection with the operations in a shipyard on a stage from which, or in any part of a ship where, he is liable to fall from a height of more than 2 metres or into water in which there is a risk of drowning.

(b) Any young person under the age of sixteen shall, when employed in the operations in shipyard, be placed under the charge of an experienced workman.

(c) In the case of every shipyard other than a dry dock available for hire, being a shipyard where the number of workers regularly or from time to time exceeds five hundred, a person experienced in the work of such yards shall be appointed and employed exclusively to exercise general supervision of the observance of these rules and to promote the safe conduct of the work generally.

79. *Reaction vessels and kettles.*-(1) This rule applies to reaction vessels and kettles, hereinafter referred to as reaction vessels, which normally work at a pressure not above the atmospheric pressure but in which there is likelihood of pressure being created above the atmospheric pressure due to reaction getting out of control or any other circumstances.

(2) In the event of the vessel being heated by electrical means, a suitable thermostatic control device shall be provided to prevent the temperature exceeding the safe limit.

(3) Where steam, is used for heating purposes in a reaction vessel, it shall be supplied through a suitable pressure reducing valve or any other suitable automatic device to prevent the maximum permissible steam pressure being exceeded, unless the pressure of the steam in the supply line itself cannot exceed the said maximum permissible pressure.

(4) A suitable safety valve or rupture disc of adequate size and capacity shall be provided to effectively prevent the pressure being built up in the reaction vessel beyond the safe limit. Effective arrangements shall be made to ensure that the released gases, fumes, vapours, liquids, or dusts, as the case may be, are led away and disposed of through suitable pipes without causing any hazard. Where flammable gases or vapours are likely to be vented out from the vessel, the discharge shall be provided with a flame arrester.

(5) Every reaction vessel shall be provided with a pressure gauge having the appropriate range.

(6) In addition to the devices as mentioned in the foregoing provisions, means shall be provided for automatically stopping the feed into the vessel as soon as process conditions deviate from the normal limits to an extent which can be considered as dangerous.

(7) Wherever necessary, an effective system for cooling, flooding or blanketing shall be provided, for the purpose of controlling the reaction and process conditions within the safe limits of temperature and pressure.

(8) An automatic auditory and visual warning device shall be provided for clear warning whenever process conditions exceed the present limits. This device, whenever possible, shall be integrated with automatic process correction systems.

(9) A notice pointing out the possible circumstances in which pressures above atmospheric pressure may be built up in the reaction, the dangers involved and the precautions to be taken by the operators shall be displayed at a conspicuous place near the vessel.

80. *Examination of eye sight of certain workers.* - (1) No person shall be employed to operate a crane, locomotive or fork - lift truck, or to give signals to a crane or locomotive operator unless his eye sight and colour vision have been examined and declared fit by a qualified ophthalmologist to work whether with or without the use of corrective glasses.

(2) The eye sight and colour vision of the person employed as referred to in clause (1) shall be examined at least once in every period of 12 months up to the age of 45 years and once in every 6 months beyond that age.

(3) Any fee payable for an examination of a person under this sub-rule shall be paid by the occupier and shall not be recoverable from that person.

(4) The record of examination or re-examination carried out as required under sub-rule (1) shall be maintained in Form 6.

81. *Railways in factories.* - (1) This rule shall apply to railways in the precincts of a factory which are not subject to Indian Railways Act, 1890.

(2) A gateway through which a railway track passes shall not be used for the general passage of workers into or out of a factory.

(3)(a) Where building or wall contain doors or gates which open to a railway track, a barrier about 1 metre high shall be fixed parallel to and about 60 cm. away from the building or wall outside the opening and extending several feet beyond it at either end, so that any person passing out become aware of an approaching train when his pace is checked at the barrier. If the traffic on the nearest track is all in one direction, the barrier shall be in the form of an "L" with the end of the short leg abutting on to the wall and the other end opening towards the approaching train.

(b) If the distance between wall and track cannot be made to accommodate such a barrier, the barrier or a turngate shall be placed at the inside of the opening.

(c) Where a footway passes close to a building or other obstruction as it approaches a railway track, a barrier or a turngate shall be fixed in such a manner that a person approaching the track is compelled to move away from the building or obstruction and thus obtain timely sight of an approaching locomotive or wagon.

(4)(a) Workers' pay-windows, first-aid stations and other points where a crowd may collect shall not be placed near a railway track.

(b) At any time of the day when workers are starting or ending work, all railway traffic shall cease for not less than five minutes.

(5)(a) No locomotive shall be used in shutting operations unless it is in good working order.

(b) Every locomotive and tender shall be provided with efficient brakes, all of which shall be maintained in good working order. Brake shoes shall be examined at suitably fixed intervals and those that are worn out be replaced at once.

(c) Water-gauge glasses of every locomotive, whatever its boiler pressure, shall be protected with substantial glass or metal screens.

(d) Suitable steps and hand-holds shall be provided at the corners of the locomotive for the use of shunters.

(e) Every locomotive crane shall be provided with lifting and jacking pads at the four corners of the locomotive for assisting in re-railing operations.

(f) It shall be clearly indicated on every locomotive crane in English and in language understood by the majority of the workers in the factory, for what weight of load and at what radius the crane is safe.

(6)(a) Every wagon (and passenger coach, if any) shall be provided either with self-acting brakes capable of being applied continuously or with efficient hand brakes which shall be maintained in good working order. The hand brakes shall be capable of being applied by a person on the ground and fitted with a device for retaining them in the applied position.

(b) No wagon shall be kept standing within 3 metres of the authorised crossing.

(c) No wagon shall be moved with the help of crow bars or pinch bars.

(7) No person shall be permitted to be upon (whether inside or outside) any locomotive, wagon or after rolling stock except where secure foothold and handhold are provided.

(8)(a) No locomotive, wagon or other rolling stock shall be kept standing unless its brakes are firmly applied and, where it is on a gradient, without sufficient number of properly constructed scotches placed firmly in position.

(b) No train shall be set in motion until the shunting jamadar has satisfied him that all wagon doors are securely fastened.



- (9)(a) If the load on a wagon projects beyond its length, a guard or dummy-truck shall be used beneath the projection.
- (b) No loco-crane shall travel without load unless the jib is completely lowered and positioned in line with the track.
- (c) When it is necessary for a loco-crane to travel with a load, the jib shall not be swung until the loco-crane has come to rest.
- (10) Loose-shunting shall be permitted only when it cannot be avoided. It shall never be performed on a wagon not accompanied by a man capable of applying and pinning down the brakes. A wagon not provided with brakes in good working order and capable of being easily pinned down shall not be loose shunted unless there is attached to it at least another wagon with such brakes. Loose-shunting shall not be performed with, or against a wagon containing passengers, live stock or explosives.
- (11) Fly-shunting shall not be permitted on any factory railway.
- (12)(a) Every locomotive or wagon in motion in a factory shall be in charge of a properly trained jamadar.
- (b) Before authorising a locomotive or wagon to be moved, the shunting jamadar shall satisfy himself that no person is under or in-between or in front of the locomotive or wagon.
- (13) The hand signals used by the shunting jamadar during day and night shall be those prescribed by the shunting rules of railways, working under the Indian Railway Act (IX of 1890).
- (14)(a) In factories where persons work at night, no movement of locomotive, wagon or other rolling stock otherwise than by hand shall be permitted between sunset and sunrise unless the tracks and their vicinity are lighted in a scale of not less than 10 lux as measures at the horizontal plane at the ground level.
- (b) In no circumstances shall any locomotive or train be moved between sunset and sunrise or at any time when there is fog, unless it carries a white head light and a rear light.
- (15)(a) A locomotive or train shall not be permitted to move at a speed greater than seven kilometres per hour.
- (b) A train, locomotive, wagon or other rolling stock shall not be moved by mechanical or electrical power unless it is preceded at a distance of not less than 10 metres during the whole of its journey by a shunting jamadar. He shall be provided with signalling flags or lamp and whistle necessary for calling the attention of the driver.
- (16)(a) The distance-
- (i) between tracks; and
  - (ii) between tracks and buildings, blind walls or other structures; and
  - (iii) tracks and materials deposited on the ground shall be respectively not less than :-
    - (aa) from centre to centre of parallel tracks, the overall width of the widest wagon of that gauge plus twice the width of the door of such a wagon when opened directly outward plus 1 metre.
    - (bb) from a building or structure other than a loading platform to the centre of the nearest track, half the overall width of the widest wagon of that gauge, plus the width of its door when opened outward, plus 1.5 metres.
    - (cc) from material stacked or deposited alongside the track, on the ground or on a loading platform, to the centre of the widest wagon of that gauge, plus half the width of its door when opened directly outward, plus 1 metre.
  - (b) Sleepers of a track shall be in level with the ground and at the crossings of the track with a road or walkway, the surface of the road or walkway shall be in level with the top of the rails.
  - (c) All track ends shall be equipped with buffer stops of adequate strength.
  - (d) Barriers of substantial construction shall be securely and permanently fixed across any doorway or gateway in a building or in a wall which conceals an approaching train from view, between the building and the track as prescribed in clause (a) of sub-rule (3).
  - (e) Where track are carried on a gantry or other elevation, a safe footway or footways with hand rails and toe-boards shall be provided at all positions where persons work or pass on foot; and where there is an opening in the stage of an elevated track for dropping of material to a lower level, the position shall be adequately fenced or the opening itself provided with a grill through which a person cannot fall.
  - (f) All point levers shall have their movements parallel to, not across, the direction of the track.
  - (g) All loading platforms which are more than 60 cm above the level of the ground on which the track is laid and more than 15 metres in length, shall be provided with stops at intervals not greater than 15 meters apart to enable the platform to be easily mounted from the track.
  - (h) Turn tables on plant railways shall be provided with locking devices which will prevent the tables from turning while locomotives or wagons are being run on or off the tables.
  - (i) Workers shall be prohibited from passing under, between or above railway wagons.
- (17)(a) At all crossings of a track with a road or walkway, danger or crossing signs and wherever reasonable practicable, blinking lights or alarm lights shall be provided. At all important crossings, gates or barriers manned by watchmen shall be provided. Swinging gates and barriers shall be secured against inadvertent opening or closing.
- (b) All crossings, warning signs, gates and barriers shall be illuminated during hours of darkness.
- (18) It shall be the duty of every driver of a locomotive, or a shunter including a shunting jamadar, to report without delay to their superior any defect in permanent way, locomotive or rolling stock.
- (19) No person who is under 18 years of age and no person who is not sufficiently competent and reliable shall be employed as a driver of a locomotive or as a shunter.
- (20) The Chief Inspector may by an order in writing exempt a factory or part of it from all or any of the provisions of this rule to such extent and on such conditions as he deems necessary.

82. *Safety Committee.* - (1) In every factory –

- (a) wherein 250 or more workers are ordinarily employed; or
  - (b) which carried on any process or operation declared to be dangerous under Section 87 of the Act; or
  - (c) which carries on 'hazardous process' as defined under Section 2(cb) of the Act;
- (2) There shall be a Safety Committee. The representatives of the management on Safety Committee shall include –
- (a) A senior official, who by his position in the organisation can contribute effectively to the functioning of the Committee, shall be the Chairman;
  - (b) A Safety Officer and a Factory Medical Officer wherever available and the Safety Officer in such a case shall be the Secretary of the Committee;
  - (c) A representative each from the production, maintenance and purchase departments.
- (3) The workers' representatives on this Committee shall be elected by the workers.
- (4) The tenure of the Committee shall be two years.
- (5) Safety Committee shall meet as often as necessary but at least once in every quarter. The minutes of the meeting shall be recorded and produced to the Inspector on demand.
- (6) Safety Committee shall have the right to be adequately and suitably informed of –
- (a) potential safety and health hazards to which the workers may be exposed at workplace;
  - (b) data on accidents as well as data resulting from surveillance of the working environment and of the health of workers exposed to hazardous substances so far as the factory is concerned, provided that the Committee undertakes to use the data on a confidential basis and solely to provide guidance and advice on measures to improve the working environment and the health and safety of the workers.
- (7) Function and duties of the Safety Committee shall include –
- (a) assisting and cooperating with the management in achieving the aims and objectives outlined in the 'Health and Safety Policy' of the occupier;
  - (b) dealing with all matters concerning health, safety and environment and to arrive at practicable solutions to problems encountered;
  - (c) creating safety awareness amongst all workers;
  - (d) undertaking educational, training and promotional activities;
  - (e) discussing reports on safety, environmental and occupational health surveys, safety audits, risk assessment, emergency and disaster management plans and implementation of the recommendations made in the reports;
  - (f) carrying out health and safety surveys and identifying causes of accidents;
  - (g) looking into any complaint made on the likelihood of an imminent danger to the safety and health of the workers and suggesting corrective measures; and
  - (h) reviewing the implementation of the recommendations made by it.
- (8) Where owing to the size of the factory, or any other reason, the functions referred to in sub-rule (7) cannot be effectively carried out by the Safety Committee; it may establish sub-committees as may be required to assist it.

83. *Quality of Personal Protective Equipment.* - All Personal Protective Equipment provided to workers as required under any of the provisions of the Act or the Rules shall conform to the relevant Indian Standards.

84. *Protective Equipments.* - The Inspector may, having regard to the nature of the hazards involved in work and process being carried out, order the occupier or the manager in writing to supply to the workers exposed to particular hazard any personal protective equipment as may be found necessary.

85. *Thermic fluid heaters.* - (1) All heaters shall be of such construction that coils are removable for periodic cleaning, visual inspection and hydraulic test.

(2) Suitable arrangements shall be made for cooling the furnace effectively in case of power failure.

(3) Before restarting the furnace, it shall be effectively purged.

(4) Velocity of flow of the thermic fluid shall not be allowed to fall below the minimum recommended by the manufacturers while the heater is in operation.

(5) The thermic fluid shall be circulated in a closed circuit formation with an expansion cum deaerator tank. This tank shall be located outside the shed where the heater is installed.

(6) Every heater shall be provided with a Photo-resistor actuated audio-visual alarm to indicate flame failure and automatic burner cut off.

(7) The stack temperature monitor-cum-controller with audio-visual alarm shall be provided so as to warn the operator in case the outlet temperature exceeds the specified minimum.

(8) Where inspection doors are provided on the furnace they shall be interlocked with the burner itself so that they cannot be opened until burner is shut off and furnace is cooled sufficiently.

(9) All heaters shall be provided with the following safety devices:-

- (a) level control in the expansion tank;
- (b) temperature control of thermic fluid;

- (c) differential pressure switch on the outlet line of the heater tubes; and
- (d) temperature control device for the fuel oil supply to the burner.

(10) All devices mentioned in sub-rule (9) shall have interlocking arrangements with burner so that in case of any predetermined limits being crossed the supply of fuel and air to burner shall automatically be cut-off.

(11) All safety interlocks when operated shall be indicated on the control panel of the heater by a suitable audio visual alarm.

(12) Every heater unit shall be provided as a standard accessory an arrangement for sniffing with low pressure steam or nitrogen for putting out the fire.

(13) Electric panel for the heater shall be located near the heater but not so close as to be exposed to spilling or leaking oil.

(14) The heater shall be located in a place segregated from other manufacturing activities.

(15) Explosion vent shall be so installed that release takes place at safe location.

(16) The heater coil shall be subjected to pressure test by competent person once at least in every 12 months. The test pressure shall not be less than twice the operating pressure.

(17) If repairs are carried out to the coil, it shall be tested before taking it into use.

(18) The thermic fluid shall conform to the specifications prescribed by the manufacturers and shall be tested by competent person for suitability at least once in every three months period. Such test shall include test for acidity, suspended matter, ash contents, viscosity and flash point.

(19) Cleaning of the internal surface of the heater or soot and check up of refractory surface on the inside shall be carried out every month or as often as required depending upon working conditions. The coils shall be removed and surface of the coils be cleaned thoroughly once at least in a period of six months. The burner, nozzles, oil filters and pumps shall be cleaned once a week during the period of use.

(20) A separate register containing the following information shall be maintained :-

- (a) weekly checks carried out confirming the effectiveness of the interlock;
- (b) weekly checks confirming that all accessories are in good state of repairs; and
- (c) information regarding fuel oil temperature, pressure, thermic fluid inlet/outlet pressure and temperature, fuel gas temperature, recorded at 4 hourly intervals.

(21) The heater when in operation shall always be kept in charge of a trained operator.

86. Constitution of Site Appraisal Committee. - (1) The following provisions shall govern the functioning of the Site Appraisal Committee, herein after referred to as the "Committee"

- (a) The State Government may constitute a Site Appraisal Committee and reconstitute the Committee as and when necessary;
- (b) The State Government may appoint a senior official of the Factories Inspectorates, preferably with qualification in Chemical Engineering to be the Secretary of the Committee;
- (c) The State Government may appoint the following as members of the Committee:-
  - (i) A representative of the Fire Service Organisation of the State Government;
  - (ii) A representative of the State Department of Industries;
  - (iii) A representative of the Director General of Factory Advice Service and Labour Institutes, Bombay.

(2) No member, unless required to do so by a Court of Law, shall disclose otherwise than in connection with the purpose of the Act, at any time any information relating to manufacturing or commercial business or any working process which may come to his knowledge during his tenure as a Member on this Committee.

(3) Applications for appraisal of sites.

- (a) Applications for appraisal of sites in respect of the factories covered under section 2(cb) of the Act shall be submitted to the Chairman of the Site Appraisal Committee.
- (b) The application for site appraisal along with 15 copies thereof shall be submitted in Form D. The Committee may dispense by furnishing information on any particular item in Form D if it considers the same to be not relevant to the application under consideration.

(4) Function of the Committee –

- (a) The Secretary shall arrange to register the applications received for appraisal of site in a separate register and acknowledge the same within a period of 7 days.
- (b) The Secretary shall fix up meeting in such a manner that all the applications received and registered are referred to the Committee within a period of one month from the date of their receipt.
- (c) The Committee may adopt a procedure for its working, keeping in view the need for expeditious disposal of applications.

- (d) The Committee shall examine the application for appraisal of a site with reference to the prohibitions and restrictions on the location of industry and the carrying on of processes and operations in different areas as per the provisions of rule 5 of the Environment (Protection) Rules, 1986 framed under the Environment Protection Act, 1986.
- (e) The Committee may call for documents, examine experts, inspect the site if necessary and take other steps for formulating its views in regard to the suitability of the site.
- (f) Wherever the proposed site requires clearance by the Ministry of Industry or the Ministry of Environment and Forests, the application for Site Appraisal will be considered by the Site Appraisal Committee only after such clearance has been received.

*87. Health and Safety Policy.* - (1) The occupier of every factory, except as provided for in sub-rule (2), shall prepare a written statement of his policy in respect of health and safety of workers at work.

(2) All factories –

- (a) covered under section 2(m) (i) but employing less than 50 workers;
- (b) covered under section 2(m)(ii) but employing less than 100 workers; are exempted from requirements of sub-rule(1):

Provided that they are not covered under the First Schedule of section 2(cb) or carrying out processes of operations declared to be dangerous under Section 87 of the Act.

(3) Notwithstanding anything contained in sub-rule (2), the Chief Inspector may required the occupiers of any of the factories or class or description of factories to comply with the requirements of sub-rule(1) if, in his opinion, it is expedient to do so.

(4) The Health and Safety Policy should contain or deal with -

- (a) declared intention and commitment of the top management to health, safety and environment and compliance with all the relevant statutory requirements;
- (b) organisational set-up to carry out the declared policy clearly assigning the responsibility at different levels; and
- (c) arrangements for making the policy effective.

(5) In particular, the Policy should specify the following:

- (a) arrangements for involving the workers;
- (b) intention of taking into account the health and safety performance of individuals at different levels while considering their career advancement;
- (c) fixing the responsibility of the contractors, sub-contractors, transporters and other agencies entering the premises;
- (d) providing a resume of health and safety performance of the factory in its Annual Report;
- (e) relevant techniques and methods, such as safety audits and risk assessment for periodical assessment of the status on health, safety and environment and taking all the remedial measures;
- (f) stating its intentions to integrate health and safety, in all decisions including those dealing with purchase of plant, equipment, machinery and material as well as selection and placement of personnel;
- (g) arrangements for informing, educating and training and retraining its own employees at different levels and the public, wherever required.

(6) A copy of the declared Health and Safety Policy signed by the occupier shall be made available to the Inspector having jurisdiction over the factory and to the Chief Inspector

(7) The Policy shall be made widely known by –

- (a) making copies available to all workers including contract workers, apprentices, transport workers suppliers, etc.
  - (b) displaying copies of the policy at conspicuous places; and
  - (c) any other means of communication;
- in a language understood by majority of workers.

(8)The occupier shall revise the Safety Policy as often as may be appropriate, but it shall necessarily be revised under the following circumstances: -

- (a) whenever any expansion or modification having implications on safety and health of persons at work is made; or
- (b) whenever new substance(s) or articles are introduced in the manufacturing process having implications on health and safety of persons exposed to such substances.

*88. Collection and development and dissemination of information.*- (1)The occupier of every factory carrying on a ‘hazardous process’ shall arrange to obtain or develop information in the form of Material Safety Data Sheet (MSDS) in respect of every hazardous substance or material handled in the manufacture, transportation and storage in the factory. It shall be accessible upon request to a worker for reference.

(a) Every such Material Safety Data Sheet shall include the following information: -

- (i) The identity used on the label;
- (ii) Hazardous ingredients of the substance;
- (iii) Physical and chemical characteristics of the hazardous substance;
- (iv) The physical hazards of the hazardous substance, including the potential for fire, explosion and reactivity;
- (v) The health hazards of the hazardous substance, including signs and symptoms of exposure and any medical conditions which are generally recognised as being aggravated by exposure to the substance;
- (vi) The primary route(s) of entry;
- (vii) The permissible limits of exposure prescribed in the Second Schedule under Section 41-F of the Act, and in respect of a Chemical not covered by the said Schedule, any exposure limit recommended for use by the manufacturer, importer or occupier;

- (viii) Any generally applicable precautions for safe handling and use of the hazardous substance, which are known, including appropriate hygienic practices, protective measures during repairs and maintenance of contaminated equipment, procedures for clean-up of spills and leaks;
  - (ix) Any generally applicable control measures, such as appropriate engineering controls, work practices, or use of personal protective equipment;
  - (x) Emergency and first aid procedures;
  - (xi) The date of preparation of the Material Safety Data Sheet, or the last change to it;
  - (xii) The name, address and telephone number of the manufacturer, importer, occupier or other responsible party preparing or distributing the Material Safety Data Sheet, who can provide additional information on the hazardous substance and appropriate emergency procedures, if necessary.
- (b) The occupier while obtaining or developing a Material Safety Data Sheet in respect of a hazardous substance shall ensure that the information recorded accurately reflects the scientific evidence used in making the hazard determination. If he becomes newly aware of any significant evidence used in making the hazard determination or if he becomes newly aware of any significant information regarding the hazards of a substance, or ways to protect against the hazards, this new information shall be added to the Material Safety Data Sheet as soon as practicable.
  - (c) An example of such Material Safety Data Sheet is given in the Schedule R
- (2) Every container of hazardous substances shall be clearly labelled or marked to identify:
- (a) the contents of the container;
  - (b) the name and address of the manufacturer or importer of the hazardous substances;
  - (c) the physical and health hazards; and
  - (d) the recommended personal protective equipment needed to work safely with the hazardous substance.

*89. Disclosure of information to workers.*- (1) The occupier of a factory carrying on a 'hazardous process' shall supply to all workers the following information in relation to handling of hazardous materials or substances in the manufacture, transportation, storage and other processes:-

- (a) Requirements of Sections 41B, 41C and 41H of the Act;
- (b) A list of 'hazardous processes' carried on in the factory;
- (c) Location and availability of all Material Safety Data Sheets as per rule 88;
- (d) Physical and health hazards arising from the exposure to or handling of substances;
- (e) Measures taken by the occupier to ensure safety and control of physical and health hazards;
- (f) Measures taken by the workers to ensure safe handling, storage and transportation of hazardous substances;
- (g) Personal Protective Equipment required to be used by workers employed in 'hazardous process' or 'dangerous operations';
- (h) Meaning of various labels and markings used on the containers of hazardous substances as provided under rule 88;
- (i) Signs and symptoms likely to be manifested on exposure to hazardous substances and to whom to report;
- (j) Measures to be taken by the workers in case of any spillage or leakage of a hazardous substance;
- (k) Role of workers vis-à-vis the emergency plan of the factory, in particular the evacuation procedures;
- (l) Any other information considered necessary by the occupier to ensure safety and health of workers.

(2) The information required by sub-rule (1) shall be compiled and made known to workers individually through supply of booklets or leaflets and display of cautionary notices at the work places.

(3) The booklets, leaflets and the cautionary notices displayed in the factory shall be in the language understood by the majority of the workers and also explained to them.

(4) The Chief Inspector may direct the occupier to supply further information to the workers as deemed necessary.

*90. Disclosure of information to general public.*- (1) The occupier of every factory carrying on a 'hazardous process' shall in consultation with the District Emergency Authority designated by the State Government, take appropriate steps to inform the general public who are likely to be in the area which might be affected by an accident. Such information shall include:

- (a) Name of the factory and address where situated;
- (b) Identification, by name and position, of the person giving the information;
- (c) Confirmation that the factory has approval from the Factories Inspectorate and Pollution Control Board;
- (d) An explanation in simple terms of the hazardous process (es) carried on in the premise;
- (e) The common names of the hazardous substances used which could give rise to an accident likely to affect them, with an indication of their principal harmful characteristics;
- (f) Brief description of the measures to be taken to minimise the risk of such an accident in compliance with its legal obligations under relevant safety statutes;
- (g) Salient features of the approved disaster control measures adopted in the factory;
- (h) Details of the factory's emergency warning system for the General Public;
- (i) General advice on the action that the members of the public should take on hearing the warning;
- (j) Brief description of arrangements in the factory, including liaison with the emergency services, to deal with foreseeable accidents of such nature and to minimise their effects; and
- (k) Details of where further information can be obtained.

(2) The occupier shall also supply any further information –

- (a) to general public as directed by the District Emergency Authority from time to time;

(b) to the elected representatives of the general public on request.

(3) The occupier shall endeavour to enter an agreement with the District Emergency Authority for the area, within whose jurisdiction the factory is situated, for the District Emergency Authority to take appropriate steps to inform the general public outside the factory who are likely to be affected by an accident as required in sub-rule (1).

(4) The information prescribed in sub-rule (1) shall be in the regional language and in English or Hindi.

*91. Disclosure of information to the Local Authority.*- The occupier of every factory carrying on a 'hazardous process' shall furnish the following information in writing to the local authority having jurisdiction over the area in which the factory is situated –

- (a) the information furnished to general public as prescribed in rule 90;
- (b) a statement of the names and quantities generally stored or in process of hazardous substances included in the list of chemicals prescribed under clauses (vi) and (vii) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986.

*92. Disclosure of information to District Emergency Authority.*- The occupier of a factory carrying on a hazardous process, shall intimate the District Emergency Authority designated by the State Government, all information having a bearing on preparation of an on-site emergency plan and a disaster control and management plan in respect of the factory.

Without prejudice to the generality of this clause, the occupier shall furnish the District Emergency Authority the following:

- (a) a report on status relating to risk assessment and environmental impact assessment and the measures taken for prevention of accidents,
- (b) compilation of Material Data Sheets in respect of hazardous substances used, produced or stored in the factory,
- (c) a statement on all possible sources of accidents involving fire, explosion, release or leakage of toxic substances and the plan of the premises where such an accident may occur.
- (d) a statement on resources and facilities available for dealing with an emergency including any agreement entered into with a neighbouring factory for aid and assistance in the event of an emergency,
- (e) a map of the area showing the approaches to the factory location of emergency facilities such as hospitals, police, fire service,
- (f) the organisation of the management and the responsibility for safety indicating therein the persons responsible for on-site emergency action,
- (g) details relating to alert system,
- (h) information on availability of antidotes for poisoning resulting from an accident,
- (i) any other information as may be considered relevant by the occupier or asked for by the District Emergency Authority.

*93. Disclosure of information to the Chief Inspector.*- (1) The occupier of every factory carrying on 'hazardous process' shall furnish, in writing, to the Chief Inspector a copy of all the information furnished to the workers, local authority, general public and the District Emergency Authority.

(2) A copy of compilation of Material Safety Data Sheets in respect of hazardous substances used, produced or stored in the factory shall be furnished to the Chief Inspector, and the local Inspector.

(3) The occupier shall also furnish any other information asked for by the Chief Inspector from time to time for the purpose of this Act and Rules made thereunder.

*94. Emergency plan.* - (1) The occupier of a factory carrying on a hazardous process shall prepare a draft on-site emergency plan and submit it to the Chief Inspector. The Chief Inspector may make such modification in the plan as necessary, in consultation with the occupier and approve the same.

(2) The occupier will submit a copy of the approved plan to the District Emergency Authority.

(3) The occupier will intimate the workers the provisions of the emergency plan and hold rehearsals of the plan periodically. He shall review the plan from time to time and make necessary changes therein under intimation to the Chief Inspector and the District Emergency Authority.

(4) The Chief Inspector may issue guidelines relating to formulation of emergency plans. He may also direct modifications of the emergency plan in respect of any factory as may be necessary, from time to time.

*95. Disaster control and management plan.*-(1) The occupier of every factory carrying on a hazardous process shall prepare a draft disaster control and management plan in respect of his factory and submit the same to the Chief Inspector and the District Emergency Authority.

(2) The District Emergency Authority on receipt of the plan shall hold consultation with the occupier, representatives of the Chief Inspector, the State Pollution Control Board, local authority as well as police, health, fire brigade and other authorities concerned and finalise the plan.

(3) The District Emergency Authority shall forward a copy of the final plan to the occupier and all authorities concerned. The occupier shall intimate the workers the contents of the plan.

(4) The occupier in consultation with the District Emergency Authority will arrange rehearsals of the plan at least once a year.

(5) The Chief Inspector may issue guidelines for formulation of disaster control and management plans. The Chief Inspector as well as the District Emergency Authority may, after mutual consultation, also direct modifications of the disaster control and management plan in respect of a factory as may be necessary from time to time.

96. *Information on Industrial wastes.*-(1)The information furnished under rules 89, 91, 92 and 93 shall include the quantity of the solid and liquid wastes generated per day, their characteristics and the method of treatment such as incineration of solid wastes, chemical and biological treatment of liquid wastes, and arrangements for their final disposal.

(2) It shall also include information on the quality and quantity of gaseous waste discharged through the stacks or other openings, and arrangements such as provision of scrubbers, cyclone separators, and electro-static precipitators or similar arrangements made for controlling pollution of the environment.

(3)The occupier shall also furnish the information prescribed in sub-rules (1) and (2) to the State Pollution Control Board.

97. *Review of the information furnished to workers, etc.*- (1)The occupier shall review once in every calendar year and modify, if necessary, the information furnished under rule 89 to 93 to the workers, general public, local authority, Chief Inspector and the District Emergency Authority.

(2)In the event of any change in the process or operations or methods of work or when any new substance is introduced in the process of in the event of a serious accident taking place, the information so furnished shall be reviewed and modified to the extent necessary.

98. *Confidentiality of information.*-The occupier of a factory carrying on 'hazardous process' shall disclose all information needed for protecting safety and health of the workers and the general public in the neighbourhood –

- (a) his workers;
- (b) District Emergency Authority; and
- (c) Chief Inspector;

as required under rules 89, 92 and 93:

Provided that if the occupier is of the opinion that the disclosure of details regarding the process and formulations will adversely affect his business interests, he may make a representation to the Chief Inspector stating the reasons for withholding such information. The Chief Inspector shall give an opportunity to the occupier of being heard and pass an order on the representation.

An occupier aggrieved by an order of Chief Inspector may prefer an appeal before the State Government within a period of 30 days. The State Government shall give an opportunity to the occupier of being heard and pass an order. The order of the State Government shall be final.

99. *Medical examination.*- (1) Workers employed in a 'hazardous process' shall be medically examined by a qualified medical practitioner herein after referred to as a Factory Medical Officer, in the following manner: -

- (a) once before employment, to ascertain physical fitness of the person to do the particular job;
- (b) once in a period of 6 months, to ascertain the health status of all the workers in respect of occupational health hazards to which they are exposed and in cases where in the opinion of the Factory Medical Officer it is necessary to do so at a shorter interval in respect of any workers; and
- (c) The details of pre-employment and periodical medical examination carried out as aforesaid shall be recorded in the Health Register in Form 24.

(2) No person shall be employed for the first time without a certificate of fitness in Form 24 by the Factory Medical Officer. If the Factory Medical Officer declares a person unfit for being employed in any process covered under sub-rule (1), such a person shall have the right to appeal to the Inspector who shall refer the matter to the Certifying Surgeon whose opinion shall be final in this regard. If the Inspector is also a Certifying Surgeon, he may dispose of the application himself.

(3) Any findings of the Factory Medical Officer revealing any abnormality or unsuitability of any person employed in the process shall immediately be reported to the Certifying Surgeon who shall in turn, examine the concerned worker and communicate his findings to the occupier within 30 days. If the Certifying Surgeon is of the opinion that the worker so examined is required to be taken away from the process for health protection, he will direct the occupier accordingly, who shall not employ the said worker in the same process. However, the worker so taken away shall be provided with alternate placement unless he is in the opinion of the Certifying Surgeon, fully incapacitated in which case the worker affected shall be suitably rehabilitated.

(4) A Certifying Surgeon on his own motion or on a reference from an Inspector may conduct medical examination of a worker to ascertain the suitability of his employment in a hazardous process or for ascertaining his health status. The opinion of the Certifying Surgeon in such a case shall be final. The fee required for this medical examination shall be paid by the occupier.

(5) The worker taken away from employment in any process under sub-rule (2) may be employed again in the same process only after obtaining the Fitness Certificate from the Certifying Surgeon and after making entries to that effect in the Health Register.

(6) The worker required to undergo medical examination under these rules and for any medical survey conducted by or on behalf of the Central or the State Government shall not refuse to undergo such medical examination.

100. *Occupational health centers.*- (1) In respect of any factory carrying on 'hazardous process', there shall be provided and maintained in good order an Occupational Health Centre with the services and facilities as per scale laid down hereunder: -

(a) For factories employing upto 50 workers -

- (i) the services of a Factory Medical Officer on retainer-ship basis, in his clinic to be notified by the occupier. He will carry out the pre-employment and periodical medical examination as stipulated in rule 99 and render medical assistance during any emergency.
- (ii) a minimum of 5 persons trained in first-aid procedures amongst whom atleast one shall always be available during the working period;
- (iii) a fully equipped first-aid box.

(b) For factories employing 51 to 200 workers –

- (i) An occupational Health Centre having a room with a minimum floor area of 15 sq.m with floors and walls made of smooth and impervious surface and with adequate illumination and ventilation as well as equipment as per Schedule S.

- (ii) A part-time Factory Medical Officer shall be in overall charge of the Centre who shall visit the factory at least twice in a week and whose services shall be readily available during medical emergencies;
- (iii) One qualified and trained dresser-cum-compounder on duty throughout the working period;
- (iv) A fully equipped first aid box in all the departments;
- (c) for Factories employing above 200 workers-
  - (i) one full-time Factory Medical Officer for factories employing upto 500 workers and one more Medical Officer for every additional 1000 workers or part thereof;
  - (ii) an Occupational Health Centre having at least 2 rooms each with a minimum floor area of 15 sq.metre with floors and walls made of smooth and impervious surface and adequate illumination and ventilation as well as equipment as per Schedule S.
  - (iii) There shall be one nurse, one dresser-cum-compounder and one sweeper-cum-ward boy through out the working period;
  - (iv) The Occupational Health Centre shall be suitably equipped to manage medical emergencies.

(2) The Factory Medical Officer required to be appointed under sub-rule (1) shall have qualifications included in Schedule to the Indian Medical Degrees Act of 1916 or in the Schedules to the Indian Medical Council Act, 1956 and possess a Certificate of Training in Industrial Health of minimum three months duration recognised by the State Government:

Provided that: –

- (i) A person possessing a Diploma in Industrial Health or equivalent shall not be required to possess the certificate of training as aforesaid;
- (ii) The Chief Inspector may, subject to such conditions as he may specify, grant exemption from the requirement of this sub-rule, if in his opinion a suitable person possessing the necessary qualification is not available for appointment;
- (iii) In case of a person who has been working as a Factory Medical Officer for a period of not less than 3 years on the date of commencement of this rule, the Chief Inspector may, subject to the condition that the said person shall obtain the aforesaid certificate of training within a period of three years, relax the qualification.

(3) The syllabus of the course leading to the above certificate, and the organisations conducting the Course shall be approved by the Directorate General of Factory Advice Service and Labour Institutes or the State Government in accordance with the guidelines issued by the DGFASLI.

(4) Within one month of the appointment of a Factory Medical Officer, the occupier of the Factory shall furnish to the Chief Inspector the following particulars:

- (a) name and address of the Factory Medical Officer;
- (b) qualifications;
- (c) experience, if any, and
- (d) the sub-rule under which appointed.

*101. Ambulance Van.* (1) In any factory carrying on 'hazardous process', there shall be provided and maintained in good condition, a suitably constructed ambulance van equipped with items as per sub-rule (2) and manned by a full time Driver-cum-Mechanic and a Helper trained in first aid, for the purposes of transportation of serious cases of accidents or sickness. The ambulance van shall not be used for any purpose other than the purpose stipulated herein and will normally be stationed at or near to the Occupational Health Centre:

Provided that a factory employing less than 200 workers, may make arrangements for procuring such facility at short notice from a nearby hospital or other places, to meet any emergency.

(2) The Ambulance should have the following equipment:

**(a) General:**

- A wheeled stretcher with folding and adjusting devices; with the head of the stretcher capable of being tilted upward;
- Fixed suction unit with equipment;
- Fixed oxygen supply with equipment;
- Pillow with case, Sheets, Blankets, Towels;
- Emesis bag, Bed pan, Urinal, Glass

**(b) Safety equipment:**

- Flares with life of 30 minutes; - Flood lights;
- Flash lights; -Fire extinguisher dry power type;
- Insulated gauntlets

**(c) Emergency Care Equipment:**

**(i) Resuscitation-**

- Portable suction unit; Portable oxygen units;
- Bag-valve-mask, hand operated artificial ventilation unit;
- Airways; -Mouth gags; - Tracheostomy adapters;
- Short spine board; I.V. Fluids with administration unit;
- B.P. Manometer; - Cunn; -Stethoscope

**(ii) Immobilization-**

- Long and short padded boards; - Wire ladder splints;
- Triangular bandage; - Long and short spine boards

**(iii) Dressings-**

- Gauze pads – 4” x 4”; - Universal dressing 10” x 36”;
- Roll of aluminum foils; - Soft roller bandages 6” x 5 yards; -Adhesive tape in 3” roll; -Safety pins;
- Bandage sheets; - Burn sheet.



**(iv) Poisoning-**

- Syrup of Ipecac; - Activated Charcoal Pre packeted in dozes; - Snake bite kit;
- Drinking water

**(v) Emergency Medicines-**

- As per requirement (under the advice of Medical Officer only)

102. *Decontamination facilities.* - In every factory, carrying out 'hazardous process', the following provisions shall be made to meet emergency:-

- (a) fully equipped first aid box;
- (b) readily accessible means of water for washing by workers as well as for drenching the clothing of workers who have been contaminated with hazardous and corrosive substance; and such means shall be as per the scale shown in the Table below:

**TABLE**

<u>No. of persons employed at any time</u>	<u>No. of drenching showers</u>
(i) Upto 50 workers	2
(ii) Between 51 to 200 workers	2 + 1 for every additional 50 or part thereof.
(iii) Between 201 to 500 workers	5 + 1 for every additional 100 or part thereof.
(iv) 501 workers and above	8 + 1 for every additional 200 or part thereof.

- (c) a sufficient number of eye wash bottles filled with distilled water or suitable liquid, kept in boxes or cupboards conveniently situated and clearly indicated by a distinctive sign which shall be visible at all times.

103. *Making available health records to workers.*- (1) The occupier of every factory carrying out a 'hazardous process' shall make accessible the health records including the record of worker's exposure to hazardous process or, as the case may be, the medical records of any worker for his perusal under the following conditions:-

- (a) Once in every six months or immediately after the medical examination whichever is earlier;
- (b) If the factory Medical Officer or the Certifying Surgeon as the case may be, is of the opinion that the worker has manifested signs and symptoms of any notifiable disease as specified in the Third Schedule of the Act.
- (c) If the worker leaves the employment;
- (d) If any one of the following authorities so direct
  - the Chief Inspector of Factories;
  - the Health Authority of the Central or State Government;
  - the Commissioner of Workmen's Compensation;
  - the Director, Employees State Insurance Corporation (Medical Benefits); and
  - the Director General, Factory Advice Service and Labour Institutes.

(2) A copy of the upto date health records including the record of worker's exposure to hazardous process or, as the case may, the medical records shall be supplied to the worker on receipt of an application from him. X-ray plates and other medical diagnostic reports may also be made available for reference to his medical practitioner.

104. *Qualifications, etc. of Supervisors.* - (1) All persons who are required to supervise the handling of hazardous substances shall possess the following qualifications and experience:

- (a)(i) A degree in Chemistry or Diploma in Chemical Engineering or Technology with 5 years experience; or
- (ii) A Master's Degree in Chemistry or a Degree in Chemical Engineering or Technology with 2 years experience.

The experience stipulated above shall be in process operation and maintenance in the Chemical Industry.

- (b) The Chief Inspector may require the supervisor to undergo training in Health and Safety.

(2)The syllabus and duration of the above training and the organisations conducting the training shall be approved by the DGFASLI or the State Government in accordance with the guidelines issued by the Directorate General Factory Advice Service & Labour Institutes (DGFASLI)

105. *Issue of guidelines.*-For the purpose of compliance with the requirements of sub-sections (1), (4) and (7) of section 41-B and Section 41-C the Chief Inspector may, if deemed necessary, issue guidelines from time to time to the occupiers of factories carrying on 'hazardous process'. Such guidelines may be based on National Standards, Codes of Practice, or recommendations of International Bodies such as ILO and WHO.

**Chapter V  
Welfare**

106. *Washing facilities.* - (1) There shall be provided and maintained in every factory for the use of employed persons adequate and suitable facilities for washing which shall include soap and nail brushes or other suitable means of cleaning and the facilities shall be conveniently accessible and shall be kept in a clean and orderly condition.

(2)Without prejudice to the generality of the foregoing provisions, the washing facilities shall include –

- (a) a trough with taps or jets at intervals of not less than 60 centimetres; or

- (b) wash basins with taps attached thereto; or
- (c) taps on stand-pipes; or
- (d) showers controlled by taps; or
- (e) circular troughs of fountain type:

Provided that the Inspector may, having regard to the needs and habits of the workers, fix the proportion in which the aforementioned types of facilities shall be installed.

- (3)(a) Every trough and basin shall have a smooth, impervious surface and shall be fitted with a waste-pipe and plug.
- (b) The floor or ground under and in the immediate vicinity of every trough, tap, jet, wash-basin, stand-pipe and shower shall be so laid or finished as to provide a smooth impervious surface and shall be adequately drained.

(4) For persons whose work involves contact with any injurious or noxious substance there shall be at least one tap for every fifteen persons, and for persons whose work does not involve such contact the number of taps shall be as prescribed in Schedule T.

(5) If female workers are employed, separate washing facilities shall be provided and so enclosed or screened that the interiors are not visible from any place where persons of the other sex work or pass. The entrance to such facilities shall bear conspicuous notice "For Women Only" in the language understood by the majority of the workers and shall also be indicated pictorially.

(6) The water supply to the washing facilities shall be capable of yielding at least 27 litres a day for each person employed in the factory and shall be from a source approved in writing by the Health Officer:

Provided that where the Chief Inspector is satisfied that such a yield is not practicable, he may by certificate in writing permit the supply of a smaller quantity not being less than 5 litres per day for every person employed in the factory.

107. *Facilities for keeping clothing.* - All classes of factories mentioned in Schedule U shall provide facilities for keeping clothing not worn during working hours and for the drying of wet clothing. Such facilities shall include the provision under section 43 of arrangements approved by the Chief Inspector of Factories.

108. *First-aid appliances.*- The first-aid boxes or cupboards shall be distinctively marked with a red cross on white background and shall contain the following equipment:-

(a) For factories in which the number of persons employed does not exceed ten or in the cases of factories in which mechanical power is not used such number does not exceed fifty persons; each first-aid box or cup-board shall contain the following equipment:-

- (i) Six small size sterilised dressings.
- (ii) Three medium size sterilised dressings.
- (iii) Three large size sterilised dressings.
- (iv) Three large size sterilised burn dressings.
- (v) One (60 ml) bottle of cetrimide solution (1%) or a suitable antiseptic solution.
- (vi) One (60 ml) bottle of mercurochrome solution (2%) in water.
- (vii) One (30ml) bottle containing sal-volatile having the dose and mode of administration indicated on the label.
- (viii) One pair of scissors.
- (ix) One roll of adhesive plaster (2 cm x 1 m.)
- (x) Six pieces of sterilised eye pads in separate sealed packets
- (xi) A bottle containing 100 tablets (each of 325 mg) of aspirin or any other analgesic.
- (xii) Polythene wash bottle (1/2 litres i.e., 500 cc) for washing eyes.
- (xiii) A snake-bite lancet.
- (xiv) One (30 ml) bottle containing potassium permanganate crystals.
- (xv) One copy of first-aid leaflet issued by the Directorate General of Factory Advice Service and Labour Institutes, Government of India, Bombay.

(b) For factories in which mechanical power is used and in which the number of persons employed exceeds ten but does not exceed fifty, each first-aid box or cupboard shall contain the following equipment :-

- (i) Twelve small size sterilized dressings.
- (ii) Six medium size sterilized dressings.
- (iii) Six large size sterilized dressings.
- (iv) Six large size sterilized burn dressings.
- (v) Six (15 gm) packets of sterilized cotton wool.
- (vi) One (120) bottle of cetrimide solution (1%) or a suitable antiseptic solution.
- (vii) One (120 ml) bottle of mercurochrome solution (2%) in water.
- (viii) One (60 ml) bottle containing sal-volatile having the dose and mode of administration indicated on the label.
- (ix) One pair of scissors.
- (x) Two rolls of adhesive plaster (2 cm x 1 m)
- (xi) Eight pieces of sterilized eye pads in separate sealed packets.
- (xii) One tourniquot.
- (xiii) One dozen safety pins.
- (xiv) A bottle containing 100 tablets (each of 325 mg) of aspirin or any other analgesic.
- (xv) One polythene wash bottle (1/2 litre i.e., 500 cc) for washing eyes.
- (xvi) A snake-bite lancet.

- (xvii) One (30 ml) bottle containing potassium permanganate crystals.
- (xviii) One copy of first-aid leaflet issued by the Directorate General of Factory Advice Service and Labour Institutes, Government of India, Bombay.

(c) For factories employing more than fifty persons, each first-aid box or cupboard shall contain the following equipment :-

- (i) Twenty-four small size sterilized dressings.
- (ii) Twelve medium size sterilized dressings.
- (iii) Twelve large size sterilized dressings.
- (iv) Twelve large size sterilized burn dressings.
- (v) Twelve (15 gm) packets of sterilized cotton wool.
- (vi) One (200) bottle of cetrimide solution (1%) or a suitable antiseptic solution.
- (vii) One (200 ml) bottle of mercurochrome solution (2%) in water.
- (viii) One (120 ml) bottle of salvolatile having the dose and mode of administration indicated on the label.
- (ix) One pair of scissors.
- (x) One roll of adhesive plaster (6 cm x 1 m)
- (xi) Two rolls of adhesive plaster (2 cm x 1 m)
- (xii) Twelve pieces of sterilized eye pads in separate sealed packets.
- (xiii) A bottle containing 100 tables (each of 325 mg) of aspirin or any other analgesic.
- (xiv) One polythene wash bottle (500 cc) for washing eyes.
- (xv) Twelve roller bandages 10 cm wide.
- (xvi) Twelve roller bandages 5 cm wide
- (xvii) Six triangular bandages
- (xviii) One tourniquet
- (xix) A supply of suitable splints
- (xx) Two Packets of safety pins
- (xxi) Kidney tray
- (xxii) A snake-bite lancet
- (xxiii) One (30 ml) bottle containing Potassium permanganate crystals
- (xxiv) One copy of first-aid leaflet issued by the Directorate General of Factory Advice Service and Labour Institutes, Government of India, Bombay:

Provided that item (xiv) to (xxi) inclusive, need not be included in the standard first-aid box or cupboard (a) where there is a properly equipped ambulance room, or (b) if at least one box containing such items are placed and maintained in accordance with the requirements of section 45 is separately provided.

(d) In lieu of the dressings required under items (i) and (ii) of clause (a), (b) and (c) there may be substituted adhesive wound dressings approved by the Chief Inspector of Factories and other equipment or medicines that may be considered essential and recommended by the Chief Inspector of Factories from time to time.

109. *Notice regarding first-aid.* - A notice containing the names of the persons working within the precincts of the factory who are trained in first-aid treatment and who are in charge of the first-aid boxes or cupboards shall be posted in every factory at a conspicuous place and near each such box or cupboard. The notice shall also indicate workroom where the said person shall be available. The name of the nearest hospital and its telephone number shall also be mentioned prominently in the said notice.

110. *Ambulance Room.*- (1) Every ambulance room shall be under the charge of at least one whole-time qualified medical practitioner (hereinafter referred to as medical officer) assisted by at least one qualified nurse or dresser-cum-compounder and one nursing attendant in each shift.

Provided that where a factory works in more than one shift, the Chief Inspector, if he is satisfied that on account of the size of the factory, nature of hazards or frequency of accidents, it is not necessary to employ a whole-time medical officer for each shift separately, may, with the previous approval of the State Government, grant exemption from the provision of this sub-rule and permit employment of only one whole-time medical officer for more than one or all shifts, subject to the conditions that –

- (a) There shall be no relation in respect of nursing staff; and
- (b) the medical officer is readily available on call during the working hours of the factory.

(2) There shall be displayed in the ambulance room a notice giving the name, address and telephone number of the medical practitioner in charge. The name of the nearest hospital and its telephone number shall also be mentioned prominently in the said notice.

(3) No medical officer shall be required or permitted to do any work which is inconsistent with or detrimental to his responsibilities under this rule.

(4) The ambulance room shall be separate from the rest of the factory and shall be used only for the purpose of first-aid treatment and rest. It shall have a floor area of at least 24 square metres and smooth, hard and impervious walls and floors, and shall be adequately ventilated and lighted by both natural and artificial means. There shall be attached to it at least one latrine and urinal of sanitary type. An adequate supply of wholesome drinking water shall be laid on and the room shall contain at least -

- (i) A glazed sink with hot and cold water always available.
- (ii) A table with a smooth top at least 180 cm x 105 cm.
- (iii) Means for sterilizing instruments.

- (iv) A couch.
- (v) Two stretchers.
- (vi) Two buckets or containers with close fitting lids.
- (vii) Two rubber hot water bags.
- (viii) A kettle and spirit stove or other suitable means of boiling water.
- (ix) Twelve plain wooden splints 900 mm x 100 mm x 6 mm.
- (x) Twelve plain wooden splints 350 mm x 75 mm x 6 mm.
- (xi) Six plain wooden splints 250 mm x 50 mm x 12 mm.
- (xii) Six woollen blankets.
- (xiii) Three pairs artery forceps.
- (xiv) One bottle of spirits ammoniac aromatics (120 ml).
- (xv) Smelling salts (60 gm).
- (xvi) Two medium size sponges.
- (xvii) Six hand towels.
- (xviii) Four "Kidney" trays.
- (xix) Four cakes of toilet, preferably antiseptic soap.
- (xx) Two glass tumblers and two wine glasses.
- (xxi) Two clinical thermometers.
- (xxii) Two tea spoons.
- (xxiii) Two graduated (120 ml) measuring glasses.
- (xxiv) Two minim measuring glasses.
- (xxv) One wash bottle (1000 cc) for washing eyes.
- (xxvi) One bottle (one litre) carbolic lotion 1 in 20.
- (xxvii) Three chairs.
- (xxviii) One screen.
- (xxix) One electric hand torch.
- (xxx) Four first-aid boxes or cupboards stocked to the standards prescribed under (c) of rule 108.
- (xxxi) An adequate supply of anti-tetanus toxic.
- (xxxii) Injections - morphed, methadone, atropine, adrenaline, carmine, novo can (6 each).
- (xxxiii) Carmine liquid (60 ml).
- (xxxiv) Tablets - antihistaminic, antispasmodic (25 each).
- (xxxv) Syringes with needles - 2 cc, 5 cc, 10 cc and 50 cc.
- (xxxvi) Three surgical scissors.
- (xxxvii) Two needle holders, big and small.
- (xxxviii) Suturing needles and materials.
- (xxxix) Three dissecting forceps.
- (xl) Three dressing's forceps.
- (xli) Three scalpels.
- (xlii) One stethoscope.
- (xliii) Rubber bandage - pressure bandage.
- (xliv) Oxygen cylinder with necessary attachments.

(5) The occupier of every factory to which these rules apply shall for the purpose of removing serious cases of accident or sickness, provide in the premises and maintain in good condition a suitable conveyance unless he has made arrangements for obtaining such a conveyance from a hospital.

(6) The Chief Inspector of Factories may, by an order in writing, exempt any factory from the requirements of this rule, subject to such conditions as he may specify in that order, if a hospital, ambulance room or dispensary is maintained at or within 200 metres of the precincts of the factory and such arrangements are made as to ensure the immediate treatment of all injuries sustained by workers within the factory and for providing rest to workers so injured.

Explanation. - For the purpose of this rule, "qualified medical practitioner" means a person holding a qualification granted by an authority specified in the schedule to the Indian Medical Degrees Act, 1916, or in the schedules to the Indian Medical Council Act, 1956.

111. *Canteens*: - (1) The occupier of every factory notified by the state Government, and wherein more than two hundred and fifty workers are ordinarily employed shall provide in or near the factory an adequate canteen according to the standards prescribed in these rules.

(2) The canteen building shall be situated not less than 15 metres from any latrine, urinal, boiler house, coal stacks, ash dumps and any other source of dust, smoke or obnoxious fumes:

Provided that the Chief Inspector may in any particular factory relax the provisions of this sub-rule to such an extent as may be reasonable in the circumstances and may require measures to be adopted to secure the essential purpose of this sub-rule.

(3) The canteen building shall be constructed in accordance with the plans approved by the Chief Inspector and shall accommodate at least a dining hall, kitchen, store room, pantry and washing places separately for workers and for utensils.

(4) In a canteen the floor and inside walls upto a height of 1.2 metres from the floor shall be made of smooth and impervious material; the remaining portion of the inside walls shall be made smooth by cement plaster or in any other manner approved by the Chief Inspector.

(5) The doors and windows of a canteen building shall be of flyproof construction and shall allow adequate ventilation.

(6) The canteen shall be sufficiently lighted at all times when any persons have access to it.

(7) (a) In every canteen -

(i) all inside walls of rooms and all ceilings and passages and staircases shall be lime washed or colour washed at least once in each year or painted once in three years dating from the period last limewashed, colourwashed or painted, as the case may be;

(ii) all woodwork shall be varnished or painted once in three years dating from the period when last varnished or painted;

(iii) all internal structural iron or steel work shall be varnished or painted once in three years dating from the period when last varnished or painted:

Provided that inside walls of the kitchen shall be limewashed once every four months.

(b) Records of dates on which limewashing, colourwashing, varnishing or painting is carried out shall be maintained in the prescribed register of Form 7.

(8) The precincts of the canteen shall be maintained in a clean and sanitary condition. Waste water shall be carried away in suitable covered drains and shall not be allowed to accumulate so as to cause a nuisance. Suitable arrangements shall be made for the collection and disposal of garbage.

112. *Dining hall.* - (1) The dining hall shall accommodate at a time at least 30 percent of the workers working at a time:

Provided that, in any particular factory or in any particular class of factories, the Inspector of Factories may, by an order in writing in this behalf, alter the percentage of workers to be accommodated.

(2) The floor area of the dining hall, excluding the area occupied by the service counter and any furniture except tables and chairs, shall be not less than 0.93 square metre per diner to be accommodated as prescribed in sub-rule(1).

(3) A portion of the dining hall and service counter shall be partitioned off and reserved for women workers in proportion to their number. Washing places for women shall be separate and screened to secure privacy.

(4) Sufficient tables, chairs or benches shall be available for the number of diners to be accommodated as prescribed in sub-rule (1).

113. *Equipment:* - (1) There shall be provided and maintained sufficient utensils, crockery, cutlery, furniture and any other equipment necessary for the efficient running of the canteen. Suitable clean clothes for the employees serving in the canteen shall also be provided and maintained.

(2) The furniture, utensils and other equipment shall be maintained in a clean and hygienic condition. A service counter, if provided, shall have a top of smooth and impervious material. Suitable facilities including an adequate supply of hot water shall be provided for the cleaning of utensils and equipment.

114. *Prices to be charged:-*(1) Food, drink and other items served in the canteen shall be sold on a non-profit basis and the prices charged shall be subject to the approval of the canteen Managing Committee:

Provided that where a canteen is managed by workers' co-operative society, the prices to be charged may include a margin of profit upto maximum of 5 percent of its working capital.

(2) In computing the prices referred to in sub-rule (1) the following items of expenditure shall not be taken into consideration, but will be borne by the occupier :-

(a) the rent for the land and building;

(b) the depreciation and maintenance charges of the building and equipment provided for the canteen;

(c) the cost of purchase, repairs and replacement of equipment including furniture, crockery, cutlery and utensils;

(d) the water charges and expenses for providing lighting and ventilation;

(e) the interest on the amount spent on the provision and maintenance of the building, furniture and equipment provided for the canteen;

(f) the cost of fuel required for cooking or heating foodstuffs or water; and

(g) the wages of the employees serving in the canteen and the cost of uniform, if any, provided to them.

(3) The charges per portion of foodstuffs, beverages and any other items served in the canteen shall be conspicuously displayed in the canteen.

115. *Accounts.* - (1) All books of accounts, registers and any other documents used in connection with the running of the canteen shall be produced on demand to the Inspector.

(2) The accounts pertaining to the canteen shall be audited, once every twelve months, by registered accountants and auditors. The balance sheet prepared by the said auditors shall be submitted to the Canteen Managing Committee not later than two months after the closing of the audited accounts:

Provided that the accounts pertaining to the canteen in a Government Factory having its own accounts department, may be audited in such department:

Provided further that where the canteen is managed by a co-operative society registered under the Co-operative Societies Act, the accounts pertaining to such canteen may be audited in accordance with the provisions of the Co-operative Societies Act.

116. *Managing Committee.* - (1) The manager shall appoint a Canteen Managing Committee which shall be consulted from time to time as to

- (a) the quality and quantity of food stuffs to be served in the canteen;
- (b) the arrangements of the menus;
- (c) the times of meals in the canteen; and
- (d) any other matter as may be directed by the Committee:

Provided that where the canteen is managed by a co-operative society registered under the Co-operative Societies Act, it shall not be necessary to appoint a Canteen Managing Committee.

(2) The Canteen Managing Committee shall consist of an equal number of persons nominated by the occupier and elected by the workers. The number of elected workers shall be in the proportion of 1 for every 1000 workers employed in the factory, provided that in no case shall there be more than 5 or less than 2 workers on the Committee.

(3) The manager shall determine and supervise the procedure for elections to the Canteen Managing Committee.

(4) A Canteen Managing Committee shall be dissolved by the manager two years after the last election, no account being taken of a by-election.

117. *Annual medical examination.*- (1) Annual medical examination for fitness of each member of the canteen staff who handles foodstuffs shall be carried out by the factory medical officer or the Certifying Surgeon, which should include the following :-

- (a) routine blood examination;
- (b) routine and bacteriological testing, of faeces and urine for germs of dysentery and typhoid fever; and
- (c) any other examination including chest x-ray that may be considered necessary by the factory medical officer or the Certifying Surgeon.

(2) Any person, who in the opinion of the factory medical officer or the Certifying Surgeon is unsuitable for employment on account of possible risk to the health of others, shall not be employed as canteen staff.

118. *Shelters, rest rooms and lunch rooms.* - (1) The shelters or rest rooms and lunch rooms shall conform to the following standards:

- (a) the building shall be soundly constructed and all the walls and roof shall be of suitable heat resisting materials and shall be water-proof. The floor and walls to a height of 90 centimetres shall be so laid or finished as to provide a smooth, hard and impervious surface;
- (b) the height of every room in the building shall be not less than 3.65 metres from the floor level to the lowest part of the roof and there shall be at least 1.12 square metres of floor area for every person employed:

Provided that- (i) workers who habitually go home for their meals during the rest periods may be excluded in calculating the number of workers to be accommodated, and (ii) in the case of factories in existence at the date of commencement of the Act, where it is impracticable owing to lack of space to provide 1.12 square metres of floor area for each person, such reduced floor area per person shall be provided as may be approved in writing by the Chief Inspector;

- (c) effective and suitable provision shall be made in every room for securing and maintaining adequate ventilation by the circulation of fresh air and there shall also be provided and maintained sufficient and suitable natural or artificial lighting;
- (d) every room shall be adequately furnished with chairs or benches with back-rest;
- (e) sweepers shall be employed whose primary duty is to keep the rooms, building and precincts thereof in a clean and tidy condition; and
- (f) suitable provision shall be made in every room for supply of drinking water and facilities for washing.

(2) The lunch rooms shall –

- (a) comply with the requirements laid down in clauses (a) to (f) of sub-rule (1); and
- (b) be provided with adequate number of tables with impervious tops for the use of workers for taking food.

119. *Crèches.* - (1) The crèche shall be conveniently accessible to the mothers of the children accommodated therein and so far as is reasonably practicable it shall not be situated in close proximity to any part of the factory where obnoxious fumes, dust or odours are given off or in which excessively noisy processes are carried under the provision of section 48.

(2) The building in which the crèche is situated shall be soundly constructed and all the walls and roof shall be of suitable heat resisting materials and shall be water-proof. The floor and internal walls of the creche shall be so laid or finished as to provide a smooth impervious surface.

(3) The height of the rooms in the building shall be not less than 3.65 metres from the floor to the lowest part of the roof and there shall not be less than 1.86 square metres of floor area for each child to be accommodated.

(4) Effective and suitable provision shall be made in every part of the creche for securing and maintaining adequate ventilation by the circulation of fresh air.

(5) The crèche shall be adequately furnished and equipped and in particular there shall be one suitable cot or cradle with the necessary bedding for each child (provided that for children over two years of age it will be sufficient if suitable bedding is made available), at least a chair or equivalent seating accommodation for the use of each mother while she is feeding or attending to her child, and a sufficient supply of suitable toys for the elder children.

(6) A suitably fenced and shady open air playground shall be provided for the elder children:

Provided that the Chief Inspector may by order in writing exempt any factory from compliance with this sub-rule if he is satisfied that there is not sufficient space available for the provision of such a play-ground.

120. *Washroom.* - (1) There shall be in or adjoining the creche a suitable washroom for the washing of the children and their clothing. The washroom shall conform to the following standards:-

- (a) the floor and internal walls of the room to a height of 90 centimetres shall be so laid or furnished as to provide a smooth impervious surface. The room shall be adequately lighted and ventilated and the floor shall be effectively drained and maintained in a clean and tidy condition;
- (b) there shall be at least one basin or similar vessel for every four children accommodated in the crèche at any one time together with a supply of water provided, if practicable, through taps from a source approved by the Health Officer. Such source shall be capable of yielding for each child a supply of at least 25 litres of water a day; and
- (c) an adequate supply of clean clothes, soap and clean towels shall be made available for each child while it is in the crèche.

(2) Adjoining the washroom referred to in sub-rule (1), a latrine shall be provided for the sole use of the children in the creche. The design of latrine and the scale of accommodation to be provided shall either be approved by the Public Health authorities or, where there is no such Public Health authority, by the Chief Inspector of Factories.

121. *Supply of milk and refreshment.* - At least a quarter litre of clean pure milk shall be available for each child every day whenever it is accommodated in the creche and the mother of such a child shall be allowed in the course of her daily work, two intervals of at least 20 minutes to feed the child. For children above two years of age there shall be provided in addition, an adequate supply of wholesome refreshment.

122. *Clothes for crèche staff.* - The creche staff shall be provided with suitable clean clothes for use while on duty in the creche.

123. *Exemption from the provision of creche.*- (1) In factories where the number of married women or widows employed does not exceed 15 or where the factory works for less than 180 days in a calendar year, or where number of children kept in the creche was less than 5 in the preceding year, the Chief Inspector may exempt such factories from the provisions of section 48 and the rules 119 to 122 made thereunder, if he is satisfied that alternate arrangements as stipulated under sub-rule (2) are provided by the factory.

- (2)(a) The alternate arrangements required in sub-rule (1) shall include a creche building which has a minimum accommodation at the rate of 1.86 square metres per child and constructed in accordance with the plans approved by the Chief Inspector.
- (b) The crèche building shall have –
  - (i) a suitable washroom for washing of the children and their clothing;
  - (ii) adequate supply of soap and clean clothes and towels; and
  - (iii) adequate number of female attendants who are provided with suitable clean clothes for use while on duty to look after the children in the creche.

(3) The exemption granted under sub-rule (1) may at any time be withdrawn by the Chief Inspector if he finds after such enquiry as he may deem fit, that the factory has committed a breach of this rule.

124. *Appointment, duties, conditions of service, etc. of Welfare Officers.* - (1) Number of Welfare Officers -

- (a) The occupier of every factory employing between 500 and 2000 sub-sect-workers shall appoint at least one Welfare Officer, and where the number of workers exceeds 2000, there shall be an additional Welfare Officer for every additional 2000 workers or fraction thereof over 500. In a factory where both men and women workers are employed, the number of women Welfare Officers to be appointed shall be in proportion to the women workers employed provided that where the number of women employed is more than 100 and the total number of workers does not exceed 2500 an additional woman Welfare Officer shall be appointed.
  - (b) Where there is more than one Welfare Officer appointed, one of them shall be called the Chief Welfare Officer and the others Assistant Welfare Officers.
- (2) A person shall not be eligible for appointment as a Welfare Officer, unless he –
- (a) possesses a degree of a University recognised by the State Government in this behalf;
  - (b) has obtained a degree or diploma in social science from any institution recognised by the State Government in this behalf; and
  - (c) has adequate knowledge of the language spoken by the majority of the workers in the factory to which he is to be attached:

Provided that the State Government may, by notification in the Official Gazette, grant exemption from the provisions of clause (b) in suitable cases till such time better facilities in the matter of training in social science are available:

Provided further that, in the case of a person who is acting as a Welfare Officer at the commencement of these rules, the State Government may, subject to such conditions as it may specify, relax all or any of the aforesaid qualifications.

- (3)(a) The post of a Welfare Officer shall be advertised in at least two newspapers having a wide circulation in the State, one of which shall be an English newspaper.
- (b) The selection shall be made from among the candidates applying for the post by a Committee appointed by the occupier of the factory.
- (c) The appointment when made shall be notified by the occupier to the State Government or such authority as the State Government may specify for the purpose, giving full details of the qualifications, etc. of the officer appointed and the conditions of his service.

- (4)(a) A Welfare Officer shall be given appropriate status corresponding to the status of the other executive heads of the factory and he shall be appointed on a suitable scale of pay fixed by the State Government from time to time.
- (b) The conditions of service of a Welfare Officer shall be the same as of other members of the staff of corresponding status in the factory:

Provided that, in the case of discharge or dismissal, the Welfare Officer shall have a right of appeal to the State Government whose decision thereon shall be final and binding upon the occupier.

- (5) The duties of a Welfare Officer shall be –

- (a) to establish contacts and hold consultations with a view to maintaining harmonious relations between the factory management and workers;
- (b) to bring to the notice of the factory management the grievances of workers, individual as well as collective, with a view to securing their expeditious redress and to act as a liaison officer between the management and labour;
- (c) to study and understand the point of view of labour in order to help the factory management to shape and formulate labour policies and to interpret these policies to the workers in a language they can understand;
- (d) to watch industrial relations with a view to using his influence in the event of a dispute between the factory management and workers and to help to bring about a settlement by persuasive effort;
- (e) to advise on fulfilment by time management and the concerned departments of the factory of obligations, statutory or otherwise, concerning regulation of working hours, maternity benefit, medical care, compensation for injuries and sickness and other welfare and social benefit measures;
- (f) to advise and assist the management in the fulfilment of its obligations, statutory or otherwise, concerning prevention of personal injuries and maintaining a safe work environment, in such factories where a Safety Officer is not required to be appointed under the enabling provisions under section 40 B;
- (g) to promote relations between the concerned departments of the factory and workers which will bring about productive efficiency as well as amelioration in the working conditions and to help workers to adjust and adapt themselves to their working environments;
- (h) to encourage the formation of Works and Joint Production Committees, Co-operative Societies and Welfare Committees, and to supervise their work;
- (i) to encourage provision of amenities such as canteens, shelters for rest, creches, adequate latrine facilities, drinking water, sickness and benevolent scheme payments, pension and superannuation funds, gratuity payments, granting of loans and legal advice to worker ;
- (j) to help the factory management in regulating the grant of leave with wages and explain to the workers the provisions relating to leave with wages and other leave privileges and to guide the workers in the matter of submission of application for grant of leave for regulating authorised absence;
- (k) to advise on provision of welfare facilities, such as housing facilities, foodstuffs, social and recreational facilities, sanitation, advice on individual personnel problems and education of children;
- (l) to advise the factory management on questions relating to training of new starters, apprentices, workers on transfer and promotion, instructors and supervisors, supervision and control of notice board and information bulletins to further education of workers and to encourage their attendance at technical institutes; and
- (m) to suggest measures which will serve to raise the standard of living of workers and in general promote their well-being.

(6) No Welfare Officer should deal with any disciplinary cases against workers or appear before a conciliation officer in a court or tribunal on behalf of the factory management against a worker or workers.

(7) The State Government may, by notification in the Official Gazette, exempt any factory or class or description of factories from the operation of all or any of the provisions of these rules subject to compliance with such alternative arrangements as may be approved.

## CHAPTER VI Working Hours of Adults

125. *Compensatory holidays.* - (1) Except in the case of workers engaged in any work which for technical reasons must be carried on continuously throughout the day, the compensatory holidays to be allowed under sub-section (1) of section 53 of the Act shall be so specified that not more than two holidays are given in one week.



(2) The manager of the factory shall display, on or before the end of the month in which holidays are lost, a notice in respect of workers allowed compensatory holidays during the following month and of the dates thereof, at the place at which the notice of periods of works prescribed under section 61 is displayed. Any subsequent change in the notice in respect of any compensatory holiday shall be made not less than three days in advance of the date of that holiday.

(3) Any compensatory holiday or holidays to which a worker is entitled shall be given to him before he is discharged or dismissed and shall not be reckoned as part of any period of notice required to be given before discharge or dismissal.

(4) (a) The manager shall maintain a register in Form 14:

Provided that, if the Chief Inspector of Factories is of the opinion that any muster roll or register maintained as part of the routine of the factory or return made by the manager, gives in respect of any or all of the workers in the factory the particulars required for the enforcement of section 52, he may, by order in writing, direct that such muster roll or register or return shall, to the corresponding extent, be maintained in place of and be treated as the register or return required under this rule for that factory.

(b) The register maintained under clause (a) shall be preserved for a period of three years after the last entry in it and shall be produced before the Inspector on demand.

126. *Muster roll for exempted workers.*- The manager of every factory in which workers are exempted under section 64 or 65 from the provisions of section 51 or 54 shall keep a muster roll in Form 15 showing the normal piece work rate of pay, or the rate of pay per hour, of all exempted employees. In this muster roll shall be correctly entered the overtime hours of work and payments therefor of all exempted workers. The muster roll shall always be available for inspection.

127. *Notice of periods of work for adults.* - The notice of periods of work for adult workers shall be in Form 16.

128. *Register of adult workers.* - The register of adult workers shall be in Form 17.

129. *Persons defined to hold positions of supervision or management.*- The following persons shall be deemed to hold positions of supervision or management :-

(a) all persons specified in Schedule V; and

(b) any other person who, in the opinion of the Inspector, holds a position of supervision or management.

130. *Persons defined to hold confidential positions.* - All timekeepers employed in a factory within the meaning of sub-section (1) of section 2 shall be deemed to be employed in a confidential position in the factory.

131. *List to be maintained of persons holding confidential position or position of supervision or management.* - A list showing the names and designations of all persons to whom the provisions of sub-section (1) of section 64 have been applied shall be maintained in every factory.

132. *Exemption of certain adult workers.*- Adult workers engaged in factories specified in column 2 of Schedule W on the work specified in column 3 of the said schedule shall be exempted from the provisions of the sections specified in the column 4 subject to the conditions, if any, specified in column 5 of the said schedule.

## CHAPTER VII

### Employment of Young Persons

133. *Notice of periods of work for children.* - The notice of periods of work for child workers shall be in Form 18.

134. *Register of child workers.* - The register of child workers shall be in Form 19.

## CHAPTER VIII

### Leave with Wages

135. *Register of leave with wages.*- The manager shall keep a register in Form 20 hereinafter called the register of leave with wages:

Provided that if the Chief Inspector is of the opinion that any muster roll or register maintained as part of the routine of the factory, or return made by the manager, gives, in respect of any or all of the workers in the factory, the particulars required for the enforcement of Chapter VIII of the Act, he may, by order, in writing, direct that such muster roll or register shall, to the corresponding extent, be maintained in place of and be traced as the register or return required under this rule in respect of that factory.

(2) The register of leave with wages shall be preserved for a period of three years after the last entry in it and shall be produced before the Inspector on demand.

136. *Leave book.* - (1) The manager shall provide each worker who has become entitled to leave during a calendar year, with a book in Form 21 (hereinafter called leave book) not later than 31<sup>st</sup> January of the following calendar year. The leave book shall be the property of the worker and the manager or his agent shall not demand it except to make entries of the dates of holidays or interruptions in service, and shall not keep it for more than a week at a time:

Provided that in the case of a worker who is discharged or dismissed from service during the course of the year, that is, who is covered under sub-section (3) of section 79 of the Act, the manager shall issue an abstract from the register of leave with wages in Form 20 within a week from the date of discharge or dismissal as the case may be.

(2) If a worker loses his leave book, the manager shall provide him with another copy on the payment of Rs.10/- (Rupees ten) and shall complete it from his record.

137. *Medical certificate.* - If any worker is absent from work and it appears that his absence is due to illness, he shall, if so required by his manager by a notice in writing, submit a medical certificate signed by a registered medical practitioner or by a registered or recognised Vaid or hakim stating the cause of the absence and the period for which the worker is, in the opinion of such medical practitioner, vaid or hakim, unable to attend to his work.

138. *Notice to Inspector of involuntary unemployment.* - The manager shall give, as soon as possible, a notice to the Inspector of every case of involuntary unemployment of workers, giving numbers of unemployed and the reason for their unemployment. Entries to this effect shall be made in the register of leave with wages and the leave book in respect of each worker concerned.

139. *Notice by worker.* - Before or on the completion of a period of twelve months continuous service in the factory, as defined in section 79, a worker may give notice to the manager of his intention not to avail himself of holidays falling due in the following period of twelve months. The manager shall make an entry to that effect in the register of leave with wages and in the leave book of the worker concerned.

140. *Notice of leave with wages.* - (1) Except in regard to a worker who has given notice of his intention not to avail himself of holidays in the year in which these fall due, the manager shall, by a notice displayed at the place at which the notice of the periods of work required by section 61 is displayed, fix the dates on which leave with wages shall be allowed to each worker or group of workers including any worker who has accumulated his leave. This date shall not, in an individual case, be earlier than four weeks from the date of notice unless the worker agrees to take the leave earlier. The necessary entries shall be made in the register of leave with wages and the leave book of the worker concerned.

(2) As far as circumstances permit, members of the same family comprising husband, wife and children shall be allowed leave on the same date.

(3) The manager may alter the dates fixed for leave only after giving a notice of four weeks to the worker.

(4) A worker may exchange the period of his leave with another worker, subject to the approval of the manager.

141. *Payment of wages if the worker dies.* - If a worker dies before he resumes work, the balance of his pay due for the period of holidays shall be paid to his nominee within one week of the intimation of the death of the worker. For this purpose each worker shall submit a nomination in Form 22 duly signed by him and attested by two witnesses. The nomination shall remain in force until it is cancelled or revised by another nomination.

142. *Register to be maintained in case of exemption under section 84.* - (1) Where an exemption is granted under section 84, the manager shall maintain a register showing the position of each worker as regards leave due, leave taken and wages granted.

(2) He shall display at the main entrance of the factory a notice giving full details of the system established in the factory for leave with wages and shall send a copy of it to the Inspector.

(3) No alteration shall be made in the scheme approved by the State Government at the time of granting exemption under section 84 without its previous sanction.

## CHAPTER IX

### Special Provisions

143. *Dangerous manufacturing processes or operations.* - (1) The following manufacturing processes or operations (as specified in Schedule I to XXVII) when carried on in any factory are declared to be dangerous manufacturing processes or operations under section 87: -

Schedule I. Manufacture of aerated water and processes incidental thereto.

II. Electrolytic plating or oxidation of metal articles by use of an electrolyte containing acids, bases or salts of metals such as chromium, nickel, cadmium, zinc, copper, silver, gold, etc.

III. Manufacture and repair of electric accumulators.

IV. Glass Manufacture.

V. Grinding or glazing of metals.

VI. Manufacture and treatment of lead and certain compounds of lead.

VII. Generating petrol gas from petrol.

VIII. Cleaning or smoothing, roughening, etc. of articles by a jet of sand, metal shot or grit or other abrasive propelled by a blast of compressed air or steam.

IX. Liming and tanning of raw hides and skins and processes incidental thereto.

X. Certain lead processes carried on in printing presses and type foundries.

XI. Manufacture of pottery.

XII. Chemical works.

XIII. Manipulation of stone or any other material containing free silica.

XIV. Handling and processing of asbestos manufacture of any article of asbestos and any other process of manufacture or otherwise in which asbestos is used in any form.

XV. Handling or manipulation of corrosive substances.

XVI. Processing of cashew nut.

XVII. Compression of oxygen and hydrogen produced by the electrolysis of water.

XVIII. Process of extracting oils and fats from vegetable and animal sources in solvent extraction plants.

XIX. Manufacture or manipulation of manganese and its compounds.

- XX. Manufacture or manipulation of dangerous pesticides.
- XXI. Manufacture, handling and usage of benzene and substances containing benzene.
- XXII. Manufacturing process or operations in carbon disulphide plants.
- XXIII. Manufacture or manipulation of carcinogenic dye intermediates.
- XXIV. Operations involving high noise levels.
- XXV. Manufacture of Rayon by Viscose Process.
- XXVI. Highly flammable liquids and flammable compressed gases.
- XXVII. Foundry operations.

(2) 'First employment' means employment for the first time in a hazardous process or operation so notified under section 87, or re-employment therein after cessation of employment in such process or operation for a period exceeding three calendar months.

(3) The provisions specified in the Schedules annexed hereto shall apply to any class or description of factories wherein dangerous operations specified in each Schedule are carried out.

- (4) (a) For the medical examination of workers to be carried out by the Certifying Surgeon as required by the schedule annexed to this rule, the occupier of the factory shall pay fees at the rate prescribed by the Medical Department per examination of each worker every time he is examined.
- (b) The fees prescribed in clause (a) shall be exclusive of any charges for biological, radiological or other tests which may have to be carried out in connection with the medical examinations. Such charges shall be paid by the occupier.
- (c) The fees to be paid for medical examinations shall be paid into the local treasury under the head of account adopted by the Medical Department.

(5) Notwithstanding the provision specified in the schedules annexed to this Rule, the Inspector may by issues of order in writing to the manager or occupier or both, direct them to carry out such measures, and within such time, as may be specified in such order with a view to removing conditions dangerous to the health of the workers, or to suspend any process, where such process constitutes, in the opinion of the Inspector, imminent danger of poisoning or toxicity.

(6) Any register or record of medical examinations and tests connected therewith required to be carried out under any of the Schedules annexed hereto in respect of any worker shall be kept readily available to the Inspector and shall be preserved till the expiry of one year after the worker ceases to be in employment of the factory.

144. *Notification of accidents and dangerous occurrences.* - (1) When any accident which results in the death of any person or which results in such bodily injury to any person as is likely to cause his death, or any dangerous occurrence specified in schedule X takes place in a factory, the manager of the factory shall forthwith send a notice thereof by telephone, special messenger or telegram to the Inspector and the Chief Inspector.

(2) When any accident or any dangerous occurrence specified in schedule X which results in such bodily injury to any person as is likely to cause his death, takes place in a factory, notice as mentioned in sub-rule (1) shall be sent also to:

- (a) The District Magistrate or Sub-divisional Officer;
- (b) the officer in charge of the nearest police stations; and
- (c) the relatives of the injured or deceased person.

(3) Any notice given as required under sub-rules (1) and (2) shall be confirmed by the manager of the factory to the authorities mentioned in these sub-rules within 12 hours of the accident or the dangerous occurrence by sending them a written report in Form 25 in the case of an accident or dangerous occurrence causing death or bodily injury to any person and in Form 26 in the case of a dangerous occurrence which has not resulted in any bodily injury to any person.

(4) When any accident or dangerous occurrence specified in the schedule takes place in a factory and it causes such bodily injury to any person and prevents the person injured from working for a period of 48 hours or more immediately following the accident or the dangerous occurrence, as the case may be, the manager of the factory shall send a report thereof to the Inspector in Form 25 within 24 Hours after the expiry of 48 hours from the time of the accident or the dangerous occurrence:

Provided that if in the case of an accident or dangerous occurrence, death occurs of any person injured by such accident or dangerous occurrence after the notices and reports referred to in the foregoing sub-rules have been sent, the manager of the factory shall forth with send a notice thereof by telephone, special messenger or telegram to the authorities and persons mentioned in sub-rules (1) and (2) and also have this information confirmed in writing within 12 hours of the death:

Provided further that, if the period of disability from working for 48 hours or more referred to in sub-rule (4) does not occur immediately following the accident, or the dangerous occurrence, but later, or occurs in more than one spell, the report referred to shall be sent to the Inspector in the prescribed Form 25 within 24 Hours immediately following the hours when the actual total period of disability from working resulting from the accident or the dangerous occurrence becomes 48 hours.

145. *Notice of poisoning or disease.*- A notice in Form 27 should be sent forthwith both to the Chief Inspector and to the Certifying Surgeon, by the manager of factory in which there occurs a case of lead, phosphorus, mercury, manganese, arsenic, carbon bisulphide or benzene poisoning; or of poisoning by nitrous fumes or by halogens or halogen derivatives of the hydrocarbons of the aliphatic series; or of chrome ulceration, anthrax, silicosis, toxic anaemia, toxic jaundice, primary epitheliomatous cancer of the skin, of pathological manifestations due to radium or other radio-active substances or X-rays.

**CHAPTER X**  
**Supplemental**

146. *Procedure in appeals.*- (1) An appeal presented under section 107 shall lie with the Chief Inspector or in cases where the order appealed against is an order passed by that officer, with the State Government or with such authority as the State Government may appoint in this behalf and shall be in the form of a memorandum setting forth concisely the grounds of objection to the order and bearing court-fees stamp in accordance with Article 11 of Schedule II to the Court-fees Act, 1870, and shall be accompanied by a copy of the order appealed against.

(2) On receipt of the memorandum of appeal, the appellate authority shall, if it thinks fit or if the appellant has requested that the appeal should be heard with the aid of assessors, call upon the body declared under sub-rule (3) to be representative of the industry concerned, to appoint an assessor within a period of 14 days. If an assessor is nominated by such body, the appellate authority shall appoint a second assessor itself. It shall then fix a date for the hearing of the appeal and shall give due notice of such date to the appellant and to the Inspector whose order is appealed against, and shall call upon the two assessors to appear upon such date to assist in the hearing of the appeal.

(3) The appellant shall state in the memorandum presented under sub-rule (1) whether he is a member of one or more of the following bodies. The body empowered to appoint the assessor shall-

- (a) if the appellant is a member of one of such bodies, be that body;
- (b) if he is a member of two such bodies, be the body which the appellant desired should appoint such assessor; and
- (c) if the appellant is not a member of any of the aforesaid bodies or if he does not state in the memorandum which of such bodies he desires should appoint the assessor, be the body which the appellate authority considers as the best fitted to represent the industry concerned.

(4) An assessor appointed in accordance with the provisions of sub-rules (2) and (3) shall receive, for the bearing of the appeal, a fee to be fixed by the appellate authority, subject to a maximum of Rs. 50 (fifty) per diem. He shall also receive the actual travelling expenses. The fees and travelling expenses shall be paid to the assessors by State Government, but where assessors have been appointed at the request of the appellant and the appeal has been decided wholly or partly against him the appellate authority may direct that the fees and travelling expenses of the assessors shall be paid in whole or in part by the appellant.

147. *Display of notices.* - The abstract of the Act and of the rules required to be displayed in every factory shall be in Form 28.

148. *Returns.*- The manager of every factory shall furnish to the Inspector or other officer appointed by the State Government in this behalf, following returns in the form and within the due dates specified below :-

- (a) annual return in Form 29, in duplicate, on or before the 31<sup>st</sup> January of each year; and
- (b) half-yearly return in Form 30, in duplicate, on or before the 15<sup>th</sup> July of each year.

149. *Service of notices.* - The despatch by post under registered cover of any notice or order shall be deemed sufficient service on the occupier, owner or manager of a factory of such notice or order.

150. *Information required by the Inspector.* - The occupier, owner or manager of a factory shall furnish any information that an Inspector may require for the purpose of satisfying himself whether any provision of the Act has been complied with or whether any order of an Inspector has been duly carried out. Any demand by an Inspector for any such information, if made, during the course of any inspection, shall be complied forthwith if the information is available in the factory, or, if made in writing, shall be complied with within seven days of receipt thereof.

151. *Permissible levels of certain chemical substances in work environment.* - Without prejudice to the requirements in any other provisions in the Act or the Rules, the requirements as specified in Schedule Y shall apply to all factories.

152. *Muster roll.* - The manager of every factory shall maintain a muster roll of all the workers employed in the factory in Form 31 showing; (a) the name of each worker, (b) the nature of his work and (c) the daily attendance of the worker:

Provided that, if the daily attendance is noted in the register of adult worker in Form 17 or the particulars required under this rule are noted in any other register, a separate muster roll required under this rule need not be maintained.

153. *Register of accidents and dangerous occurrences.* - The manager of every factory shall maintain a register of all accidents and dangerous occurrences which occur in the factory in Form 32.

154. *Maintenance of inspection book.* - The manager of every factory shall maintain a bound inspection book and shall produce it when so required by the Inspector or Certifying Surgeon.

155. *Information regarding closure of factories.* - The occupier or manager of every factory shall report to the Inspector any intended closure of the factory or any section or department thereof immediately it is decided to do so, intimating the reason for the closure, the number of workers on the register on the date of the report, the number of workers likely to be affected by the closure and probable period of the closure. Information as to the particulars and quantity of stored chemicals and action taken or proposed to be taken to ensure safety from those chemicals and action taken or proposed to be taken to ensure safety from those chemicals while in storage during such closure shall also be furnished along with the report of intended closure. Intimation should also be sent to the Inspector as soon as the factory or the section or department of the factory, as the case may be, starts working again.

156. *Repeal and savings.* - (1) The Manipur Factories Rules, 1972 are hereby repealed.

(2) Notwithstanding such repeal, anything done or any action taken under the provisions of any of the Rules referred to in sub-rule (1) shall be deemed to have been done or taken under the corresponding provisions of the Manipur Factories Rules, 1972

## **SCHEDULES SPECIFIED REQUIREMENTS IN RESPECT OF DANGEROUS PROCESSES AND OPERATIONS NOTIFIED UNDER SECTION 87 OF THE FACTORIES ACT**

Prescribed under rule 143

### **SCHEDULE- I**

#### **Manufacture of aerated waters and processes incidental thereto**

1. Fencing of machines. - All machines for filling bottles or syphons shall be so constructed, placed or fenced, as to prevent, as far as may be practicable, a fragment of a bursting bottle or syphon from striking any person employed in the factory.
2. Face guards and gauntlets. - (1) The occupier shall provide and maintain in good condition for the use of all persons engaged in filling bottles or syphons-

- (a) suitable face guards to protect the face, neck and throat; and
- (b) suitable gauntlets for both arms to protect the whole hand and arms :

Provided that paragraph 2(1) shall not apply where bottles are filled by means of an automatic machine so constructed that no fragment of a bursting bottle can escape.

Provided further that where a machine is so constructed that only one arm of the bottler at work upto it is exposed to danger, a gauntlet need not be provided for the arm which is not exposed to danger.

(2) The Occupier shall provide and maintain in good condition for the use of all persons engaged in corking, crowning, screwing, wiring, foiling, capsuling, sighting or labelling bottles or syphons -

- (a) suitable face-guards to protect the face, neck and throat; and
- (b) suitable gauntlets for both arms to protect the arm and at least half of the palm and the space between the thumb and forefinger.

3. Wearing of face guards and gauntlets. - All persons engaged in any of the processes specified in paragraph 2 of this schedule shall, while at work in such processes, wear the face guards and gauntlets provided under the provisions of the said paragraph.

### **SCHEDULE- II**

Electrolytic plating or oxidation of metal articles by use of an electrolyte containing acids, bases or salts of metals such as chromium, nickel, cadmium, zinc, copper, silver, gold etc.

1. Definitions.- For the purposes of this Schedule-

- (a) "electrolytic process" means the electrolytic plating or oxidation of metal articles by the use of an electrolyte containing acids, bases or salts of metals such as chromium, nickel, cadmium, zinc, copper, silver, gold, etc.;
- (b) "bath" means any vessel used for an electrolytic process or for any subsequent process; and
- (c) "employed" means employed in any process involving contact with liquid from a bath.

2. Exhaust draught. - An efficient exhaust draught shall be applied to every vessel in which an electrolytic process is carried on. Such draught shall be provided by mechanical means and shall operate on the vapour or spray given off in the process as near as may be at the point of origin. The exhaust draught appliance shall be so constructed, arranged and maintained as to prevent the vapour or spray entering into any room or place in which work is carried on.

3. Prohibition relating to women and young persons. No women, adolescent or child shall be employed or permitted to work at a bath.

4. Floor of workrooms. - The floor of every workroom containing a bath shall be impervious to water. The floor shall be maintained in good and level condition and shall be washed down at least once a day.

5. Protective devices. - (1)The occupier shall provide and maintain in good and clean condition the following articles of protective devices for the use of all persons employed on any process at which they are liable to come in contact with liquid from a bath and such devices shall be worn by the persons concerned-

- (a) waterproof aprons and bibs; and
- (b) for persons actually working at a bath, loose fitting rubber gloves and rubber boots or other waterproof footwear, and chemical goggles.

(2) The occupier shall provide and maintain for the use of all persons employed suitable accommodation for the storage and drying of protective devices.

6. Water facilities. - (1) There shall be provided and maintained in good repairs for the use of all persons employed in electrolytic process and processes incidental to it-

(a) a wash place under cover, with either-

- (i) a trough with a smooth impervious surface filled with a waste pipe, and of sufficient length to allow at least 60cms for every 5 persons employed at any one time, and having a constant supply of water from taps or jets above the trough at intervals of not more than 60cms, or

- (ii) at least one wash basin for every five such persons employed at any one time, fitted with a waste pipe and having a constant supply of water laid on.
  - (b) a sufficient supply of clean towels renewed daily, and soap or other suitable cleaning material.
- (2) In addition to the facility in sub-paragraph 1, an approved type emergency shower with eye fountain shall be provided and maintained in good working order. Whenever necessary, in order to ensure continuous water supply, storage tank of 1500 litres capacity shall be provided as a source of clean water for emergency use.
7. Cautionary placard.- A cautionary placard in the form specified below and printed in the language of the majority of the workers employed shall be affixed in a prominent place in the factory where it can be easily and conveniently read by the workers.

## CAUTIONARY NOTICE

### Electrolytic Plating

1. Chemicals handled in this plant are corrosive and poisonous.
2. Smoking, chewing tobacco, eating food or drinking, in this area is prohibited. No food stuff or drink shall be brought in this area.
3. Some of these chemicals may be absorbed through the skin and may cause poisoning.
4. A good wash shall be taken before meals.
5. Protective devices supplied shall be used while working in this area.
6. Spillage of the chemicals on any part of the body or on the floor shall be immediately washed away with water.
7. All workers shall report for the prescribed medical tests regularly to protect their own health.
8. Medical facilities and records of examinations and tests.- (1) The occupier of every factory in which electrolytic processes are carried on shall-
  - (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose appointment shall be subject to the approval of the Chief Inspector of Factories;
  - (b) provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (a); and
  - (c) maintain a sufficient supply of suitable barrier cream, ointment and impermeable water proof plaster in a separate box readily accessible to the workers and used solely for the purpose of keeping these substances. In case cyanides are used in the both, the box shall also contain an emergency cyanide kit.
- (2) The medical practitioner shall examine all workers before they are employed in electrolytic processes. Such examination in case of chrome plating shall include inspection of hands, forearms and nose and will be carried out once at least in every fortnight
- (3) The record of the examinations referred to in sub-paragraph (2) shall be maintained in a separate register approved by Chief Inspector of Factories which shall be kept readily available for inspection by the Inspector.
9. Medical examination by the Certifying Surgeon.- (1) Every worker employed in the electrolytic processes shall be examined by a Certifying Surgeon before his first employment. Such examination shall include X-ray of the chest and-
  - (a) in case of chromium plating include examination for nasal septum perforation and test for chromium in urine;
  - (b) in case of nickel plating, test for nickel in urine; and
  - (c) in case of cadmium plating, test for cadmium in urine and -2 macroglobulin in urine.
- (2) No worker shall be employed in any electrolytic process unless certified fit for such employment by the Certifying Surgeon.
- (3) Every worker employed in the electrolytic processes shall be re-examined by a Certifying Surgeon at least once in every year, except in case of the workers employed in cadmium, chromium and nickel plating processes for whom this examination shall be carried out once in every six months. Such re-examination shall, wherever the Certifying Surgeon considers appropriate, include tests as specified under sub-paragraph (1) excluding the X-ray of the chest which shall not be required normally to be carried out earlier than once in three years.
- (4) The certifying surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraphs (1) and (2) including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.
- (5) The certificate of fitness and the health register shall be kept readily available for inspection by the Inspector.
- (6) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the electrolytic processes on the ground that continuance therein would involve danger to the health of the worker, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person declared unfit in such circumstances shall be provided with alternate placement facility unless he is fully incapacitated in the opinion of the Certifying Surgeon in which case the person affected shall be suitably rehabilitated.
- (7) No person who has been found unfit to work as said in sub-paragraph (6) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon after further examination, again certifies him fit for employment in these processes.

## SCHEDULE- III

### Manufacture and repair of electric accumulators

1. Savings. - This schedule shall not apply to the manufacture or repair of electric accumulators or parts thereof not containing lead or any compound of lead; or to the repair on the premises, of any accumulator forming part of a stationary battery.
2. Definitions. - For the purposes of this schedule-
  - (a) "Lead process" means the melting of lead or any material containing lead, casting, pasting, lead burning, or any other work, including trimming, or any other abrading or cutting of pasted plates, involving the use, movement or manipulation of or contact with, any oxide of lead;
  - (b) "manipulation of raw oxide of lead" means any lead process involving any manipulation or movement of raw oxides of lead other than its conveyance in a receptacle or by means of an implement from one operation to another;
3. Prohibition relating to women and young persons. - No women or young person shall be employed or permitted to work in any lead process or in any room in which the manipulation of raw oxide of lead or pasting is carried on.
4. Separation of certain processes.- Each of the following processes shall be carried on in such a manner and under such conditions as to secure effectual separation from one another, and from other processes :-
  - a. manipulation of raw oxide of lead;
  - b. pasting;
  - c. drying of pasted plates;
  - d. formation with lead turning (tacking)necessarily carried on in connection therewith; and
  - e. melting down of pasted plates.
5. Air space.- In every room in which a lead process is carried on, there shall be at least 14.2 cubic meters of air space for each person employed therein, and in computing this air space no height over 3.65 meters shall be taken into account.
6. Ventilation.- Every workroom shall be provided with inlets and outlets of adequate size as to secure and maintain efficient ventilation in all parts of the room.
7. Distance between workers in pasting room. - In every pasting room the distance between the centre of the working position of any paster and that of the paster working nearest to him shall not be less than 1.5 meters.
8. Floor of workrooms.- (1)The floor of every room in which lead process is carried on shall be -
  - (a) of cement or similar material so as to be smooth and impervious to water;
  - (b) maintained in sound condition; and
  - (c) kept free from materials, plant, or other obstructions not required for, or produced in, the process carried on in the room.(2) In all such rooms other than grid casting shops the floor shall be cleansed daily after being thoroughly sprayed with water at a time when no other work is being carried on in the room.
  - (3) In grid casting shops the floor shall be cleansed daily.
  - (4) Without prejudice to the requirements of sub-paragraphs (1), (2) and (3), where manipulation of raw oxide of lead or pasting is carried on, the floor shall also be -
    - (a) kept constantly moist while work is being done;
    - (b) provided with suitable and adequate arrangements for drainage; and
    - (c) thoroughly washed daily by means of hose pipe.
9. Work-benches.- The work-benches at which any lead process is carried on shall -
  - (a) have a smooth surface and be maintained in sound condition; and
  - (b) be kept free from all materials or plant not required for, or produced in, the process carried on thereat; and all such work-benches other than those in grid casting shops shall-
  - (c) be cleansed daily either after being thoroughly damped or by means of a suction cleaning apparatus at a time when no other work is being carried on thereat; and, all such work-benches in grid casting shops, shall -
  - (d) be cleansed daily; and every work-bench used for pasting shall -
  - (e) be covered throughout with sheet lead or other impervious material;
  - (f) be provided with raised edges; and
  - (g) be kept constantly moist while pasting is being carried on.
10. Exhaust draught.- (1)The following processes shall not be carried on without the use of an efficient exhaust draught :-
  - (a) melting of lead or materials containing lead;
  - (b) manipulation of raw oxide of lead, unless done in an enclosed apparatus so as to prevent the escape of dust into the workroom;
  - (c) pasting;
  - (d) trimming, brushing, filing or any other abrading or cutting of pasted plates giving rise to dust and
  - (e) lead burning, other than -
    - (i) tacking in the formation room; and
    - (ii) chemical burning for the making of lead lining for cell cases necessarily carried on in such a manner that the application of efficient exhaust is impracticable.

Such exhaust draught shall be affected by mechanical means and shall operate on the dust or fume given off as nearly as may be at its point of origin, so as to prevent it entering the air of any room in which persons work.

11. Fumes and gases from melting pots.- The products of combustion produced in the heating of any melting pot shall not be allowed to escape into a room in which persons work.

- 12. Container for dross.** - A suitable receptacle with tightly fitting cover shall be provided and used for dross as it is removed from every melting pot. Such receptacle shall be kept covered while in the workroom, except when dross is being deposited therein.
- 13. Container for lead waste.** - A suitable receptacle shall be provided in every workroom in which old plates and waste material which may give rise to dust shall be deposited.
- 14. Racks and shelves in drying room.**- (1)The racks or shelves provided in any drying room shall not be more than 2.4 meters from the floor nor more than 60 centimetres in width :  
 Provided that as regards racks or shelves set drawn from both sides the total width shall not exceed 120 centimetres.
- (2) Such racks or shelves shall be cleaned only after being thoroughly damped unless an efficient suction cleaning apparatus is used for this purpose.
- 1. Protective clothing.**- (1) Protective clothing shall be provided and maintained in good repair for all persons employed in -  
 (a) manipulation of raw oxide of lead;  
 (b) pasting; and  
 (c) the formation room;  
 and such clothing shall be worn by the persons concerned.
- (2) The protective clothing shall consist of a waterproof apron and waterproof footwear; and, in addition, as regards persons employed in the manipulation of raw oxide of lead or in pasting, head coverings. The head coverings shall be washed daily.
- 16. Messroom.**- There shall be provided and maintained for the use of all persons employed in a lead process and remaining on the premises during the meal intervals, a suitable messroom, which shall be furnished with sufficient tables and benches, and adequate means for warming food. The messroom shall be placed under the charge of a responsible person, and shall be kept clean.
- 17. Cloakroom.**- There shall be provided and maintained for the use of all persons employed in a lead process -  
 (a) a cloakroom for clothing put off during working hours with adequate arrangements for drying the clothing if wet, which accommodation shall be separate from any mess room; and  
 (b) separate and suitable arrangements for the storage of protective clothing provided under paragraph 15.
- 18. Washing facilities.**- (1) There shall be provided and maintained in a cleanly state and in good repair for the use of all persons employed in a lead process -  
 (a) a wash place under cover, with either -  
 (i) a trough with a smooth impervious surface fitted with a waste pipe without plug, and of sufficient length to allow of at least 60 centimetres for every five such persons employed at any one time, and having a constant supply of water from taps or jets above the trough at intervals not more than 60 centimetres; or  
 (ii) at least one wash basin for every five such persons employed at any one time, fitted with a waste pipe and plug and having a constant supply of water laid on;  
 (b) a sufficient supply of clean towels made of suitable materials renewed daily, which supply, in the case of pasters and persons employed in the manipulation of raw oxide of lead, shall include a separate marked towel for each such worker; and  
 (c) a sufficient supply of soap or other suitable cleansing material and of nail brushes.
- (2) There shall in addition be provided means of washing in close proximity to the rooms in which manipulation of raw oxide of lead or pasting is carried on if required by notice in writing from the Chief Inspector.
- 19. Time to be allowed for washing.**- Before each meal and before the end of the day's work, at least ten minutes, in addition to the regular meal times, shall be allowed for washing to each person who has been employed in the manipulation of raw oxide of lead or in pasting :  
 Provided that if there be one basin or 60 centimetres of trough for each such person this paragraph shall not apply.
- 20. Facilities for bathing.**- Sufficient bath accommodation to the satisfaction of the Chief Inspector shall be provided for all persons engaged in the manipulation of raw oxide of lead or in pasting, and a sufficient supply of soap and clean towels.
- 21. Food, drinks, etc. prohibited in workrooms.** - No food, drink, pan and supari or tobacco shall be consumed or brought by any worker into any workroom in which any lead process is carried on.
- 22. Medical facilities and records of examinations and tests.**- (1)The occupier of every factory in which manufacture and repair of electric accumulators is carried on shall-  
 (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and  
 (b) provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (a).
- (2) The record of medical examinations and appropriate tests carried out by the said medical practitioner shall be maintained in a separate register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.
- 23. Medical examination by Certifying Surgeon.** - (1) Every worker employed in lead processes shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examination shall include tests for lead in urine and blood. ALA in urine, haemoglobin content, stippling of cells and steadiness test. No worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.
- (2) Every worker employed in the said processes shall be re-examined by a Certifying Surgeon at least once in every three calendar months. Such re-examination shall, wherever the Certifying Surgeon considers appropriate, include tests specified in sub-paragraph (1).
- (3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraphs (1) and (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.



- (4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.
- (5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said process on the ground that continuance therein would involve special danger to the health of the worker he shall make a record of his findings in the said Certificate and the health register. The entry of his findings in these documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person so suspended from the process shall be provided with alternate placement facilities unless he fully is incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.
- (6) No person who has been found unfit to work as said in sub-paragraph (5) above shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**SCHEDULE IV**  
**Glass Manufacture**

**1. Definitions.-** (1) For the purpose of this schedule -

- (a) "efficient exhaust draught" means localised ventilation effected by mechanical means for the removal of gas, vapour, dust or fumes so as to prevent them (as far as practicable under the atmospheric conditions usually prevailing) from escaping into the air of any place in which work is carried on. No draught shall be deemed efficient which fails to remove smoke generated at the point where such gas, vapour, fume, or dust originate;
- (b) "lead compound" means any compound of lead other than galena which, when treated in the manner described below, yields to an aqueous solution of hydrochloric acid a quantity soluble lead compound exceeding, when calculated as lead monoxide, five percent of the dry weight of the portion taken analysis.

The method of treatment shall be as follows :-

A weighed quantity of the material which has been dried at 100 degrees centigrade and thoroughly mixed shall be continuously shaken for one hour at the common temperature with 1,000 times its weight of an aqueous solution of hydrochloric acid containing 0.25 per cent by weight of hydrogen chloride. This solution shall thereafter be allowed to stand for one hour and then filtered. The lead salt contained in the clear filtrate shall then be precipitated as lead sulphide and weighed as lead sulphate.

**2. Exhaust draught.-** The following processes shall not be carried on except under an efficient exhaust draught or such other conditions as may be approved by the Chief Inspector :-

- (a) the mixing of raw materials to form a "Bator";
- (b) the dry grinding, glazing and polishing of glass or any article of glass;
- (c) all processes in which hydrofluoric acid fumes or ammonical vapours are given off;
- (d) all processes in the making of furnace moulds or "pots" including the grinding or crushing of used "pots"; and
- (e) all processes involving the use of a dry lead compound.

**3. Prohibition relating to women and young persons.-** No woman or young person shall be employed or permitted to work in any of the operations specified in paragraph 2 or at any place where such operations are carried on.

**4. Floor and work-benches.-** The floor and work-benches of every room in which a dry compound of lead is manipulated or in which any process is carried on giving off silica dust shall be kept moist and shall comply with the following requirements :-

- (a) the floor shall be -
- (i) of cement or similar material so as to be smooth and impervious to water;
- (ii) maintained in sound condition; and
- (iii) cleansed daily after being thoroughly spread with water at a time when no other work is being carried on the room; and
- (b) the work-benches shall -
- (i) have a smooth surface and be maintained in sound condition, and
- (ii) cleansed daily either after being thoroughly damped or by means of a suction cleaning apparatus at a time when no other work is being carried on thereat.

**5. Use of hydrofluoric acid.-** The following provisions shall apply to rooms in which glass is treated with hydrofluoric acid :-

- (a) there shall be inlets and outlets of adequate size so as to secure and maintain efficient ventilation in all parts of the room;
- (b) the floor shall be covered with guttaparcha and be tight and shall slope gently down to a covered drain;
- (c) the workplaces shall be so enclosed in projecting hoods that openings required for the bringing in the objects to be treated shall be as small as practicable; and
- (d) the efficient exhaust draught shall be so contrived that the gases are exhausted downwards.

**6. Storage and transport of hydrofluoric acid.-** Hydrofluoric acid shall not be stored or transported except in cylinders or receptacles made of lead or rubber.

**7. Blow pipes.-** Every glass blower shall be provided with a separate blow pipe bearing the distinguishing mark of the person to whom it is issued and suitable facilities shall be readily available to every glass blower for sterilising his blow pipe.

**8. Food, drinks, etc., prohibited in workrooms.-** No food, drink, pan and supari or tobacco shall be brought into or consumed by any worker in any room or workplace wherein any process specified in paragraph 2 is carried on.

**9. Protective clothing.-** The occupier shall provide, maintain in good repair and keep in a clean condition for the use of all persons employed in the processes specified in paragraph 2 suitable protective clothing, footwear and goggles according to the nature of the work and such clothing, footwear, etc. shall be worn by the persons concerned.

**10. Washing facilities.-** There shall be provided and maintained in a cleanly state and in good repair for the use of all persons employed in the processes specified in paragraph 2 -

- (a) a wash place with either -
  - (i) a trough with a smooth impervious surface fitted with a waste pipe, without plug, and of sufficient length to allow of at least 60 centimetres for every five such persons employed at any one time, and having a constant supply of water from taps or jets above the trough at intervals of not more than 60 centimetres; or
  - (ii) at least one wash basin for every five such persons employed at any one time, fitted with a waste pipe and plug and having an adequate supply of water laid on or always readily available;
- (b) a sufficient supply of clean towels made of suitable material renewed daily with sufficient supply of soap or other suitable cleansing material and of nail brushes; and
- (c) a sufficient number of stand pipes with taps the number and location of which shall be to the satisfaction of the Chief Inspector.

**11. Medical facilities and record of examinations and tests.-** (1) The occupier of every factory in which glass manufacturing processes are carried out, shall -

- (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose appointment shall be subject to the approval of the Chief Inspector of Factories; and
- (b) provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The records of medical examinations and appropriate tests carried out by the said medical practitioner shall be maintained in a separate register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

**12. Medical Examination by Certifying Surgeon.-** (1) Every workers employed in processes specified in paragraph 2 shall be examined by the Certifying Surgeon within 15 days of his first employment. Such examination shall include pulmonary function tests and in suspected cases chest X-ray as well as tests for lead and urine. No worker shall be allowed to work after 15 days of first employment in the factory unless certified for such employment by the Certifying Surgeon.

(2) Every worker employed in the said processes shall be re-examined by the Certifying Surgeon at least once in every twelve calendar months. Such re-examination shall, wherever the Certifying Surgeon considers appropriate, include tests as specified in sub-paragraph (1).

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examination carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraph (1) and (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of worker, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person so suspended from the process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which the person affected shall be suitable rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**13. Exemption.-** If the Chief Inspector is satisfied in respect of any factory or any class of process that, owing to the special methods of work or the special conditions in a factory or otherwise, any of the requirements of this schedule can be suspended or relaxed without danger to the persons employed therein, or that the application of this schedule or any part thereof is for any reason impracticable, he may by certificate in writing authorise such suspension or relaxation as may be indicated in the certificate for such period and on such conditions as he may think fit.

## **SCHEDULE V**

### **Grinding or glazing of metals and processes incidental thereto**

**1. Exception. -** (1) Nothing in this schedule shall apply to any factory in which only repairs are carried on except any part thereof in which one or more persons are wholly or mainly employed in the grinding or glazing of metals.

(2) Nothing in this schedule except paragraph 4 shall apply to any grinding or glazing of metals carried on intermittently and at which no person is employed for more than 12 hours in any week.

**2. Definitions.-** For the purposes of this schedule -

- (a) "grindstone" means a grindstone composed of natural or manufactured sandstone but does not include a metal wheel or cylinder into which blocks of natural or manufactured sandstone are fitted;
- (b) "abrasive wheel" means a wheel manufactured of bonded emery or similar abrasive;
- (c) "grinding" means the abrasion, by aid of mechanical power, of metal, by means of a grindstone or abrasive wheel;
- (d) "glazing" means the abrading, polishing or finishing, by aid of mechanical power, of metal, by means of any wheel, buff, mop or similar appliance to which any abrading or polishing substance is attached or applied;
- (e) "racing" means the turning up, cutting or dressing of a revolving grindstone before it is brought into use for the first time;
- (f) "hacking" means the chipping of the surface of a grindstone by a hack or similar tool; and
- (g) "rodding" means the dressing of the surface of a revolving grindstone by the application of a rod, bar or strip of metal to such surface.

**3. Equipment for removal of dust.-** No racing, dry grinding or glazing shall be performed without -

- (a) a hood or other appliance so constructed, arranged, placed and maintained as substantially to intercept the dust thrown off;

- (b) a duct of adequate size, air tight and so arranged as to be capable of carrying away the dust, which duct shall be kept free from obstruction and shall be provided with proper means of access for inspection and cleaning, and where practicable, with a connection at the end remote from the fan to enable the Inspector to attach thereto any instrument necessary for ascertaining the pressure of air in the said duct; and
- (c) a fan or other efficient means of producing a draught sufficient to extract the dust :

Provided that the Chief Inspector may accept any other appliance that is, in his opinion, as effectual for the interception, removal and disposal of dust thrown off as a hood, duct and fan would be.

**4. Restriction on employment on grinding operations.-** Not more than one person shall at any time perform the actual process of grinding or glazing upon a grindstone, abrasive wheel or glazing appliance :

Provided that this paragraph shall not prohibit the employment of persons to assist in the manipulation of heavy or bulky articles at any such grindstone, abrasive wheel or glazing appliance.

**5. Glazing. -** Glazing or other processes, except processes incidental to wet grinding upon a grindstone shall not be carried on in any room in which wet grinding upon a grindstone is done.

**6. Hacking and rodding.-** Hacking or rodding shall not be done unless during the process either an adequate supply of water is laid on at the upper surface of the grindstone or adequate appliances for the interception of dust are provided in accordance with the requirements of paragraph 3.

**7. Examination of dust equipment.-** (1) All equipment for the extraction or suppression of dust shall at least once in every six months be examined and tested by competent person, and any defect disclosed by such examination and test shall be rectified as soon as practicable.

(2) A register containing particulars of such examination and tests shall be kept in Form 25.

**8. Medical facilities and record of examinations and tests.-** (1)The occupier of every factory in which grinding or glazing of metals are carried out, shall -

- (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose appointment shall be subject to the approval of the Chief Inspector of Factories; and
- (b) provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The record of medical examinations and appropriate tests carried out by the said medical practitioner shall be maintained in a separate register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

**9. Medical examination by the Certifying Surgeon.-** (1) Every worker employed in grinding or glazing of metal and processes incidental thereto shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examination shall include pulmonary function tests and in suspected cases chest X-rays. No worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.

(2) Every worker employed in the said processes shall be re-examined by a Certifying Surgeon at least once in every 12 calendar months. Such re-examination shall, wherever the Certifying Surgeon considers appropriate, include tests as specified in sub-paragraph (1).

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraphs (1) and (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the found that continuance therein would involve special danger to the health of the worker he shall make record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person so suspended from the process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**10. Exemption.-** The Chief Inspector may by certificate in writing, subject to such conditions as he may specify therein, relax or suspend any of the provisions of this schedule in respect of any factory if owing to the special methods of work or otherwise such relaxation or suspension is practicable without danger to the health or safety of the persons employed.

## SCHEDULE VI

### Manufacture and treatment of lead and certain compounds of lead

1. Application.- This schedule shall apply to all factories or parts of factories in which any of the following operations are carried on :-
- work at a furnace where the reduction or treatment of zinc or lead ores is carried on ;
  - the manipulation, treatment or reduction of ashes containing lead, the delivering of lead or the melting of scrap lead or zinc;
  - the manufacture of solder or alloys containing more than ten percent of lead;
  - the manufacture of any oxide, carbonate, sulphate, chromate, acetate, nitrate or silicate of lead;
  - the handling or mixing of lead tetra-ethyl;
  - any other operation involving the use of a lead compound; and
  - the cleaning of workrooms where any of the operations aforesaid are carried on.

2. Definitions.- For this purpose of this schedule -

- “lead compound” means any compound of lead other than galena which, when treated in the manner described below, yields to an aqueous solution of hydrochloric acid, a quantity of soluble lead compound exceeding, when calculated as lead monoxide, five per cent of the “dry weight” of the portion taken for analysis. In the case of paints and similar products and other mixtures containing oil or fat the “dry weight” means the dry weight of the material remaining after the substance has been thoroughly mixed and treated with suitable solvents to remove oil, fats, varnish or other media.

***The method of treatment shall be as follows :-***

A weighed quantity of the material which has been dried at 100 degree centigrade and thoroughly mixed shall be continuously shaken for one hour, at the common temperature with 1,000 times its weight of an aqueous solution of hydrochloric acid containing 0.25 per cent by weight of hydrogen chloride. This solution shall thereafter be allowed to stand for one hour and then filtered. The lead salt contained in the clear filtrate shall then precipitate as lead sulphate and weighed as lead sulphate;

- “efficient exhaust draught” means localised ventilation effected by mechanical means for the removal of gas, vapour, dust or fumes so as to prevent them (as far as practicable under the atmospheric conditions usually prevailing) from escaping into the air of any place in which work is carried on. No draught shall be deemed efficient which fails to remove smoke generated at the point where such gas, vapour, fume, or dust originates.

3. Prohibition relating to women and young persons.- No women or young person shall be employed or permitted to work in any of the operations specified in paragraph 1.
4. Requirements to be observed.- No person shall be employed or permitted to work in any process involving the use of lead compounds if the process is such that dust or fume from a lead compound is produced therein, or the persons employed therein are liable to be splashed with any lead compound in the course of their employment unless the provisions of paragraphs 5 to 13 are complied with.
5. Exhaust draught.- Where dust, fume, gas or vapour is produced in the process, provision shall be made for removing them by means of an efficient exhaust draught to contrived as to operate on the dust, fume, gas or vapour as closely as possible to the point of origin.
6. Food, drinks, etc. prohibited in workroom. - No food, drink, pan and supari or tobacco shall be brought into or consumed by any worker in any worker in any workroom in which the process is carried on and no person shall remain in any such room during intervals for meals or rest.
7. Protective clothing.- Suitable protective overalls and head coverage shall be provided, maintained and kept clean by the occupier and such overalls and head coverings shall be worn by the persons employed.
8. Cleanliness of workrooms, tools, etc.- The rooms in which the persons are employed and all tools and apparatus used by them shall be kept in a clean state.
9. Washing facilities.- (1) The occupier shall provide and maintain for the use of all persons employed suitable washing facilities consisting of -
- a trough with a smooth impervious surface fitted with a waste pipe, without plug, and of sufficient length to allow of at least 60 centimetres for every five such persons employed at any one time, and having a constant supply of water from taps or jets above the trough at intervals of not more than 60 centimetres; or
  - at least one wash-basin for every ten persons employed at any one time, fitted with a waste pipe and plug and having a constant supply of clean water; together with, in either case, a sufficient supply of nail brushes, soap or other suitable cleansing material and clean towels.
- (2) The facilities so provided shall be placed under the charge of a responsible person and shall be kept clean.
10. Messroom or canteen. - The occupier shall provide and maintain for the use of the persons employed suitable and adequate arrangements for taking their meals. The arrangements shall consist of the use of a room separate from any workroom which shall be furnished with sufficient tables and benches, and unless a canteen serving hot meals is provided, adequate means of warming the food. The room shall be adequately ventilated by the circulation of fresh air, shall be placed under the charge of a responsible person and shall be kept clean.
11. Cloakroom.- The occupier shall provide and maintain for the use of persons employed, suitable accommodation for clothing not worn during working hours, and for the drying of wet clothing.
12. Medical facilities and record of examinations and tests.- (1) The occupier of every factory in which grinding or glazing of metals are carried out, shall -
- employ a qualified medical practitioner for medical surveillance of the workers employed therein whose appointment shall be subject to the approval of the Chief Inspector of Factories; and
  - provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (a).

- (2) The record of medical examinations and appropriate tests carried out by the said medical practitioner shall be maintained in a separate register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.
13. Medical examination by the Certifying Surgeon.- (1) Every worker employed shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examination shall include pulmonary function tests and in suspected cases chest X-rays. No worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.
- (2) Every worker employed in the said processes shall be re-examined by a Certifying Surgeon at least once in every 12 calendar months. Such re-examination shall, wherever the Certifying Surgeon considers appropriate, include tests as specified in sub-paragraph (1).
- (3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraphs (1) and (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.
- (4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.
- (5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker he shall make record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person so suspended from the process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.
- (6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.
14. Exemption.- Where the Chief Inspector is satisfied that all or any of the provisions of this schedule are not necessary for the protection of the persons employed, he may by certificate in writing exempt any factory from all or any of such provisions, subject to such conditions as he may specify.

#### **SCHEDULE- VII**

##### **Generating petrol gas from petrol**

1. Prohibition relating to women and young persons.- No woman or young person shall be employed or permitted to work in or shall be allowed to enter any building in which the generation of gas from dangerous petroleum is carried on.
2. Flame traps.- The plant for generation of gas from dangerous petroleum and associated piping and fittings shall be fitted with at least two efficient flame traps so designed and maintained as to prevent a flash back from any burner to the plant. One of these traps shall be fitted as close to the plant as possible. The plant and all pipes and valves shall be installed and maintained free from leaks.
3. Generating building or room.- All plants for generation of gas from dangerous petroleum erected after the coming into force of the provisions specified in this schedule, shall be erected outside the factory building proper in a separate well ventilated building (hereinafter referred to as "generating building"). In the case of such plants erected before the coming into force of the provisions specified in this schedule, there shall be no direct communication between the room where such plants are erected (hereinafter referred to as "the generating room") and the remainder of the factory building. So far as practicable, all such generating rooms shall be constructed of fire-resisting materials.
4. Fire extinguishers. - An efficient means of extinguishing petrol fires shall be maintained in an easily accessible position near the plant for generation of gas from dangerous petroleum.
5. Plant to be approved by Chief Inspector. - Petrol gas shall not be manufactured except in a plant for generating petrol gas, the design and construction of which has been approved by the Chief Inspector.
6. Escape of petrol. - Effective steps shall be taken to prevent petrol from escaping into any drain or sewer.
7. Prohibition relating to smoking.- No person shall smoke or carry matches, fire or naked light or other means of producing a naked light or spark in the generation room or building or in the vicinity thereof and a warning notice in the language understood by the majority of the workers shall be posted in the factory prohibiting smoking and the carrying of matches, fire or naked light or other means of producing a naked light or spark into such room or building.
8. Access to petrol or container. - No unauthorised person shall have access to any petrol or to a vessel containing or having actually contained petrol.
9. Electric fittings. - All electric fittings shall be of flameproof construction and all electric conductors shall either be enclosed in metal conduits or be lead-sheathed.
10. Construction of doors.- All doors in the generating room or building shall be constructed to open outwards or to slide and no door shall be locked or obstructed or fastened in a such a manner that it cannot be easily and immediately opened from the inside while gas is being generated and any person is working in the generating room or building.
11. Repair of containers.- No vessel that has contained petrol shall be repaired in a generating room or building and no repairs to any such vessel shall be undertaken unless live steam has been blown into the vessel and until the interior is thoroughly steamed out or other equally effective steps have been taken to ensure that it has been rendered free from petrol or flammable vapour.

#### **SCHEDULE- VIII**

##### **Cleaning or smoothing, roughening, etc. of articles, by a jet of sand, metal shot, or grit, or other abrasive propelled by a blast of compressed air or steam**

1. Definitions.- For the purposes of this schedule -

- (a) "blasting" means cleaning, smoothing, roughening, or removing of any part of the surface of any article by the use of an abrasive of a jet of sand, metal shot, or grit or other material, propelled by a blast of compressed air or steam ;
- (b) "blasting enclosure" means a chamber, barrel, cabinet or any other enclosure designed for the performance of blasting therein;
- (c) "blasting chamber" means a blasting enclosure in which any person may enter at any time in connection with any work or otherwise; and
- (d) "cleaning of castings" where done as an incidental or supplemental process in connection with the making of metal castings, means the freeing of the casting from adherent sand or other substance and includes the removal of cores and the general smoothening of a casting, but does not include the free treatment.

2. Prohibition of sand blasting.- Sand or any other substance containing free silica shall not be introduced as an abrasive into any blasting apparatus and shall not be used for blasting :

Provided that this clause shall come into force two years after the coming into operation of this schedule.

Provided further that no woman or young person shall be employed or permitted to work at any operation of sand blasting.

3. Precautions in connection with blasting operations.- (1) Blasting shall not be done except in a blasting enclosure and no work other than blasting and any work immediately incidental thereto and clearing and repairing of the enclosure including the plant and appliances situated therein, shall be kept closed and air tight while blasting is being done therein.

(2) Blasting enclosure shall always be maintained in good condition and effective measures shall be taken to prevent dust escaping from such enclosure, and from apparatus connected therewith, into the air of any room.

(3) There shall be provided and maintained for and in connection with every blasting enclosure, efficient apparatus for separating, so far as practicable, abrasive which has been used for blasting and which is to be used again as an abrasive, from dust or particles of other materials arising from blasting; and no such abrasive shall be introduced into any blasting apparatus and used for blasting until it has been so separated :

Provided that this clause shall not apply, except in the case of blasting chambers, to blasting enclosures constructed or installed before the coming into force of this schedule, if the Chief Inspector is of opinion that it is not reasonably practicable to provide such separating apparatus.

(4) There shall be provided and maintained in connection with every blasting enclosure efficient ventilating plant to extract, by exhaust draught effected by mechanical means, dust produced in the enclosure. The dust extracted and removed shall be disposed of by such method and in such manner that it shall not escape into the air of any room; and every other filtering or settling device situated in a room in which persons are employed, other than persons attending to such bag or other filtering or settling device, shall be completely separated from the general air of that room in an enclosure ventilated to the open air.

(5) The ventilating plant provided for the purpose of sub-paragraph (4) shall be kept in continuous operation whenever the blasting enclosure is in use whether or not blasting is actually taking place therein, and in the case of a blasting chamber, it shall be in operation even when any person is inside the chamber for the purpose of cleaning.

4. Inspection and examination.- (1) Every blasting enclosure shall be specially inspected by a competent person at least once in every week in which it is used for blasting. Every blasting enclosure, the apparatus connected therewith and the ventilating plant shall be thoroughly examined and in the case of ventilating plant, tested by a competent person at least once in every month.

(2) Particulars of the result of every such inspection, examination or test shall forthwith be entered in a register which shall be kept in a form approved by the Chief Inspector and shall be available for inspection by any workman employed in or in connection with blasting in the factory. Any defect found on any such inspection, examination or test shall be immediately reported by the person carrying out the inspection, examination or test to the occupier, manager or other appropriate person and without prejudice to the foregoing requirements of this schedule, shall be removed without avoidable delay.

5. Provision of protective helmets, gauntlets and overalls.- (1) There shall be provided and maintained for the use of all persons who are employed in a blasting chamber, whether in blasting or in any work connected therewith or in cleaning such a chamber, protective helmets of a type approved by a certificate of the Chief Inspector; and every such person shall wear the helmet provided for this use whilst he is in the chamber and shall not remove it until he is outside the chamber.

(2) Each protective helmet shall carry a distinguishing mark indicating the person by whom it is intended to be used and no person shall be allowed or required to wear a helmet not carrying his mark or a helmet which has been worn by another person and has not since been thoroughly disinfected.

(3) Each protective helmet when in use shall be supplied with clean and not unreasonably cold air at a rate of not less 170 litres per minute.

(4) Suitable gauntlets and overalls shall be provided for the use of all persons while performing blasting or assisting at blasting, and every such person shall while so engaged, wear the gauntlet and overall provided.

6. Precautions in connection with cleaning and other work.- (1) Where any person is engaged upon cleaning of any blasting apparatus or blasting enclosure or of any apparatus or ventilating plant connected therewith or the surroundings thereof or upon any other work in connection with any blasting apparatus or blasting enclosure or with any apparatus or ventilating plant connected therewith so that he is exposed to the risk of inhaling dust which has arisen from blasting, all practicable measures shall be taken to prevent such inhalation.

(2) In connection with any cleaning operation referred to in paragraph 5, and with the removal of dust from filtering or settling devices all practicable measures shall be taken to dispose of the dust in such a manner that it does not enter the air of any room. Vacuum cleaners shall be provided and used wherever practicable for such cleaning operations.

7. Storage accommodation for protective wear.- Adequate and suitable storage accommodation for the helmets, gauntlets and overalls required to be provided by paragraph 5 shall be provided outside and conveniently near to every blasting enclosure

and such accommodation shall be kept clean. Helmets, gauntlets and overalls when not in actual use shall be kept in this accommodation.

**8. Maintenance and cleaning of protective wear.-** All helmets, gauntlets, overalls and other protective devices or clothings provided and worn for the purposes of this schedule, shall be kept in good condition and so far as is reasonably practicable shall be cleaned on every weekday in which they are used. Where dust arising from the cleaning of such protective clothing or devices is likely to be inhaled, all practicable measures shall be taken to prevent such inhalation. Vacuum cleaners shall, wherever practicable, be used for removing dust from such clothing and compressed air shall not be used for removing dust from any clothing.

**9. Maintenance of vacuum cleaning plant. -** Vacuum cleaning plant used for the purpose of this schedule shall be properly maintained.

**10. Medical facilities and records of examinations and tests.-** (1) The occupier of every factory to which the Schedule applies, shall

(a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and

(b) provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The record of medical examinations and appropriate tests carried out by the said medical practitioner shall be maintained in a separate register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

**11. Medical examination by the Certifying Surgeon. -** (1) Every worker employed in any of the processes to which this schedule apply shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examination shall include pulmonary function tests and chest X-rays. No worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.

(2) Every worker employed in the said processes shall be re-examined by a Certifying Surgeon at least once in every 12 calendar months and such re-examination shall, wherever the Certifying Surgeon considers appropriate, include pulmonary function test and chest X-ray once in every three years.

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraphs (1) and (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker he shall make record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person so suspended from the process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**12. Restrictions in employment of young persons.-** (1) No person under 18 years of age shall be employed in blasting or assisting at blasting or in any blasting chamber or in the cleaning of any blasting apparatus or any blasting enclosure or any apparatus or ventilating plant connected therewith or be employed on maintenance or repair work at such apparatus, enclosure or plant.

(2) No person under 18 years of age shall be employed to work regularly within twenty feet of any blasting enclosure unless the enclosure is in a room and he is outside that room where he is effectively separated from any dust coming from the enclosure.

**13. Power to exempt or relax.-** (1) If the Chief Inspector is satisfied that in any factory or any class of factory, the use of sand or other substance containing free silica as an abrasive in blasting is necessary for a particular manufacture or process (other than the process incidental or supplemental to making of metal castings) and that the manufacture or process cannot be carried on without the use of such abrasive or that owing to the special conditions or special method of work or otherwise any requirement of this schedule can be relaxed without endangering the health of the persons employed or that application of any such requirements is for any reason impracticable or inappropriate, he may, with the previous sanction of the State Government, by an order in writing exempt the said factory or class of factory from such provisions of this schedule, to such an extent and subject to such conditions and for such period as may be specified in the said order.

(2) Where an exemption has been granted under sub-paragraph (1), a copy of the order shall be displayed at a notice board at a prominent place at the main entrance or entrances to the factory and also at the place where the blasting is carried on.

## **SCHEDULE- IX**

### **Liming and tanning of raw hides and skins and processes incidental thereto.**

**1. Cautionary notices.-** (1) Cautionary notices as to anthrax in the form specified by the Chief Inspector shall be affixed in prominent positions in the factory where they may be easily and conveniently read by the persons employed.

(2) A copy of a warning notice as to anthrax in the form specified by the Chief Inspector shall be given to each person employed when he is engaged, and subsequently if still employed, on the first day of each calendar year.

(3) Cautionary notices as to the effects of chrome on the skin shall be affixed in prominent positions in every factory in which chrome solutions are used and such notices shall be so placed as to be easily and conveniently read by the persons employed.

(4) Notices shall be affixed in prominent places in the factory stating the position of the first-aid box or cupboard and the name of the person in charge of such box or cupboard.

(5) If any person employed in the factory is illiterate, effective steps shall be taken to explain carefully to such illiterate person the contents of the notice specified in sub-paragraphs (1), (2) and (4) and if chrome solutions are used in the factory, the contents of the notice specified in sub-paragraph (3).

**2. Protective clothing.-** The occupier shall provide and maintain in good condition the following articles of protective clothing :-

- (a) waterproof footwear leg coverings, aprons and gloves for persons employed in processes involving contact with chrome solutions, including the preparation of such solutions;
- (b) gloves and boots for persons employed in lime yard;
- (c) protective footwear, aprons and gloves for persons employed in processes involving the handling of hides and skins, other than in processes specified in sub-paragraphs (a) and (b) above :

Provided that the gloves, aprons, leg coverings or boots may be of rubber or leather, but the gloves and boots to be provided under sub-paragraphs (a) and (b) shall be of rubber.

Provided further that the gloves may not be provided to persons fleshing by hand or employed in processes in which there is no risk of contact with lime, sodium sulphide or other caustic liquor.

**3. Washing facilities, messroom and cloakroom.-** There shall be provided and maintained in a clean state and in good repair for the use of all persons employed -

- (a) a trough with a smooth impervious surface fitted with a waste pipe, without plug, and of sufficient length to allow of at least 60 centimetres for every five such persons employed at any one time, and having a constant supply of water from taps or jets above the trough at intervals of not more than 60 centimetres; or at least on wash-basin for every ten such persons employed at any one time, fitted with a waste pipe and plug and having a constant supply of clean water; together with, in either case, a sufficient supply of nail brushes, soap or other suitable cleansing material and clean towels;
- (b) a suitable messroom, adequate for the number remaining on the premises during the meal intervals, which shall be furnished with sufficient tables and benches and adequate means for warming food and for boiling water. The messroom shall -
  - (i) be separate from any room or shed in which hides or skins are stored, treated or manipulated;
  - (ii) be separate from the cloakroom; and
  - (iii) be placed under the charge of a responsible person; and
- (c) suitable accommodation for clothing put off during working hours and another accommodation for protective clothing and also adequate arrangements for drying up the clothing in both the cases, if wet. The accommodation so provided shall be kept clean at all times and placed under the charge of a responsible person.

**4. Food, drinks, etc. prohibited in workrooms. -** No food, drink, pan and supari or tobacco shall be brought into or consumed by any worker in any workroom or shed in which hides or skins are stored, treated or manipulated.

**5. Medical facilities and record of examinations and tests.-** (1) The occupier of every factory in which the schedule applies, shall -

- (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories;
- (b) Provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (a).
- (c) arrange for inspection of the hands of all the persons keeping in contact with chromium substances to be made twice a week; and
- (d) provide and maintain and supply suitable ointment and plaster in a box readily accessible to the workers and solely used for the purpose of keeping the ointment and the plaster.

(2) The records of medical examinations and appropriate tests carried out by the said medical practitioner shall be maintained in a separate register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

**6. Medical Examination by Certifying Surgeon.-** (1) Every workers employed in any of the processes to which this schedule apply shall be examined by a Certifying Surgeon within 15 days of his first employment. No worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.

(2) Every worker employed in the said processes shall be re-examined by the Certifying Surgeon at least once in every twelve calendar months. Such re-examination shall, wherever the Certifying Surgeon considers appropriate, include tests as specified in sub-paragraph (1).

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examination carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraph (1) and (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person so suspended from the process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitable rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) above shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.



## SCHEDULE- X

### Certain lead processes carried on in printing presses and type foundries.

1. Definitions.- For the purpose of this schedule -

- (a) "lead material" means material containing not less than five per cent of lead ;
- (b) "lead process" means -
  - (i) the melting of lead or any lead material for casting and mechanical composing;
  - (ii) the recharging of machines with used lead material;
  - (iii) any other work including removal of dross from melting pots and cleaning of plungers; and
  - (iv) manipulation, movement or other treatment of lead material.

(c) "efficient exhaust draught" means localised ventilation effected by head or mechanical means for the removal of gas, vapour, dust or fumes so as to prevent them from escaping into the air of any place in which work is carried on. No draught shall be deemed efficient which fails to remove smoke generated at the point where such gas, vapour, fume, or dust originates.

2. Exhaust draught.- (1) None of the following processes shall be carried on except with an efficient exhaust draught unless carried on in such a manner as to prevent free escape of gas, vapour, fumes or dust into any place in which work is carried on, or unless carried on in electrically heated and thermostatically controlled melting pots:-

- (a) melting lead material or slugs; and
- (b) heating lead material so that vapour containing lead is given off.

(2) Such exhaust draught shall be effected by mechanical means and so contrived as to operate on the dust, fume, gas or vapour given off as closely as may be at its point of origin.

3. Prohibition relating to women and young persons. - No woman or young person shall be employed or permitted to work in any lead process.

4. Separation of certain processes.- Each of the following processes shall be carried on in such a manner and under such conditions as to secure effectual separation from one another and from any other processes :-

- (a) melting of lead or any lead material;
- (b) casting of lead ingots; and
- (c) mechanical composing.

5. Container for dross.- A suitable receptacle with tightly fitting cover shall be provided and used for dross as it is removed from every melting pot. Such receptacle shall be kept covered while in the workroom near the machine except when the dross is being deposited therein.

6. Floor of workroom.- The floor of every workroom where lead process is carried on shall be -

- (a) of cement or similar material so as to be smooth and impervious to water;
- (b) maintained in sound condition; and
- (c) shall be cleansed throughout daily after being thoroughly damped with water at a time when no other work is being carried on at the place.

7. Messroom.- There shall be provided and maintained for the use of all persons employed in a lead process and remaining on the premises during the meal intervals, a suitable messroom which shall be furnished with sufficient tables and benches.

8. Washing facilities.- (1) There shall be provided and maintained in a cleanly state and in good repair for the use of all persons employed in a lead process -

- (a) a wash place with either -
  - (i) a trough with a smooth impervious surface fitted with a waste pipe without plug, and of sufficient length to allow at least 60 centimetres for every five such persons employed at any one time, and having a constant supply of water from taps or jets above the trough at intervals of not more than 60 centimetres; or
  - (ii) at least one wash basin for every five such persons employed at any one time, fitted with a waste pipe and plug and having an adequate supply of water laid on or always readily available; and
- (b) a sufficient supply of clean towels made of suitable materials renewed daily, with a sufficient supply of soap or other suitable cleansing material.

9. Food, drinks, etc. prohibited in workrooms. - No food, drink, pan and supari or tobacco shall be consumed or brought by any worker into any workroom in which any lead process is carried on.

10. Medical facilities and records of examinations and tests.- (1) The occupier of every factory to which the schedule applies shall-

- (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and
- (b) provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The record of medical examinations and appropriate tests carried out by the said medical practitioner shall be maintained in a separate register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

11. Medical examination by Certifying Surgeon. - (1) Every worker employed in a lead processes shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examination shall include tests for lead in urine and blood. ALA in urine, haemoglobin content, stippling of cells and steadiness test. No worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.

(2) Every worker employed in the said processes shall be re-examined by a Certifying Surgeon at least once in every six calendar months. Such re-examination shall, wherever the Certifying Surgeon considers appropriate, include tests as specified in sub-paragraph (1).

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraphs (1) and (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said process on the ground that continuance therein would involve special danger to the health of the worker he shall make a record of his findings in the said Certificate and the health register. The entry of his findings in these documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person so suspended from the process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) above shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

12. Exemption.- Where the Chief Inspector is satisfied that all or any of the provisions of this schedule are not necessary for the protection of persons employed, he may by certificate in writing exempt any factory from all or any such provisions subject to such conditions as he may specify therein. Such certificate may at any time be revoked by the Chief Inspector.

## SCHEDULE-XI

### Manufacture of pottery

1. Savings.- These provisions shall not apply to a factory in which any of the following articles, but no other pottery, are made :-

- (a) unglazed or salt glazed bricks and tiles; and
- (b) architectural terra-cotta made from plastic clay and either unglazed or glazed with a leadless glaze only.

2. Definitions.- For the purposes of this schedule -

- (a) "pottery" includes earthenware, stoneware, porcelain, china tiles, and any other articles made from such clay or from a mixture containing clay and other materials such as quartz, flint, feldspar, and gypsum;
- (b) "efficient exhaust draught" means localised ventilation effected by mechanical or other means for removal of dust or fume so as to prevent it from escaping into air of any place in which work is carried on. No draught shall be deemed efficient which fails to remove effectively dust or fume generated at the point where dust or fume originates;
- (c) "fettling" includes scalloping, towing, sand papering, sand sticking, brushing or any other process of cleaning of potteryware in which dust is given off;
- (d) "leadless glaze" means a glaze which does not contain more than one per cent of its dry weight, of a lead compound calculated as lead monoxide;
- (e) "low solubility glaze" means a glaze which does not yield to dilute hydrochloric acid more than five per cent of its dry weight, of a soluble lead compound calculated as lead monoxide when determined in the manner described below :  
A weighed quantity of the material which has been dried at 100 degrees centigrade and thoroughly mixed shall be continuously shaken for one hour at the common temperature with 1000 times its weight of an aqueous solution of hydrochloric acid containing 0.25 per cent by weight of hydrogen chloride. This solution shall thereafter be allowed to stand for one hour and then filtered. The lead salt contained in the clear filtrate shall then be precipitated as lead sulphide and weighed as lead sulphide;
- (f) sound or powdered flint or quartz" does not include natural sands; and
- (g) "potter's shop includes all places where pottery is formed by pressing or by any other process and all places where shaping, fettling or other treatment of pottery articles prior to placing for the biscuit fire is carried on.

3. Efficient exhaust draught.- The following processes shall not be carried on without the use of an efficient exhaust draught:-

- (a) all processes involving the manipulation or use of a dry and unfritted lead compound;
- (b) fettling operations of any kind, whether on greenware or biscuit, provided that this shall not apply to the wet fettling, and to the occasional finishing of pottery articles without the aid of mechanical power;
- (c) sifting of clay dust or any other material for making tiles or other articles or other articles by pressure, except where -
  - (i) this is done in a machine so enclosed as to effectually prevent the escape of dust; or
  - (ii) the material to be sifted is so damp that no dust can be given off;
- (d) pressing of tiles from clay dust, an exhaust opening being connected with each press, and pressing from clay dust of articles other than tiles, unless the material is so damp that no dust is given off;
- (e) fettling of tiles made from clay dust by pressure, except where the fettling is done wholly on, or with, damp material, and fettling of other articles made from clay dust, unless the material is so damp that no dust is given off;
- (f) process of loading and unloading of saggars where handling and manipulation of ground and powdered flint, quartz, alumina or other materials are involved;
- (g) brushing of earthenware biscuit, unless the process is carried on in a room provided with efficient general mechanical ventilation or other ventilation which is certified by the Inspector of Factories as adequate having regard to all the circumstances of the case;
- (h) fettling of biscuit ware which has been fired in powdered flint or quartz except where this is done in machines so enclosed as to effectually prevent the escape of dust;
- (i) where cleaning after the application of glaze by dipping or other process;
- (j) crushing and dry grinding of materials for pottery bodies and saggars, unless carried on in machines so enclosed as to effectually prevent the escape of dust or is so damp that no dust can be given off;

- (k) sieving or manipulation of powdered flint, quartz, clay grog or mixture of these materials unless it is so damp that no dust can be given off;
  - (l) grinding of tiles on a power driven wheel unless an efficient water spray is used on the wheel;
  - (m) lifting and conveying of materials by elevators and conveyors unless they are effectively enclosed and so arranged as to prevent escape of dust into the air in or near to any place in which persons are employed;
  - (n) preparation or weighing out of flow material, lawning of dry colours, colour dusting and colour blowing;
  - (o) mould making unless the bins or similar receptacles used for holding plaster of paris are provided with suitable covers; and
  - (p) Manipulation of calcined material unless the material has been made and remains so wet that no dust is given off.
- 4. Separation of processes.-** Each of the following processes shall be carried on in such a manner and under such conditions as to secure effectual separation from one another, and from other wet processes:-
- (a) crushing and dry grinding or sieving of materials, fettling, pressing of tiles, drying of clay and greenware, loading and unloading of saggars; and
  - (b) all processes involving the use of a dry lead compound.
- 5. Prohibition on use of glaze. -** No glaze which is not a leadless glaze or a low solubility glaze shall be used in a factory in which pottery is manufactured.
- 6. Prohibition relating to women and young persons.-** No woman or young person shall be employed or permitted to work in any of the operations specified in paragraph 4, or at any place where such operations are carried on.
- 7. Provision of screen to potter's wheel. -** The potter's wheel (Jolly and Jigger) shall be provided with screens or so constructed as to prevent clay scrapings being thrown off beyond the wheel.
- 8. Control of dust during cleaning- (1)** All practical measures shall be taken by damping or otherwise to prevent dust arising during cleaning of floors.
- (2) Damp saw-dust or other suitable material shall be used to render the moist method effective in preventing dust rising into the air during the cleaning process which shall be carried out after work has ceased.
- 9. Floor of certain workrooms.-** The floors of potter's shops, slip houses, dipping houses and ware cleaning rooms shall be hard, smooth and impervious and shall be thoroughly cleaned daily by an adult male using a moist method.
- 10. Protective equipment. - (1)** The occupier shall provide and maintain suitable overalls and hand coverings for all persons employed in process included under paragraph 3.
- (2) The occupier shall provide and maintain suitable aprons of a waterproof or similar material, which can be sponged daily, for the use of the dippers, dippers assistants, throwers, jolly workers, casters, mould makers and filter press and pug mill workers.
- (3) Aprons provided in pursuance of paragraph 10(2) shall be thoroughly cleaned daily by the wearers by sponging or other wet process. All overalls and head coverings shall be washed, cleaned and mended at least once a week, and this washing, cleaning or mending shall be provided for by the occupier.
- (4) No person shall be allowed to work in emptying sacks of dust materials, weighing out and mixing of dusty materials and charging of ball mills and plungers without wearing a suitable and efficient dust respirator.
- 11. Washing facilities.-** The occupier shall provide and maintain, in a clean state and in good repair for the use of all persons employed in any of the processes specified in paragraph 3 -
- (a) a wash place under cover, with either -
    - (i) a trough with a smooth impervious surface fitted with a waste pipe without plug, and of sufficient length to allow of at least 60 centimetres for every five such persons employed at any one time, and having a constant supply of clean water from taps or jets above the trough at intervals of not more than 60 centimetres; or
    - (ii) at least one tap or stand pipe for every five such persons employed at any one time, and having a constant supply of clean water, the tap or stand pipe being spaced not less than 120 centimetres apart; and
  - (b) a sufficient supply of clean towels made of suitable materials changed daily, with a sufficient supply of soap and nail brushes.
- 12. Time allowed for washing. -** Before each meal and before the end of the day's work, at least ten minutes, in addition to the regular meal times, shall be allowed for washing to each person employed in any of the processes mentioned in paragraph 3.
- 13. Mess room.- (1)** There shall be provided and maintained for use of all persons remaining within the premises during the rest intervals, a suitable messroom providing accommodation of 0.93 square meter per head and furnished with -
- (a) a sufficient number of tables and chairs or benches with back rest;
  - (b) arrangements for washing utensils;
  - (c) adequate means for warming food; and
  - (d) adequate quantity of drinking water.
- (2) The room shall be adequately ventilated by the circulation of fresh air and placed under the charge of a responsible person and shall be kept clean.
- 14. Food, drinks, etc. prohibited in workrooms. -** No food, drink, pan and supari or tobacco shall be brought into, or consumed by any worker in any workroom in which any of the processes mentioned in paragraph 3 are carried on and no person shall remain in any such room during intervals for meals or rest.
- 15. Cloakrooms etc.-** There shall be provided and maintained for the use of all persons employed in any of the processes mentioned in paragraph 3.
- (a) a cloakroom for clothing put off during working hours and such accommodation shall be separate from any messroom; and
  - (b) separate and suitable arrangements for the storage of protective equipment provided under paragraph 10.
- 16. Medical facilities and records of examinations and tests.- (1)** The occupier of every factory in which manufacture of pottery is carried on, shall -
- (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and
  - (b) provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The record of medical examinations and appropriate tests carried out by the said medical practitioner shall be maintained in separate register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

**17.** Medical examination by Certifying Surgeon. - (1) Every worker employed in any process mentioned under paragraph 3, shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examination shall include tests for lead in urine and blood, ALA in urine, haemoglobin content, stippling of cells and. No worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.

(1) All persons employed in any of the processes included under sub- paragraphs 3(a) and 3(n) shall be examined by a Certifying Surgeon once in every 3 calendar months. Those employed in any other processes mentioned in the remaining sub-paragraphs of paragraph 3 shall be examined by a Certifying Surgeon one in every twelve calendar months. Such examinations in respect of all the workers shall include all the tests as specified in sub-paragraph (1) except chest X-ray which will be once in 3 years.

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraphs (1) and (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said process on the ground that continuance therein would involve special danger to the health of the worker he shall make a record of his findings in the said Certificate and the health register. The entry of his findings in these documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person so suspended from the process shall be provided with alternate placement facilities unless he fully is incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) above shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**18. Exemption.**- If in respect of any factory the Chief Inspector of Factories is satisfied that all or any of the provisions of this schedule are not necessary for the protection of the persons employed in such factory, he may by a certificate in writing exempt such factory from all or any of such provisions, subject to such conditions as he may specify therein. Such certificate may at any time be revoked by the Chief Inspector without assigning any reasons.

## **SCHEDULE -XII**

### **Chemical Works**

#### **PART I**

**1. Application.** - This schedule shall apply to all manufacture and processes incidental thereto carried on in chemical works.

**2. Definitions.**- For the purpose of this schedule -

- (a) "chemical works" means any factory or such parts of any factory as are listed in appendix 'A' to this schedule;
- (b) "efficient exhaust draught" means localised ventilation effected by mechanical or other means for the removal of gas, vapour, fume or dust to prevent it from escaping into the air of any place in which work is carried on;
- (c) "bleaching powder" means the bleaching powder commonly called chloride of lime;
- (d) "chlorate" means chlorate or perchlorate;
- (e) "caustic" means hydroxide of potassium or sodium;
- (f) "chrome process" means the manufacture of chromate or bichromate of potassium or sodium, or the manipulation, movement or other treatment of these substances;
- (g) "nitro or amino process" means the manufacture of nitro or amino derivatives of phenol and of benzene or its homologues, and the making of explosives with the use of any of these substances;
- (h) the term 'permit to work' system means the compliance with the procedures laid down under para 20 of Part II;
- (i) "toxic substances" means all those substances which when they enter into the human body, through inhalation or ingestion or absorption through skin, in sufficient quantities cause fatality or exert serious affliction of health, or chronic harmful effects on the health of persons exposed to it due to its inherent chemical or biological effects. In respect of substances whose TLV is specified in Rule 123-A, exceeding the concentration specified therein would make the substance toxic;
- (j) "emergency" means a situation or condition leading to a circumstance or set of circumstances in which there is danger to the life or health of persons or which could result in big fire or explosion or pollution to the work and outside environment, affecting the workers or neighbourhood in a serious manner, demanding immediate action;
- (k) "dangerous chemical reactions" means high speed reactions, runaway reactions, delayed reactions, etc. and are characterised by evolution of large quantities of heat, intense release of toxic or flammable gases or vapours, sudden pressure build-up etc.;
- (l) "manipulation" means mixing, blending, filling, emptying, grinding, sieving, drying, packing, sweeping, handling, using, etc.;
- (m) "approved personal protective equipment" means items of personal protective equipment conforming to the relevant ISI specifications or in the absence of it, personal protective equipment approved by the Chief Inspector of Factories;
- (n) "appropriate personal protective equipment" means that when the protective equipment is used by the worker, he shall have no risk to his life or health or body; and
- (o) "confined space" means any space by reason of its construction as well as in relation to the nature of the work carried therein and where hazards to the persons entering into or working inside exist or are likely to develop during working.

## PART- II

### **General Requirements**

Applying to all the works in Appendix 'A'

1. Housekeeping.- (1) Any spillage of materials shall be cleaned up before further processing.  
(2) Floors, platforms, stairways, passages and gangways shall be free of any obstructions.  
(3) There shall be provided easy means of access to all parts of the plant to facilitate cleaning.
2. Improper use of chemicals.- No chemicals or solvents or empty containers containing chemicals or solvents shall be permitted to be used by workers for any purpose other than in the processes for which they are supplied.
3. Prohibition on the use of food, etc.- No food, drink, tobacco, pan or any edible item shall be stored or heated or consumed on or near any part of the plant or equipment.
4. Cautionary Notices and Instructions.- (1) Cautionary notices in a language understood by the majority of workers shall be prominently displayed in all hazardous areas drawing the attention of all workers about the hazards to health, hazards involving fire and explosion and any other hazard such as consequences of testing of material or substances used in the process or using any contaminated container for drinking or eating, to which the workers' attention should be drawn for ensuring their safety and health.  
(2) In addition to the above cautionary notice, arrangement shall be made to instruct and educate all the workers including illiterate workers about the hazards in the process including the specific hazards to which they may be exposed to, in the normal course of their work. Such instructions and education should also deal with the hazards involved in unauthorised and unsafe practices including the properties of substances used in the process under normal conditions as well as abnormal conditions and the precautions to be observed against each and every hazard. Further, an undertaking from the workers shall be obtained within 1 month of their employment and for old workers employed, within one month of coming into operation of the rules, to the effect that they have read the contents of the cautionary notices and instructions, understood them and would abide by them. The training and instructions to all workers and all supervisory personnel shall include the significance of different types of symbols and colours used on the labels stuck or painted on the various types of containers and pipe lines.
5. Evaluation and provision of safeguards before the commencement of process.- (1) Before commencing any process or any experimental work, or any new manufacture covered under Appendix 'A', the occupier shall take all possible steps to ascertain definitely all the hazards involved both from the actual operations and the chemical reactions including the dangerous chemical reactions. The properties of the raw materials used, the final products to be made and any by-products derived during manufacture, shall be carefully studied and provisions shall be made for dealing with any hazards including effects on workers, which may occur during manufacture.  
(2) Information in writing giving details of the process, its hazards and the steps taken or proposed to be taken from the design stage to disposal stage for ensuring the safety as in sub-para (1) above should be sent to the Chief Inspector at the earliest but in no case less than 15 days before commencing manufacture, handling, or storage of any of items covered under Appendix 'A', whether on experimental basis, or as pilot plant or as trial production, or as large scale manufacture.  
(3) The design, construction, installation, operation, maintenance and disposal of the buildings, plant and facilities shall take into consideration effective safeguards against all the safety and health hazards so evaluated.  
(4) The requirements under the sub-para (1) to (3) shall not act in lieu of or in derogation to, any other provisions contained in any Act governing the work.
6. Authorised entry.- Authorised persons only shall be permitted to enter any section of the factory or plant where any dangerous operations or processes are being carried on or where dangerous chemical reactions are taking place or where hazardous chemicals are stored.
7. Examination of instruments and safety devices. - (1) All instruments and safety devices used in the process shall be tested before taking into use and after carrying out any repair to them and examined once in a month, by a competent person. Records of such tests and examinations shall be maintained in a register.  
(2) All instruments and safety devices used in the process shall be operated daily or as often as it is necessary, to ensure it's effective and efficient working at all times.
8. Electrical installations.- All electrical installations used in the process covered in Appendix 'A' shall be of an appropriate type to ensure safety against the hazard prevalent in that area such as suitability against dust, dampness, corrosion, flammability and explosivity etc. and shall conform to the relevant ISI specifications governing their construction and use for that area.
9. Handling and storage of chemicals. - (1) The containers for handling and storage of chemicals shall be of adequate strength taking into consideration the hazardous nature of the contents. They shall also be provided with adequate labelling and colour coding arrangements to enable identification of the containers and their contents indicating the hazards and safe handling methods and shall conform to the respective ISI standards. The instructions given in the label shall be strictly adhered to. Damaged containers shall be handled only under supervision of a knowledgeable and responsible person and spillage shall be rendered innocuous in a safe manner using appropriate means.  
(2) The arrangements for the storage of chemicals including charging of chemicals in reaction vessels and containers shall be such as to prevent any risk of fire or explosion or formation of toxic concentration of substances above the limits specified in Rule 128.  
(3) Without prejudice to the generality of the requirements in sub- para (2) above, the arrangements shall have suitable ventilation facilities and shall enable the maintenance of safe levels in vessels and containers. Such arrangements shall also take into consideration, the type of flooring and the capacity of flooring and the compatibility requirements of substances with other chemicals stored nearby.  
Storage of chemicals and intermediate products, which are highly unstable or reactive or explosive, shall be limited to the quantities required for two months use.  
(b) Whenever the quantities laid down in the above clause (a) are to be exceeded, the permission of the Chief Inspector shall be obtained.

(c) Notwithstanding anything contained in clause (a) and (b) above, the Chief Inspector of Factories may direct any factory carrying out processes covered in Appendix 'A' to further limit the storage of hazardous substances to quantities less than two months on considerations of safety.

(5) Standby arrangements equal to the biggest container shall always be available to transfer the toxic substances quickly into the standby storage facility if any defect develops in any of the container resulting in the release of toxic substances.

(6) Any storage facility constructed using non-metallic material such as Fibreglass Reinforced Plastics (FRP), all glass vessels etc., shall have adequate strength to withstand the stress, if any, exerted by the contents and shall be properly anchored. Working platforms, access ladders, pipelines etc used in such storage facility shall not have any support on the structure of the storage facility and shall be independently supported.

**10. Facility for isolation.-** The plant and equipment shall be so constructed and maintained as to enable quick isolation of plant or part of plant or equipment, with appropriate indication. One copy of the layout plan indicating the isolation facilities shall always be available with the security personnel, the maintenance and the health and safety personnel and these isolation facilities shall be checked for its effectiveness once in a month.

**11. Personal protective equipment. -** (1) All workers exposed to the hazards in the processes covered by this Schedule shall be provided with appropriate and approved type of personal protective equipment. Such equipment shall be in a clean, sterile and hygienic condition before issue.

(2) The occupier shall arrange to inform, educate and supervise all the workers in the use of personal protective equipment while carrying out the job.

(3) As regards any doubt regarding the appropriateness of any personal protective equipment, the decision of the Chief Inspector will be final.

**12. Alarm Systems.-** (1) Suitable and effective alarm systems giving audible and visible indications, shall be installed at the control room as well as in all strategic locations where process control arrangements are available so as to enable corrective action to be taken before the operational parameters exceed the predetermined safe levels or lead to conditions conducive for an outbreak of fire or explosion to occur. Such alarm systems shall be checked daily and tested every month at least once to ensure its performance efficiency at all times.

(2) The Chief Inspector of Factories may direct such system to be installed in case of plants or processes where toxic materials are being used and spillage or leakage of which may cause wide spread poisoning in or around the plant.

**13. Control of escape of substances into the work atmosphere.-** (1) Effective arrangements such as, enclosure, or by pass, or efficient exhaust draught, maintenance of negative pressure etc., shall be provided in all plants, containers, vessels, sewers, drains, flues, ducts, culverts, and buried pipes and equipment, to control the escape and spread of substances which are likely to give rise to fire or explosion or toxic hazards during normal working and in the event of accident or emergency.

(2) In the event of the failure of the arrangements for control resulting in the escape of substances in the work atmosphere immediate steps shall be taken to control the process in such a manner, that further escape is brought down to the safe level.

(3) The substances that would have escaped into the work atmosphere before taking immediate steps as required in sub-para (2) shall be rendered innocuous by diluting with air or water or any other suitable agent or by suitably treating the substances.

**14. Control of dangerous chemical reactions. -** Suitable provision, such as automatic and or remote control arrangements, shall be made for controlling the effects of dangerous chemical reactions. In the event of failure of control arrangements automatic flooding or blanketing or other effective arrangements shall come into operation.

**15. Testing, examination and repair of plant & equipment. -** (1) All parts of plant, equipment and machinery used in the process which in the likely event of their failure may give rise to an emergent situation shall be tested by a competent person before commencing process and retested at an interval of two years or after carrying out repairs to it. The competent person shall identify the parts of the plant, equipment and machinery required to be tested as aforesaid and evolve a suitable testing procedures. In carrying out the test mentioned above in respect of pressure vessels or reaction vessels the following precautions shall be observed, namely -

(a) before the test is carried out, each vessel shall be thoroughly cleaned and examined externally, and as far as practicable, internally also for surface defects, corrosion and foreign matters. During the process of cleaning and removal of sludge, if any, all due precautions shall be taken against fire or explosion, if such sludge is of pyrophoric nature or contains spontaneously combustible chemicals;

(b) as soon as the test is completed, the vessel shall be thoroughly dried internally and shall be clearly stamped with the marks and figures indicating the person by whom testing has been done, and the date of test; and

(c) any vessel which fails to pass the test or which for any other reason is found to be unsafe for use shall be destroyed or rendered unusable under intimation to the Chief Inspector.

(2) All parts of plant, equipment, machinery which is the likely event of failure may give rise to an emergent situation shall be examined once in a month by the competent person.

(3) records of testing and examination referred to in paragraphs (1) and (2) shall be maintained as long as that part of the plant, equipment and machinery are in use.

(4) All repair work including alteration, modification and addition to be carried out to the plant, equipment and machinery shall be done under the supervision of a responsible person who shall evolve a procedure to ensure safety and health of persons doing the work. When repairs or modification is done on pipelines, and joints are required to be welded, butt welding of joints shall be preferred. Wherever necessary, the responsible person shall regulate the aforesaid work through a 'Permit to work system'.

**16. Staging.-** (1) All staging that is erected for the purpose of maintenance work or repair work or for work connected with entry into confined spaces and used in the processes included in Appendix 'A', shall be stable, rigid and constructed out of substantial material of adequate strength. Such staging shall conform to the respective Indian Standard specifications.

(2) Staging shall not be erected over any closed or open vessel unless the vessel is so constructed and ventilated to prevent exposure of persons working on the stages.

(3) All the staging constructed for the purpose of this para shall have appropriate access which are safe and shall be fitted with proper hand rails to a height of one metre and toe board.

**17. Seating Arrangements.-** The seating arrangements provided for the operating personnel working in processes covered in Appendix `A` shall be located in a safe manner as to prevent the risk of exposure to toxic, flammable and explosive substances evolved in the work environment in the course of manufacture or repair or maintenance, either due to failure of plant and equipment or due to the substances which are under pressure, escaping into the atmosphere.

**18. Entry into or work in confined spaces.-** (1) The occupier of every factory to which the provisions of this schedule apply, shall ensure the observance of the following precautions before permitting any person to enter or work inside the confined spaces -

- (a) identify all confined spaces and the nature of hazards that are encountered in such spaces, normally or abnormally, and arrange to develop the most appropriate safeguards for ensuring the safety and health of persons entering into or working inside, the confined spaces;
- (b) regulate the entry or work inside the confined spaces through a `permit to work system` which should include the safeguards so developed as required under sub-clause (a) above;
- (c) before testing the confined space for entry into or work, the place shall be rendered safe by washing or cleaning with neutralising agents; or purging with steam or inert gases and making adequate forced ventilation arrangements or such measure which will render the confined space safe;
- (d) shall arrange to carry out such tests as are necessary for the purpose by a competent person and ensure that the confined space is safe for the persons to enter or work. Such testing shall be carried out as often as is necessary during the course of work to ensure its continued safety;
- (e) shall arrange to educate and train the personnel who would be required to work in confined spaces about the hazards involved in the work. He shall also keep in readiness the appropriate and approved personal protective equipment including arrangements for, rescue resuscitation and first aid, and shall arrange supervision of the work at all times by a responsible and knowledgeable person.

(2) The manager shall maintain a log of all entry into or work in, confined spaces and such record shall contain the details of persons assigned for the work, the location of the work and such other details that would have a bearing on the log book so maintained shall be retained as long as the concerned workers are in service and produces to the Inspector when demanded.

**19. Maintenance work etc.-** (1) All the work connected with the maintenance of plants and equipment including cleaning of empty containers which have held hazardous substances used in the processes covered in this Schedule, shall be carried out under `permit to work system` employing trained personnel and under the supervision of responsible person, having knowledge of the hazards and precautions required to deal with them.

(2) Maintenance work shall be carried out in such a manner that there is no risk to persons in the vicinity or to persons who pass by. If necessary, the place of such work shall be cordoned off or the presence of unconnected persons effectively controlled.

**20. Permit to work system.-**The permit to work system shall inter-alia include the observance of the following precautions while carrying out any specified work to be subjected to the permit to work system-

- (a) all work subject to the permit to work system shall be carried out under the supervision of a knowledgeable and responsible person;
- (b) all parts of plant or machinery or equipment on which permit to work system is carried out, shall remain isolated from other parts throughout the period of permit to work and the place of work including the parts of plant, machinery shall be rendered safe by cleaning, purging, washing, etc.;
- (c) all work subject to the permit to work system shall have predetermined work procedures which integrate safety with the work. Such procedures shall be reviewed whenever any change occurs in material or equipment so that continued safety is ensured;
- (d) persons who are assigned to carry out the permit to work system shall be physically fit in all respects taking into consideration the demands and nature, of the work before entering into the confined space. Such person shall be adequately informed about the correct work procedures as well as the precautions to be observed while carrying out the permit to work system;
- (e) adequate rescue arrangements wherever considered necessary and adequate first aid, rescue and resuscitation arrangements shall be available in good working condition near the place of work while carrying out the permit to work system, for use in emergency;
- (f) appropriate and approved personal protective equipment shall be used while carrying out the `permit to work system`;
- (g) after completion of work subject to the `permit to work system` the person responsible shall remove all the equipment and tools and restore to the original condition so as to prevent any danger while carrying out regular process.

**21. Safety sampling personnel. -** The occupier shall ensure the safety of persons assigned for collecting samples by instructing them on the safe procedures. Such personnel shall be provided with proper and approved personal protective equipment, if required.

**22. Ventilation. -** Adequate ventilation arrangements shall be provided and maintained at all times in the process area where dangerous or toxic or flammable or explosive substances could be evolved. These arrangements shall ensure that concentrations, which are either harmful or could result in explosion, are not permitted to be built up in the work environment.

**23. Procedures for meeting emergencies.-** (1) The occupier of every factory carrying out the works covered in Appendix `A`, shall arrange to identify all types of possible emergencies that could occur in the processes during the course of work or while carrying out maintenance work or repair work. The emergencies so identified shall be reviewed every year.

(2) The occupier shall formulate a detailed plan to meet all such identified emergencies including arrangements for summoning outside help for rescue and fire fighting arrangements for making available urgent medical facilities.

(3) The occupier shall send the list of emergencies and the details of procedures and plans formulated to meet the emergencies, to the Chief Inspector of Factories.

(4) The occupier shall arrange to install distinctive and recognisable warning arrangements to caution all persons inside the plant as well as the neighbouring community, if necessary, to enable evacuation of persons and to enable the observance of emergency procedures by the persons who are assigned emergency duties. All concerned must be well informed about the warning arrangements and their meaning. The arrangements must be checked for its effectiveness every month.

(5) Alternate power supply arrangements shall be made and interlocked with the normal power supply system so as to ensure constant supply of power to the facilities and equipment meant for compliance with requirements of Paragraphs 10, 11, 12, 13, 14, 18, 22, and this paragraph of Part II, Part III, Part IV and Part V of this Schedule.

(6) The occupier shall arrange to suspend the further process work in a place where emergency is established and shall forthwith evacuate all persons in that area except workers who have been assigned emergency duties.

(7) All the employees of the factory shall be trained about the action to be taken by them including evacuation procedures during emergencies.

(8) All emergency procedures must be rehearsed every three months and deficiencies, if any, in the achievement of the objectives shall suitably be corrected.

(9) The occupier shall arrange to have ten percent of the workers trained in the use of First Aid Fire Fighting appliances and in the rendering of specific hazards of the particular process.

(10) The occupier shall furnish immediately on request the specific chemical identity of the hazardous substance to the treating physician where the information is needed to administer proper emergency or first-aid treatment to exposed persons.

**24. Danger due to effluents.** - (1) Adequate precautions shall be taken to prevent the mixing of effluents from different processes and operations which may cause dangerous or poisonous gases to be evolved.

(2) Effluents which contain or give rise in the presence of other effluents to poisonous gases shall be provided with independent drainage systems to ensure that they may be trapped and rendered safe.

### **PART- III**

#### **Fire and Explosion Risks**

**1. Sources of ignition including lighting installation.**- (1) No internal combustion engine and no electric motor or other electrical equipment, and fittings and fixtures capable of generating sparks or otherwise causing combustion or any other source of ignition or any naked light shall be installed or permitted to be in the process area where there could be fire and explosion hazards.

(2) All hot exhaust pipes shall be installed outside a building and other hot pipes or hot surface or surfaces likely to become hot shall be suitably protected.

(3) The classification of work areas in terms of its hazard potential and the selection of electrical equipment or other equipment that could constitute a source of ignition shall be in accordance with the respective Indian Standard.

(4) Where a flammable atmosphere may be prevalent or could occur, the soles of footwear worn by workers shall have no metal on them, and the wheels of trucks or conveyors shall be conductive type.

(5) All tools and appliances used for work in this area shall be of non-sparking type.

(6) Smoking in process areas where there are risks of fire and explosion shall be prohibited, and warning notices in the language understood by majority of workers shall be posted in the factory prohibiting smoking into specified areas.

**2. Static Electricity.**- (1) All machinery and plant, particularly, pipe lines and belt drives, on which static charge is likely to accumulate, shall be effectively earthed. Receptacles for flammable liquids shall have metallic connections to the earthed supply tanks to prevent static sparking. Where necessary, humidity shall be regulated.

(2) Mobile tanker wagons shall be earthed during filling and discharge, and precautions shall be taken to ensure that earthing is effective before such filling or discharge take place.

**3. Lightning protection.** - Lightning protection arrangement shall be fitted where necessary, and shall be maintained.

**4. Process heating.**-The method of providing heat for a process likely to result in fire and explosion shall be as safe as possible and where the use of naked flame is necessary, the plant shall be so constructed as to prevent any escaping flammable gas, vapour, or dust coming into contact with the flame, or exhaust gases, or other sources likely to cause ignition. Wherever possible, the heating arrangement shall be automatically controlled at a pre-determined temperature below the danger temperature.

**5. Leakage of flammable liquids.** - (1) Provision shall be made to confine by means of bund walls, dykes, sumps etc. possible leakages from storage vessels containing flammable liquids.

(2) Waste material in contact with flammable substances shall be disposed off suitably under the supervision of knowledgeable and responsible person.

(3) Adequate and suitable fire-fighting appliances shall be installed in the vicinity of such vessels.

**6. Safety valves.**- Every still and every closed vessel which gas is evolved or into which gas is passed, and in which the pressure is liable to rise above the atmospheric pressure, shall have attached to it a pressure gauge, and a proper safety valve or other equally efficient means to relieve the pressure. These appliances shall be maintained in good condition.

**7. Installation of pipe line etc.**- All pipelines carrying flammable or explosive substances shall be protected from mechanical damage and shall be examined by a responsible person once a week to detect any deterioration or defects, or accumulation of flammable or explosive substances, and record kept of any defects found and repairs made.

**8. Fire fighting systems.**- (1) Every factory employing 500 or more persons and carrying out processes listed in Appendix `A' shall provide -

- (a) Trained and responsible fire fighting squad so as to effectively handle the fire fighting and life saving equipment in the event of fire or other emergency. Number of persons in this squad will necessarily depend upon the size of risk involved, but in no case shall be less than 8 such trained persons to be available at any time. The squad shall consist of watch & ward personnel, fire pump man and departmental supervisors and operators trained in the operation of fire & emergency services.
- (b) Squad leaders shall preferably be trained in a recognised government institution and their usefulness enhanced by providing residence on the premises.
- (c) Squad personnel shall be provided with clothing and equipment including helmets, boots and belts.



(2) A muster roll showing the duties allocated to each member of the squad shall be prepared and copies supplied to each leader as well as displayed in prominent places so as to be easily available for reference in case of emergency.

(3) The pump man shall be thoroughly conversant with the location of all appliances. He shall be responsible for maintaining all fire fighting equipment in proper working order. Any defect coming to his notice shall be immediately being brought to the notice of squad leader.

(4) As far as is practicable, the fire pump room and the main gate(s) of the factory be connected to all manufacturing or storing areas through telephone inter lined and placed in a convenient location near such areas.

#### **PART- IV**

##### **Risks of Toxic Substances**

**1. Leakage.**-(1) All plants shall be so designed and constructed as to prevent the escape of toxic substance. Where necessary, separate buildings, rooms, or protective structures shall be used for the dangerous stages of the process and buildings shall be so designed as to localise any escape of toxic substances.

(2) Catch pits, bund walls, dykes, or other suitable safeguards shall be provided to restrict the serious effects of such leakages. Catch pits shall be placed below joints in pipelines where there is danger involved to maintenance and other workers from such leakage.

**2. Drainage.**- Adequate drainage shall be provided and shall lead to collection tanks specifically provided for this purpose wherein deleterious material shall be neutralised, treated or otherwise rendered safe before it is discharged into public drains or sewers.

**3. Covering of vessels.**- (1) Every fixed vessel or structure containing any toxic substance and not so covered as to eliminate all reasonable risk of accidental contact of any portion of the body of a worker, shall be so constructed as to avoid physical contact.

(2) Such vessel shall, unless its edge is at least 90 centimetres above the adjoining ground or platform, be securely fenced to a height of at least 90 centimetres above such adjoining ground or platform.

(3) Where such vessels adjoin and the space between them, clear of any surrounding brick or other work is either less than 45centimetres in width or is 45 or more centimetres in width, but is not securely fenced on both sides to a height of at least 90 centimetres, secure barriers shall be so placed as to prevent passage between them :

Provided that sub-paragraph (2) of this paragraph shall not apply to –

(a) saturators used in the manufacture of sulphate of ammonia; and

(b) that part of the sides of brine evaporating pans which require raking, drawing or filling.

**4. Continuous exhaust arrangement.** - (1) Any process evolving toxic vapour, gas, fume and substance shall have efficient continuous exhaust draught. Such arrangement shall be interlocked in the process control wherever possible.

(2) In the event of failure of continuous exhaust arrangement means shall be provided to automatically stop the process.

**5. Work Bench.**- All the work benches used in the processes involving the manipulation of toxic substances, shall be graded properly and shall be made of smooth impervious surface which shall be washed daily after the completion of work.

**6. Waste disposal.**- (1) There shall be provided a suitable receptacle made of non-absorbable material with a tightly fitting cover for depositing waste material soiled with toxic substances and the contents of such receptacle shall be destroyed by burning or using other suitable methods under the supervision of a responsible person.

(2) During the course of manufacture, whenever any batch or intermediate products having toxicity is rejected on considerations of quality, sufficient precautions shall be taken to render them innocuous or otherwise treat them or inactivate them, before disposal.

(3) The empty containers of toxic substances shall be cleaned thoroughly before disposal under the supervision of a responsible person.

#### **PART- V**

##### **Special Provisions**

**1. Special precautions for Nitro or Amino Processes.** - (1) Unless the crystallised nitro or amino substances or any of its liquor is broken or agitated in a completely enclosed process so as not to give rise to dust or fume, such process shall be carried on under an efficient exhaust draught or by adopting any other suitable means in such a manner as to prevent the escape of dust or fume in the working atmosphere.

(2) No part of the plant or equipment or implements which was in contact with nitro or amino compounds shall be repaired, or handled unless they have been emptied and thoroughly cleaned and decontaminated.

(3) Filling of containers with nitro or amino compounds shall be done only by using a suitable scoop to avoid physical contact and the drying of the containers in the stove shall be done in such a manner that the hot and contaminated air from the stove is not drawn into the work room.

(4) Processes involving the steaming into or around any vessel containing nitro or amino compounds or its raw materials shall be carried out in such a manner that the steam or vapour is effectively prevented to be blown back into the working atmosphere.

(5) Suitable antidotes such as methylene blue injections shall always be available at designated places of work for use during emergency involving the poisoning with nitro or amino compounds.

**2. Special precautions for `chrome processes`.**- (1) Grinding and sieving of raw materials in chrome processes shall be carried on in such a manner and under such condition as to secure effective separation from any other processes and under an efficient exhaust draught.

(2) There shall be washing facilities located very near to places where wet chrome processes such as leaching, acidification, sulphate settling, evaporation, crystallisation, centrifugation or packing are carried out, to enable quick washing of affected parts of body with running water.

(3) Weekly inspection of hand and feet of all persons employed in chrome process shall be done by a qualified nurse and record of such inspections shall be maintained in a form approved by the Chief Inspector of Factories.

(4) There shall be always available at designated places of work suitable ointment such as glycerine, vaseline, etc. and water proof plaster in a separate box readily accessible to the workers so as to protect against perforation of nasal septum.

3. Special precautions for processes carried out in all glass vessels.- (1) Processes and chemical reactions such as manufacture of vinyl chloride, benzyl chloride etc. which are required to be carried out in all glass vessels shall have suitable means like substantial wire mesh covering to protect persons working nearby in the event of breakage of glass vessel.

(2) Any spillage or emission of vapour from the all glass vessel due to breakage shall be immediately inactivated or rendered innocuous by suitable means such as dilution with water or suitable solvents so as to avoid the risks of fire or explosion or health hazards.

4. Special precautions for processes involving chlorate manufacture. - (1) Crystallisation, grinding or packing of chlorate shall not be done in a place used for any other purpose and such places shall have hard, smooth and impervious surface made of non-combustible material. The place shall be thoroughly cleaned daily.

(2) The personal protective equipment likes overall, etc. provided for the chlorate workers shall not be taken from the place of work and they shall be thoroughly cleaned daily.

(3) Adequate quantity of water shall be available near the place of chlorate process for use during fire emergency.

(4) Wooden vessels shall not be used for the crystallisation of chlorate or to contain crystallised ground chlorate.

5. Special precautions in the use of plant and equipment made from reinforced plastics. - (1) All plant and equipment shall conform to appropriate Indian or any other National Standard.

(2) Care shall be taken during storage, transport, handling and installation of plant and equipment to avoid accidental damage.

(3) All plant and equipment shall be installed in such a way as to ensure that loads are distributed as intended in design or as per the recommendations of the manufacture.

(4) All pipe work shall be supported so that total loads local to the branches on the vessel or tank do not exceed their design values.

(5) After erection all plant and equipment shall be subjected to a pressure test followed by a thorough examination by a competent person. The test and examination shall be as per relevant Standard. A certificate of test and examination by a competent person shall be obtained and kept available at site.

(6) All plant and equipment shall be subjected to periodical test and examination and record maintained as per Paragraph 15 in Part II of this Schedule.

(7) Plant and equipment during their use shall not be subjected to over filling or over loading beyond rated capacity.

## **PART- VI**

### **Medical Requirements**

1. Decontamination facilities.- In all places where toxic substances are used in processes listed in Appendix 'A' the following provisions shall be made to meet an emergency:

(a) fully equipped first aid box;

(b) readily accessible means of drenching with water persons, parts of body of persons, and clothing of persons who have been contaminated with such toxic and corrosive substances, and such means shall be as shown in the Table below :

No. of persons employed at any time	No. of drenching showers
Upto 50 persons	2
Between 51 to 100	3
101 to 200	3 + 1 for every 50 persons thereafter
201 to 400	5 + 1 for every 100 persons thereafter
401 and above	7 + 1 for every 200 persons thereafter

(c) a sufficient number of eye wash bottles filled with distilled water or suitable liquid, kept in boxes or cupboards conveniently situated and clearly indicated by a distinctive sign which shall be visible at all times.

2. Occupational health centre.- In all the factories carrying out processes covered in Appendix 'A' there shall be provided and maintained in good order an occupational health centre with facilities as per scale laid down hereunder-

(1) For factories employing upto workers -

(a) the services of a qualified medical practitioner hereinafter known as Factory Medical Officer, available on a retainership basis, in his notified clinic near to the factory for seeking medical help during emergency. He will also carry out the pre-employment and periodical medical examinations as stipulated in paragraph 4 of this Part.

(b) A minimum of five persons trained in first aid procedures, amongst which at least one shall always be available during the working period.

(c) A fully equipped first aid box.

(2) For factories employing 51 to 200 workers -

(a) The occupational health centre shall have a room having a minimum floor area of 15 sq.m., with floors and walls made of smooth, hard and impervious surface and shall be adequately illuminated, ventilated and equipped.

(b) A part-time Factory Medical Officer will be in over all charge of the Centre who shall visit the factory minimum twice in a week and whose services shall be readily available during emergencies.

(c) There shall be one qualified and trained dresser-cum-compounder on duty throughout the working period.

(d) A fully equipped first aid box.

(3) For factories employing above 200 workers -

- (a) There shall be one full-time Factory Medical Officer for factories employing upto 500 workers and one more medical officer for every 1000 workers or part thereof.
- (b) The occupational health centre in this case shall have a minimum of 2 rooms each having a minimum floor area of 15 sq.m. with floors and walls made of smooth, hard and impervious surface and shall be adequately illuminated, ventilated and equipped.
- (c) There shall be one trained nurse, one dresser-cum-compounder and one sweeper-cum-ward boy throughout the working period.
- (d) The Occupational Health Centre in this case shall be suitably equipped to manage medical emergencies.

**3. Ambulance van.-** (1) In every factory carrying out processes covered in Appendix 'A', there shall be provided and maintained in good condition, a suitably constructed and fully equipped ambulance van as per Appendix 'C' manned by a full-time driver-cum-mechanic and a helper, trained in first aid for the purposes of transportation of serious cases of accidents or sickness unless arrangements for procuring such facility at short notice during emergencies have been made with the nearby hospital or other places. The ambulance van shall not be used for any purpose other than the purpose stipulated herein and will always be available near the Occupational Health Centre.

(2) The relaxation to procure Ambulance Van from nearby places provided for in sub-para (1) above will not be applicable to factories employing more than 500 workers.

**4. Medical examination.-** (1) Workers employed in processes covered in Appendix 'A' shall be medically examined by a Factory Medical Officer in the following manner -

- (a) Once before employment, to ascertain physical suitability of the person to do the particular job;
- (b) Once in a period of 6 months, to ascertain the health status of the worker, and
- (c) The details of pre-employment and periodical medical examinations carried out as aforesaid shall be recorded in the prescribed form.

(2) Any finding of the Factory Medical Officer revealing any abnormality or unsuitability of any person employed in the process shall immediately be reported to the Certifying Surgeon who shall in turn, examine the concerned workers and communicate his findings within 30 days. If the Certifying Surgeon is of the opinion that the person so examined is required to be suspended from the process for health protection he will direct the occupier accordingly, who shall not employ the said worker in the same process. However, the person so suspended from the process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated :

Provided that the Certifying Surgeon on his own may examine any other worker whom he feels necessary to be examined for ascertaining the suitability of his employment in the process covered in Appendix 'A' or for ascertaining the health status of any other worker and his opinion shall be final.

(3) No person shall be newly appointed without the Certificate of Fitness granted by the Factory Medical Officer. If the Factory Medical Officer declares a person unfit for being appointed to work in the process covered in Appendix 'A', such person shall have a right of appeal to the Certifying Surgeon, whose opinion shall be final in this regard.

(4) The worker suspended from the process owing to the circumstances covered in sub-para (2) shall be employed again in the same process only after obtaining the Fitness Certificate from the Certifying Surgeon and after making entries to that effect in the health register.

## **PART -VII**

### Additional Welfare Amenities

**1. Washing facilities. -** (1) There shall be provided and maintained in every factory for the use of all the workers taps for washing, at the rate of one for every 15 persons including liquid soap in a container with tilting arrangements and nail brushes or other suitable means for effective cleaning. Such facilities shall be conveniently accessible and shall be kept in a clean and hygienic condition.

(2) If washing facilities as required above are provided for women, such facilities shall be separate for them and adequate privacy at all times shall be ensured in such facilities.

**2. Mess room facilities.-** (1) The occupier of all the factories carrying out processes covered in Appendix 'A' and employing 50 workers or more, shall provide for all the workers working in a shift mess room facilities which are well ventilated and provided with tables and sitting facilities along with the provision of cold and hygienic drinking water facilities.

(2) Such facilities shall include suitable arrangements for cleaning and washing and shall be maintained in a clean and hygienic condition.

**3. Cloakroom facilities.-**(1)The occupier of every factory carrying out any process covered in Appendix 'A' shall provide for all the workers employed in the process cloak room facilities with lockers. Each worker shall be provided with two lockers, one for work clothing and another separately for personal clothing and the lockers should be such as to enable the keeping of the clothing in a hanging position.

(2) The cloak room facilities provided in pursuance of sub-para (1) shall be located as far as possible near to the facilities provided for washing in pursuance of para 1(1). If it is not possible to locate the washing facilities the cloakroom facilities shall have adequate and suitable arrangements for cleaning & washing.

**4. Special bathing facilities.-** (1) The occupier of any factory carrying out the process covered under Appendix 'B' shall provide special bathing facilities for all the workers employed and such facilities shall be provided at the rate of 1 for 25 workers and part thereof, and shall be maintained in a clean and hygienic condition.

(2) The occupier shall insist all the workers employed in the processes covered in Appendix 'B' to take bath after the completion of the day's or shift work using the bathing facilities so provided and shall also effectively prevent such of those workers taking bath in any place other than the bathing facilities.

(3) Notwithstanding anything contained in sub-para (1) above, the Chief Inspector may require in writing the occupier of any factory carrying out any other process for which in his opinion bathing facilities are essential from the health point of view, to provide special bathing facilities.

## PART- VIII

### 1. Duties of workers.-

(1) Every worker employed in the processes covered in Appendix 'A' and Appendix 'B' shall not make safety device or appliance or any guarding or fencing arrangement, inoperative or defective and shall report the defective condition of the aforesaid arrangements as soon as he is aware of any such defect.

(2) Before commencing any work, all workers employed in processes covered in Appendix 'A' shall check their workplace as well as the machinery, equipment or appliance used in the processes and report any mal-function or defect immediately to the supervisor or any responsible person of the management.

(3) All workers shall co-operate in all respects with the management while carrying out any work or any emergency duty assigned to them in pursuance of this schedule and shall always use all the personal protective equipment issued to them in a careful manner.

(4) All workers employed in the processes covered in Appendix 'A' or Appendix 'B' shall not smoke in the process area or storage area. If special facilities are provided by the management only such facilities should be used.

(5) All workers employed in the processes covered in Appendix 'A' shall not remain in unauthorised place or carry out unauthorised work or improvise any arrangement or adopt short cut method or misuse any of the facilities provided in pursuance of the Schedule, in such a manner as to cause risk to themselves as well as or to others employed.

(6) The workers shall not refuse undergoing medical examination as required under these rules.

## PART- IX

### Restrictions on the employment of young persons under 18 years of age and women

(1) The Chief Inspector of Factories may by an order in writing, restrict or prohibit the employment of women and young persons under the age of 18, in any of the processes covered in Appendix 'A' of this schedule on considerations of health and safety of women and young persons.

(2) Such persons who are restricted or prohibited from working in the process due to the order issued in pursuance of sub-para (1) above shall be provided with alternate work which is not detrimental to their health or safety.

## PART- X Exemptions

1. Power of exemption.- The State Government or subject to the control of the State Government the Chief Inspector may exempt from the compliance with any of the requirements of this Schedule partly or fully, any factory carrying out processes covered in Appendix 'A', if it is clearly and satisfactorily established by the occupier that the compliance with any of the requirement is not necessary to ensure the safety and health of persons employed and suitable and effective alternate arrangements are available to any of the requirements covered in this schedule.

## Appendix 'A'

Any works or that part of works in which -

(a) the manufacture, manipulation or recovery of any of the following is carried on :-

(i) sodium, potassium, iron, aluminium, cobalt, nickel, copper, arsenic, antimony, chromium, zinc, selenium, magnesium, cadmium, mercury, beryllium and their organic and inorganic salts, alloys, oxides and hydroxides;

(ii) ammonia, ammonium hydroxide and salts of ammonium;

(iii) the organic or inorganic compounds of sulphurous, sulphuric, nitric, nitrous, hydrochloric, hydrofluoric, hydriodic, hydro sulphuric, hydrobromic, boric;

(iv) cyanogen compounds, cyanide compounds, cyanate compounds;

(v) phosphorous and its compounds other than organo phosphorus insecticides.

(vi) chlorine

(b) hydrogen sulphide is evolved by the decomposition of metallic sulphides, or hydrogen sulphide is used in the production of such sulphides;

(c) bleaching powder is manufactured or chlorine gas is produced in chlor-alkali plants;

(d) (i) gas tar or coal tar or bitumen or shale oil asphalt or any residue of such tar is distilled or is used in any process of chemicals manufacture;

(ii) tar based synthetic colouring matters or their intermediates are produced;

(e) nitric acid is used in the manufacture of nitro compounds;

(f) explosives are produced with the use of nitro compounds;

- (g) aliphatic or aromatic compounds or their metallic and non-metallic derivatives or substituted derivatives, such as chloroform, ethylene glycol, formaldehyde, benzyl chloride, phenol, methyl ethyl ketone peroxide, cobalt carbonyl, tungsten carbide etc. are manufactured or recovered.

### **Appendix `B`**

Concerning Special Bathing Accommodation in pursuance of Para 4 of Part IV

1. Nitro or amido processes
2. All chrome processes
3. Processes of distilling gas or coal tar or processes of chemical manufacture in which tar is used
4. Processes involving manufacture, manipulation, handling or recovery of cyanogen compound, cyanide compound, cyanate compounds
5. Processes involving manufacture of bleaching powder or production of chlorine gas in chlor-alkali plants
6. Manufacture, manipulation or recovery of nickel and its compounds
7. All processes involving the manufacture, manipulation or recovery of aliphatic or aromatic compounds or their derivatives or substituted derivatives.

### **Appendix `C`**

Ambulance should have the following equipment:

#### General

- An wheeled stretcher with folding and adjusting devices; Head of the stretcher must be capable of being tilted upward;
- Fixed suction unit with equipment;
- Fixed oxygen supply with equipment;
- Pillow with case;
- Sheets;
- Blankets;
- Towels;
- Emesis bag;
- Bed pan;
- Urinal;
- Glass

#### Safety equipment:-

- Flares with life of 30 minutes
- Flood lights;
- Flash lights;
- Fire extinguisher dry powder type;
- Insulated gauntlets.

#### Emergency care equipment:-

#### Resuscitation:-

- Portable suction unit;
- Portable oxygen unit;
- Bag-valve-mask, hand operated artificial ventilation unit;
- Airways;
- Mouth gags;
- Tracheostomy adapters;
- Short spine board;
- I.V. Fluids with administration unit;
- B.P. manometer;
- Cugg;
- Stethoscope

#### Immobilisation

- Long & short padded boards;
- Wire ladder splints;
- Triangular bandage;
- Long & short spine boards.

#### Dressings:-

- Gauze pads - 4" x 4" ;

- Universal dressing 10" x 36" ;
- Roll of aluminium foils;
- Soft roller bandages 6" x 5 yards;
- Adhesive tape in 3" roll;
- Safety pins;
- Bandage sheets;
- Burn sheet.

Poisoning:-

- Syrup of Ipecac;        }                                } Pre packeted in doses
- Activated charcoal;    }
- Snake bite kit;
- Drinking water.

Emergency Medicines

- As per requirement (under the advice of Medical Officer only)

***SCHEDULE- XIII***

**Manipulation of stone or any other material containing free silica**

1. Application. - This schedule shall apply to all factories or parts of factories in which manipulation of stone or any other material containing free silica is carried on.
2. Definitions.- For the purpose of this Schedule -
  - (a) "manipulation" means crushing, breaking, chipping, dressing, grinding, sieving, mixing, grading or handling of stone or any other material containing free silica or any other operation involving such stone or material;
  - (b) "stone or any other material containing free silica" means a stone or any other solid material containing not less than 5% by weight of free silica.
3. Precautions in manipulation.- No manipulation shall be carried out in a factory or part of a factory unless one or more of the following measures, namely -
  - (a) damping the stone or other material being processed,
  - (b) providing water spray,
  - (c) enclosing the process,
  - (d) isolating the process, and
  - (e) providing localised exhaust ventilation,

Are adopted so as to effectively control the dust in any place in the factory where any person is employed, at a level equal to or below the maximum permissible level for silica dust as laid down in Table 2 of Schedule Y:

Provided that such measures as above said are not necessary if the process or operation itself is such that the level of dust created and prevailing does not exceed the permissible level referred to.
4. Maintenance of floors.- (1) All floors or places where fine dust is likely to settle on and whereon any person has to work or pass shall be of impervious material and maintained in such condition that they can be thoroughly cleaned by a moist method or any other method which would prevent dust being airborne in the process of cleaning.
  - (2) The surface of every floor of every work room or place where any work is carried on or where any person has to pass during the course of his work, shall be cleansed of dust once at least during each shift after being sprayed with water or by any other suitable method so as to prevent dust being airborne in the process of cleaning.
5. Prohibition relating young persons.- No young person shall be employed or permitted to work in any of the operations involving manipulation or at any place where such operations are carried out.
6. Medical Facilities and records of examinations and tests.- (1) The occupier of every factory to which the schedule applies, shall -
  - (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and
  - (b) Provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (1).
  - (2) The record of medical examinations and appropriate tests carried out by the said medical practitioner shall be maintained in separate register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.
7. Medical examination by Certifying Surgeon. - (1) every worker employed in the processes specified in paragraph 1, shall be examined by a Certifying Surgeon within 15 days of his first employment. Such medical examination shall include tests for lead in urine and blood. ALA in urine, haemoglobin content, stippling of cells and steadiness test. No worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.
  - (2) Every worker employed in the said processes shall be re-examined by a Certifying Surgeon at least once in every twelve months. Such re-examination shall, wherever the Certifying Surgeon considers appropriate, include all the tests as specified in sub-paragraph (1) except chest X-ray which will be once in 3 years.
  - (3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraphs (1) and (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.
  - (4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said process on the ground that continuance therein would involve special danger to the health of the worker he shall make a record of his findings in the said Certificate and the health register. The entry of his findings in these documents should also include the period for which he considers that the said person is unfit for work in the said processes. The person so suspended from the process shall be provided with alternate placement facilities unless he fully is incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) above shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**8. Exemptions.**-If in respect of any factory, the Chief Inspector is satisfied that owing to the exceptional circumstances or in frequency of the processes or for any other reason, all or any of the provisions of this schedule is not necessary for protection of the workers in the factory, the Chief Inspector may by a certificate in writing, which he may in his discretion revoke at any time, exempt such factory from all or any of such provisions subject to such conditions, if any, as he may specify therein.

#### Schedule-XIV

##### **Handling and processing of Asbestos, manufacture of any article of Asbestos and any other process of manufacture or otherwise in which Asbestos is used in any form.**

1. Application.- This schedule shall apply to all factories or parts of factories in which any of the following processes is carried on :-
  - (a) breaking, crushing, disintegrating, opening, grinding, mixing or sieving of asbestos and any other processes involving handling and manipulation of asbestos incidental thereto;
  - (b) all processes in the manufacture of asbestos textiles including preparatory and finishing processes;
  - (c) making of insulation slabs or sections, composed wholly or partly of asbestos, and processes incidental thereto;
  - (d) making or repairing of insulating mattresses, composed wholly or partly of asbestos, and processes incidental thereto;
  - (e) manufacture of asbestos cardboard and paper;
  - (f) manufacture of asbestos cement goods;
  - (g) application of asbestos by spray method;
  - (h) sawing, grinding, turning, abrading and polishing in dry state of articles composed wholly or partly of asbestos;
  - (i) cleaning of any room, vessel, chamber, fixture or appliance for the collection of asbestos dust; and
  - (j) any other processes in which asbestos dust is given off into the work environment.
2. Definition.- For the purpose of this Schedule -
  - (a) "asbestos" means any fibrous silicate mineral and any admixture containing actinolite, amosite, anthophyllite, dhrysotile, crocidolite, tremolite or any mixture thereof, whether crude, crushed or opened;
  - (b) "asbestos textiles" means yarn or cloth composed of asbestos or asbestos mixed with any other material;
  - (c) "approved" means approved for the time being in writing by the Chief Inspector;
  - (d) "breathing apparatus" means a helmet or face piece with necessary connection by means of which a person using it breathes air free from dust, or any other approved apparatus;
  - (e) "efficient exhaust draught" means localised ventilation by mechanical means for the removal of dust so as to prevent dust from escaping into air of any place in which work is carried on. No draught shall be deemed to be efficient which fails to control dust produced at the point where such dust originates;
  - (f) "preparing" means crushing, disintegrating, and any other processes in or incidental to the opening of asbestos;
  - (g) "protective clothing" means overalls and head covering, which (in either case) will when worn exclude asbestos dust.
3. Tools and equipment.- Any tools or equipment used in processes to which this schedule applies shall be such that they do not create asbestos dust above the permissible limit or are equipped with efficient exhaust draught.
4. Exhaust draught.- (1) An efficient exhaust draught shall be provided and maintained to control dust from the following processes and machines :
  - (a) manufacture and conveying machinery namely -
    - (i) preparing, grinding, or dry mixing machines;
    - (ii) carding, card waste and ring spinning machines, and looms;
    - (iii) machines or other plant fed with asbestos;
    - (iv) machines used for the sawing, grinding, turning, drilling, abrading or polishing; in the dry state, of articles composed wholly or partly of asbestos;
  - (b) cleaning, and grinding of the cylinders or other parts of a carding machine;
  - (c) chambers, hoppers or other structures into which loose asbestos is delivered or passes;
  - (d) work-benches for asbestos waste sorting or for other manipulation or asbestos by hand;
  - (e) workplaces at which the filling or emptying of sacks, skips or other portable containers, weighing or other process incidental thereto which is effected by hand, is carried on;
  - (f) sack cleaning machines;
  - (g) mixing and blending of asbestos by hand; and
  - (h) any other process in which dust is given off into the work environment.
- (2) Exhaust ventilation equipment provided in accordance with sub-paragraph (1) shall, while any work of maintenance or repair to the machinery, apparatus or other plant or equipment in connection with which it is provided is being carried on, be kept in use so as to produce an exhaust draught which prevents the entry of asbestos dust into the air of any work place.
- (3) Arrangements shall be made to prevent asbestos dust discharged from exhaust apparatus being drawn into the air of any workroom.

- (4) The asbestos bearing dust removed from any workroom by the exhaust system shall be collected in suitable receptacles or filter bags which shall be isolated from all work areas.
- 5. Testing and examination of ventilating systems.-** (1) All ventilating systems used for the purpose of extracting or suppressing dust as required by this schedule shall be examined and inspected once every week by a responsible person. It shall be thoroughly examined and tested by a competent person once in every period of 12 months. Any defects found by such examinations or test shall be rectified forthwith.
- (2) A register containing particulars of such examination and tests and the state of the plant and the repairs or alternations (if any) found to be necessary shall be kept and shall be available for inspection by an Inspector.
- 6. Segregation in case of certain process.-** Mixing or blending of asbestos by the hand, or making or repairing of insulating mattresses composed wholly or partly of asbestos shall not be carried on in any room in which any other work is done.
- 7. Storage and distribution of loose asbestos. -** (1) All sacks used as receptacles for the purpose of transport of asbestos within the factory shall be constructed of impermeable materials and shall be kept in good repair.
- (2) A sack which has contained asbestos shall not be cleaned by hand beating but by a machine, complying with paragraph 4.
- 9. Maintenance of floors and workplaces.-** (1) In every room in which any of the requirements of this schedule apply -
- (a) the floors, work-benches, machinery and plant shall be kept in a clean state and free from asbestos debris and suitable arrangements shall be made for the storage of asbestos not immediately required for use; and
- (b) the floors shall be kept free from any materials, plant or other articles not immediately required for the work carried on in the room, which would obstruct the proper cleaning of the floor.
- (2) The cleaning as mentioned in sub-rule (1) shall so far as is practicable, as carried out by means of vacuum cleaning equipment so designed and constructed and so used that asbestos dust neither escapes nor is discharged into the air of any work place.
- (3) When the cleaning is done by any method other than that mentioned in sub-paragraph (2), the persons doing cleaning work and any other person employed in that room shall be provided with respiratory protective equipment and protective clothing.
- (4) The vacuum cleaning equipment used in accordance with provisions of sub-paragraph (2), shall be properly maintained and after each cleaning operation, its surfaces kept in a clean state and free from asbestos waste and dust.
- (5) Asbestos waste shall not be permitted to remain on the floors or other surfaces at the work place at the end of the working shift and shall be transferred without delay to suitable receptacles. Any spillage of asbestos waste occurring during the course of the work at any time shall be removed and transferred to the receptacles maintained for the purpose without delay.
- 10. Breathing apparatus and protective clothing.-** (1) An approved breathing apparatus and protective clothing shall be provided and maintained in good conditions for use of every person employed-
- (a) in chambers containing loose asbestos;
- (b) in cleaning, dust settling or filtering chambers of apparatus;
- (c) in cleaning the cylinders, including the defer cylinders, or other parts of a carding machine by means of hand-strikes;
- (d) in filling, beating, or levelling in the manufacture or repair of insulating mattresses; and
- (e) in any other operation or circumstances in which it is impracticable to adopt technical means to control asbestos dust in the work environment within the permissible limit.
- (2) Suitable accommodation in conveniently accessible position shall be provided for the use of persons when putting on or taking off breathing apparatus and protective clothing provided in accordance with this rule and for the storage of such apparatus and clothing when not in use.
- (3) All breathing apparatus and protective clothing not in use shall be stored in the accommodation provided in accordance with sub-rule (2) above.
- (4) All protective clothing in use shall be de-dusted under an efficient exhaust draught or by vacuum cleaning and shall be washed at suitable intervals. The cleaning schedule and procedure should be such as to ensure the efficiency in protecting the wearer.
- (5) All breathing apparatus shall be cleaned and disinfected at suitable intervals and thoroughly inspected once every month by a responsible person.
- (6) A record of the cleaning and maintenance and of the condition of the breathing apparatus shall be maintained in a register provided for that purpose which shall be readily available for inspection by an Inspector.
- (7) No person shall be employed to perform any work specified in sub-paragraph (1) for which breathing apparatus is necessary to be provided under that sub-paragraph unless he has been fully instructed in the proper use of that equipment.
- (8) No breathing apparatus provided in pursuance of sub-paragraph (1) which has been worn by a person shall be worn by another person unless it has been thoroughly cleaned and disinfected since last being worn and the person has been fully instructed in the proper use of that equipment.
- 11. Separate accommodation for personal clothing.-** A separate accommodation shall be provided in a conveniently accessible position for all persons employed in operation to which this schedule applies for storing of personal clothing. This should be separated from the accommodation provided under sub-paragraph (2) of paragraph 10 to prevent contamination of personal clothing.
- 12. Washing and bathing facilities.-** (1) There shall be provided and maintained in a clean state and in good repair for the use of all workers employed in the processes covered by the schedule, adequate washing and bathing places having a constant supply of water under cover at the rate of one such place for every 15 persons employed.
- (2) The washing places shall have standpipes placed at intervals of not less than one metre.
- (3) Not less than one half of the total number of washing places shall be provided with bathrooms.
- (4) Sufficient supply of clean towels made of suitable material shall be provided:



Provided that such towels shall be supplied individually for each worker if so ordered by the Inspector.

(5) Sufficient supply of soap and nail brushes shall be provided.

**13. Messroom.-** (1) There shall be provided and maintained for the use of all worker employed in the factory covered by this schedule, remaining on the premises during the rest intervals, a suitable mess room which shall be furnished with:-

(a) sufficient tables and benches with back rest, and

(b) adequate means for warming food.

(2) The mess room shall be placed under the charge of a responsible person and shall be kept clean.

**14. Prohibition of employment of young persons. -** No young person shall be employed in any of the process covered by this schedule.

**15. Prohibition relating to smoking. -** No person shall smoke in any area where processes covered by this schedule are carried on. A notice in the language understood by majority of the workers shall be posted in the plant prohibiting smoking at such areas.

**16. Cautionary notices.-** (1) Cautionary notices shall be displayed at the approaches and along the perimeter of every asbestos processing area to warn all persons regarding -

(a) hazards to health from asbestos dust,

(b) need to use appropriate protective equipment,

(c) prohibition of entry to unauthorised persons, or authorised persons but without protective equipment.

(2) Such notices shall be in the language understood by the majority of the workers.

**17. Air monitoring.-** To ensure the effectiveness of the control measures, monitoring of asbestos fibre in air shall be carried out once at least in every shift and the record of the results so obtained shall be entered in a register specially maintained for the purpose.

**18. Medical facilities and records of medical examinations and tests.-** (1) The occupier of every factory or part of the factory to which the schedule applied, shall-

(a) employ a qualified medical practitioner for medical surveillance of the workers covered by this schedule whose employment shall be subject to the approval of the Chief Inspector of Factories;

(b) provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The record of medical examinations and appropriated tests carried out by the said medical practitioner shall be maintained in a separate register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspectors.

**19. Medical examination by Certifying Surgeon. -** (1) Every worker employed in the processes specified in paragraph 1 shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examination shall include pulmonary function test, tests for detecting asbestos fibres in sputum and chest X-ray. No worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.

(2) Every worker employed in the process referred to sub-paragraph (1) shall be re-examined by a Certifying Surgeon at least once in every twelve calendar months. Such examination shall, wherever the Certifying Surgeon considers appropriate, include all the tests specified in sub-paragraph (1) except chest X-ray which will be carried out once in 3 years.

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the certificate and the certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraphs (1) and (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit to work in the said processes. The person so suspended from the process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after future examination, again certifies him fit for employment in these processes.

**20. Exemptions.-** If in respect of any factory, the Chief Inspector is satisfied that owing to the exceptional circumstances or infrequency of the processes or for any other reason, all or any of the provisions of this schedule is not necessary for protection of the workers in the factory, the Chief Inspector may by a certificate in writing, which he may at his discretion revoke at any time, exempt such factory from all or any of such provisions subject to such conditions, if any, as he may specify therein.

## **SCHEDULE -XV**

### **Handling or manipulation of corrosive substances**

**1. Definitions. -** For the purposes of this schedule-

(a) "corrosive operation" means an operation of manufacturing, storing, handling processing, packing, or using any corrosive substance in a factory; and

(b) "corrosive substance" includes sulphuric acid, nitric acid, hydrochloric acid, hydrofluoric acid, carboric acid, phosphoric acid, liquid chlorine, liquid bromine, ammonia, sodium hydroxide and potassium hydroxide and a mixture thereof, and any other substance which the State Government by notification in the Official Gazette specify to be corrosive substance.

**2. Flooring.-** The floor of every workroom of a factory in which corrosive operation is carried on shall be made of impervious, corrosion and fire resistance material and shall be so constructed as to prevent collection of any corrosive substance. The surface of such flooring shall be smooth and cleaned as often as necessary and maintained in a sound condition.

**3. Protective equipment.** - (1) The occupier shall provide for the use of all persons employed in any corrosive operation suitable protective wear for hands and feet, suitable aprons, face shields, chemical safety goggles, and respirators. The equipment shall be maintained in good order and shall be kept in clean and hygienic condition by suitably treating to get rid of the ill effects of any absorbed chemicals and by disinfecting. The occupier shall also provide suitable protective creams and other preparations wherever necessary.

(2) The Protective equipment and preparations provided shall be used by the persons employed in any corrosive operation.

**4. Water facilities.**- Where any corrosive operation is carried on, there shall be provided as close to the place of such operation as possible, a source of clean water at a height of 210 centimetres from a pipe of 1.25 centimetres diameter and fitted with a quick acting valve so that in case of injury to the worker by any corrosive substance, the injured part can be thoroughly flooded with water. Whenever necessary, in order to ensure continuous water supply, a storage tank having a minimum length, breadth and height of 210 centimetres, 120 centimetres and 60 centimetres respectively or such dimensions as are approved by the Chief Inspector shall provided as the source of clean water.

**5. Cautionary notice.**- A cautionary notice in the following form and printed in the language which majority of the workers employed understand, shall be displayed prominently close to the place where a corrosive operation is carried out and where it can be easily and conveniently read by the workers. If any worker is illiterate, effective steps shall be taken to explain carefully to him the contents of the notice so displayed.

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CAUTIONARY NOTICE

DANGER

Corrosive substances cause severe burns and vapours thereof may be extremely hazardous. In case of contact, immediately flood the part affected with plenty of water for at least 15 minutes.

Get medical attention quickly.

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**6. Transport.**- (1) Corrosive substances shall not be filled, moved or carried except in containers or through pipes and when they are to be transported in containers, they shall be placed in crates of sound construction and of sufficient strength.

(2) A container with a capacity of 11.5 litres or more of a corrosive substance shall be placed in a receptacle or crate and then carried by more than one person at a height below the waist line unless a suitable rubber wheeled truck is used for the purpose.

(3) Containers for corrosive substances shall be plainly labelled.

**7. Devices for handling corrosive.** - (1) Tilting, lifting of pumping arrangements shall be used for emptying jars, carboys and other containers of corrosives.

(2) Corrosive substance shall not be handled by bare hands but by means of a suitable scoop or other device.

**8. Opening of valves.** - Valves fitted to containers holding a corrosive substance shall be opened with great care. If they do not work freely, they shall not be forced open. They shall be opened by a worker suitably trained for the purpose.

**9. Cleaning tanks, stills, etc.**- (1) In cleaning out or removing residues from stills or other large chambers used for holding any corrosive substance, suitable implements made of wood or other material shall be used to prevent production of arseniuretted hydrogen (arsine).

(2) Whenever it is necessary for the purpose of cleaning or other maintenance work for any worker to enter chamber, tank, vat, pit or other confined space where a corrosive substance had been stored, all possible precautions required under section 36 of the Act shall be taken to ensure the worker's safety.

(3) Wherever possible, before repairs are undertaken to any part of equipment in which a corrosive substance was handled, such equipment or part thereof shall be freed of any adhering corrosive substance by adopting suitable methods.

**10. Storage.**- (1) Corrosive substances shall not be stored in the same room with other chemicals, such as turpentine, carbides, metallic powders and combustible materials, the accidental mixing with which may cause a reaction which is either violent or gives rise to toxic fumes and gases.

(2) Pumping or filling overhead tanks, receptacles, vats or other containers for storing corrosive substances shall be so arranged that there is no possibility of any corrosive substance overflowing and causing injury to any person.

(3) Every container having a capacity of twenty litres or more and every pipeline, valve, and fitting used for storing or carrying corrosive substances shall be thoroughly examined every year for finding out any defects, and defects so found out shall be removed forthwith. A register shall be maintained of every such examination made and shall be produced before the Inspector whenever required.

**11. Fire extinguishers and fire fighting equipment.** - An adequate number of suitable types of fire extinguishers or other stored shall be provided. Such extinguishers or other equipment shall be regularly tested and refilled. Clear instructions as to how the extinguishers or other equipment should be used, printed in the language which majority of the workers employed understand, shall be affixed near each extinguisher or other equipment.

**12. Exemption.** - If in respect of any factory on application made by the manager, the Chief Inspector is satisfied that owing to the exceptional circumstances, or the infrequency of the process or for any other reason to be recorded by him in writing, all or any of the provisions of this schedule are not necessary for the protection of the persons employed therein, he may by a certificate in writing, which he may at any time revoke, exempt the factory from such of the provisions and subject to such conditions as he may specify therein.

**SCHEDULE -XVI**  
**Processing of cashew nut**

1. Application .- This schedule shall apply to all factories in which roasting, scrubbing and shelling of cashew nuts or extracting oil from cashew nuts or cashew nut shells are carried on.
2. Prohibition of employment of women and young persons. - No woman or young person shall be employed in any of the processes specified in paragraph 1 except in shelling of roasted cashew nuts.
3. Protective clothing and equipment.- The occupier shall provide and maintain for the use of all persons employed in roasting and scrubbing of cashew nuts or extracting oil from cashew nuts or cashew nut shells.
  - (a) suitable rubber or washable leather gloves;
  - (b) suitable type of impervious aprons with sleeves to cover body down to knees and shoulders; and
  - (c) suitable type footwear to afford protection to feet and legs against cashew nut oil;and for the workers employed in cashew nut shelling, either-
  - (d) a protective ointment containing 10% of shellac, 5% of alcohol, 10% of sodium perborate, 5% of carbitol and 20% talc; or
  - (e) sufficient quantity of kaolin and coconut oil; and
  - (f) any other material or equipment - which the Chief Inspector of Factories may deem to be necessary for the protection of the workers.
4. Use of protective clothing and equipment.- Every person employed in processes specified in paragraph 1 shall make use of protective clothing and equipment supplied and arrangements shall be made by the occupier to supervise the use, maintenance and cleanliness.
5. Disposal of shells, ashes, or oil of cashew nut. - (1) Shells, ashes or oil of cashew nut shall not be stored in any room in which workers are employed and shall be removed at least twice a day to any pit or enclosed place in the case shells and ashes and to closed containers kept in a separate room in the case of oil.
  - (2) No worker shall be allowed to handle shells or oil of cashew nuts without using the protective clothing or equipment provided under paragraph 3 above.
6. Floors of workrooms.- The floor of every workroom in which processes specified in paragraph 1 are carried on, shall be of a hard material so as to be smooth and impervious and of even surface and shall be cleaned daily, and spillage of any cashew nut oil in any workroom shall be washed with soap and cleaned immediately.
7. Seating accommodation.- Workers engaged in shelling of cashew nuts shall be provided with adequate seats or work benches which shall be cleaned daily.
8. Mess room.- (1) There shall be provided and maintained for the use of all people employed in processes specified in paragraph 1, a suitable restroom furnished with sufficient tables and chairs or benches.
  - (2) Separate lockers shall be provided where food, etc. shall be stored by workers before it is consumed in the restroom.
9. Food, drinks, etc. prohibited in workrooms.- No food, drink, pan, supari or tobacco shall be brought or consumed by any worker in any room in which processes specified in paragraph 1 are carried out and no person shall remain in any such room during intervals for meals or rest.
10. Washing facilities.- Where roasting, scrubbing and shelling of cashew nuts or extracting oil from cashew nut or cashew nut shells is carried on, there shall be provided and maintained in a clean state and good repair washing facilities, with a sufficient supply of soap, coconut oil, nail brushes and towels at the scale of one tap or stand pipe for every 10 workers, and the taps or stand pipes shall be spaced not less than 1.2 meters apart.
11. Time allowed for washing.- Before each meal and before the end of the day's work, at least ten minutes, in addition to the regular meal times, shall be allowed for washing, to each person employed in processes specified in paragraph 1.
12. Smoke or gas produced by roasting cashew nuts.- Where smoke or gas is produced in the operation of roasting, provision shall be made for removing the smoke or gas through a chimney of sufficient height and capacity or by such other arrangements as may be necessary to prevent the gas or smoke escaping into the air or any place in which workers are employed.
13. Storage of protective equipment.- A suitable room or a portion of the factory suitably partitioned off, shall be provided exclusively for the storage of all the protective equipment supplied to the workers and no such equipment shall be stored in any place other than the room or places so provided.
14. Medical facilities and records of examinations and tests.- (1) The occupier of every factory to which this schedule applies, shall-
  - (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and
  - (b) provide to the medical practitioner all the necessary facilities for the purpose referred to in clause (a).(2) The said medical practitioner shall inspect daily the hands and feet of all the persons employed in the processes specified in paragraph 1.
  - (3) The record of such examinations carried out by the medical practitioner shall be maintained in a separate, register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.
  - (4) The first-aid box maintained shall also contain Burrough's Solution (1:20) and aqueous solution of tannic acid (10%) for treatment of cases of dermatitis.
15. Medical examination by Certifying Surgeon. - (1) Every worker employed in the processes specified in paragraph 1 shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examinations shall include skin test for dermatitis and no worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.
  - (2) Every worker employed in the said processes shall be re-examined by a Certifying Surgeon at least once in every three calendar months. Such examinations shall wherever the Certifying Surgeon considers appropriate, include asking test for dermatitis.

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraph (1) and (2), including the nature and the results of these tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit to work in the said process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**16. Exemption .-** The Chief Inspector of Factories may grant exemptions from the operation of any of these where he is satisfied that their observance is not necessary for safeguarding the health of the workers.

## **SCHEDULE -XVII**

### **Compression of oxygen and hydrogen produced by electrolysis of water**

**1. Location of electrolyte plant.-**The room in which electrolyser plant is installed shall be separate from the plant for storing and compressing the oxygen and hydrogen and also the electric generator room.

**2. Testing of purity.-** (1) The purity of oxygen and hydrogen shall be tested by a competent person at least once in every shift at the following posts:-

- (a) in the electrolysis room;
- (b) at the gas holder inlet; and
- (c) at the suction and of the compressor.

(2) The purity figures shall be entered in a register and signed by the persons carrying out such test:

Provided, however, that if the electrolyser plant is fitted with automatic recorder of purity of oxygen and hydrogen with alarm lights, it shall be sufficient if the purity of gases is tested at the suction and of the compressor only.

**3. Restriction as to the compression,-** The oxygen and hydrogen gases shall not be compressed if their purity as determined under paragraph 2 above falls below 98% at any time.

**4. Limit switch for gas holder.-** The bell of any gas holder shall not be permitted to go within the 30 centimetres of its lowest position when empty and a limit switch shall be fitted to the gas holder in such a manner as to switch off the compressor motor when the limit is reached.

**5. Provision of negative pressure switch.-** In addition to the limit switch in the gas holder, a sensitive negative pressure switch shall be provided in or adjacent to the suction main for hydrogen close to the gas holder and between the gas holder and the hydrogen compressor to switch off the compressor motor in the event of the gas holder being emptied to the extent as to cause vacuum.

**6. Purity of caustic soda .-** The water and caustic soda used for making lye shall be chemically pure within pharmaceutical limits.

**7. Precautions against reversal of polarity.-** Electrical connections at the electrolyser cells and at the electric generator terminals shall be so constructed as to preclude the possibility of wrong connections leading to the reversal of polarity and in addition an automatic device shall be provided to cut off power in the event of reversal of polarity owing to wrong connections either at the switch board or at the electric generator terminals.

**8. Colouring of gas pipes.-** Oxygen and hydrogen gas pipes shall be painted with distinguishing colours and in the event of leakage at the joints of the hydrogen gas pipe, the pipe after reconnection shall be purged of all air before drawing in hydrogen gas.

**9. Use of flameproof fittings.-** All electrical wiring and apparatus in the electrolyser room shall be of flameproof construction or enclosed in flameproof fittings and no naked light or flame shall be allowed to be taken either in the electrolyser room or where compression and filling of the gases is carried on and such warning notices shall be exhibited in prominent places.

**10. Prohibition of hot work.-** No part of the electrolyser plant and the gas holders and compressor shall be subjected to welding, brazing, soldering or cutting until steps have been taken to remove any explosive substance from that part and render the part safe for such operations and after the completion of such operations no explosive substance shall be allowed to enter that part until the metal has cooled sufficiently to prevent risk of explosion.

**11. Repair, etc. to be done under supervision.-** No work or operations, repair or maintenance shall be undertaken except under the direct supervision of a person who, by his training, experience and knowledge of the necessary precautions against risk of explosion is competent to supervise such work. No electric generator after erection or repairs shall be switched on/the electrolyser unless the same is certified by the competent persons under whose direct supervision erection or repairs are carried on to be in a safe condition and the terminals have been checked for the polarity as required by paragraph 7.

**12. Checking of plant.-**Every part of the electrolyser plant and the gas holders and compressor shall have a regular schedule of overhaul and checking and every defect noticed shall be rectified forthwith.

## SCHEDULE -XVIII

### Process of extracting oils and fats from vegetables and animal sources in solvent extraction plants

1. Definitions.- For the purposes of this schedule-

- (a) "solvent extraction plant" means a plant in which the process of extracting oils and fats from vegetable and animal sources by use of solvents is carried on;
- (b) "solvent" means an flammable liquid such as pentane, hexane and heptane use for the recovery of vegetable oils;
- (c) "flameproof enclosure" as applied to electrical machinery or apparatus means an enclosure that will withstand, when covers or other access doors are properly secured, an internal explosion of the flammable gas or vapour which may enter or which may originate inside the enclosure without suffering damage and without communicating internal inflammation (or explosion) to the external flammable gas or vapour;
- (d) "competent person" for the purpose of this schedule shall be at least a member of the Institution of Engineers (India) or an Associate Member of the said Institution with 10 years experience in a responsible position as may be approved by the Chief Inspector:

Provided that a graduate in mechanical engineering or chemical technology with specialised knowledge of oils and fats and with a minimum experience of 5 years in a solvent extraction plant shall also be considered to be a competent person.

Provided further that the State Government may accept any other qualifications if in its opinion they are equivalent to the qualifications aforesaid.

2. Location and layout. - (1) No solvent extraction plant shall be permitted to be constructed or extended to within a distance of 30 meters from the nearest residential locality.

(2) A 1.5 meter high continuous wire fencing shall be provided around the solvent/ extraction plant upto a minimum distance of 15 meters from the plant.

(3) No person shall be allowed to carry any matches or an open flame or fire inside the area bound by the fencing.

(4) Boiler houses and other buildings where open flame processes are carried on shall be located at least 30 meters away from the solvent extraction plant;

(5) If godowns and preparatory processes are at a distance of less than 30 metres from the solvent extraction plant, these shall be at least 15 meters distant from the plant, and a continuous barrier wall of non-combustible material 1.5 meters high shall be erected at a distance of not less than 15 meters from the solvent extraction plant so that it extends to at least 30 meters of vapour travel around its ends from the plant to the possible sources of ignition.

3. Electrical installations.- (1) All electrical motors and wiring and other electrical equipment installed or housed in solvent extraction plant shall be of flameproof construction.

(2) All metal parts of the plant and building including various tanks and containers where solvents are stored or are present and all parts of electrical equipment not required to be energised shall be properly bonded together and connected to earth so as to avoid accidental rise in the electrical potential of such parts above the earth potential.

4. Restriction on smoking. - Smoking shall be strictly prohibited within 15 meters distance from solvent extraction plant. For this purpose, "NO smoking" signs shall be permanently displayed in the area.

5. Precautions against friction.- (1) All tools and equipment including ladders, chains and other lifting tackle required to be used in solvent extraction plant shall be of non-sparking type.

(2) No machinery or equipment in any solvent extraction plant shall be belt driven, unless the belt used is of such a type that it does not permit accumulation of static electricity to a dangerous level.

(3) No person shall be allowed to enter and work in the solvent extraction plant if wearing clothes made of nylon or such other fibre that can generate static electrical charge, or wearing footwear which is likely to cause sparks by friction.

6. Fire fighting apparatus. - (1) Adequate number of portable fire extinguishers suitable for use against flammable liquid fires shall be provided in the solvent extraction plant.

(2) An automatic water spray sprinkler system on a wet pipe or open-head deluge system with sufficient supply of storage water shall be provided over solvent extraction plant and throughout the building housing such plant.

7. Precautions against power failure.- Provision shall be made for the automatic cutting off of steam in the event of power failure and also for emergency overhead water-supply for feeding water by gravity to condensers which shall come into play automatically with the power failure.

8. Magnetic Separators. - Oil cake shall be fed to the extractor by a conveyer through a hopper and a magnetic separator shall be provided to remove any pieces of iron during pressure in the event of fire.

9. Venting. - (1) Tanks containing solvents shall be protected with emergency venting to relieve excessive internal pressure in the event of fire.

(2) All emergency relief vents shall terminate at least 6 meters above the ground and be so located that vapours will not re-enter the building in which solvent extraction plant is located.

10. Waste water. - Process waste water shall be passed through a flash evaporator to remove any solvent before it is discharged into a sump which should be located within the fenced area but not closer than 8 meters to the fence.

11. Ventilation.- The solvent extraction plant shall be well ventilated and if the plant is housed in a building, the building shall be provided with mechanical ventilation with provision for at least six air changes per hour.

12. Housekeeping.- (1) Solvents shall not be stored in an area covered by solvent extraction plant except in small quantities which shall be stored in approved safety cans.

(2) Waste materials such as oily rags, other wastes and absorbents used to wipe off solvent and paints and oils shall be deposited in approved containers and removed from the premises at least once a day.

(3) Space within the solvent extraction plant and within 15 meters from the plant shall be kept free from any combustible materials and any spills of oil or solvent, shall be cleaned up immediately.

13. Examination and repairs. - (1) The solvent extraction plant shall be examined by the competent person to determine any weakness or corrosion and wear once in every 12 months. Report of such examination shall be supplied to the Inspector with his observation as to whether or not the plant is in safe condition to work.

(2) No repairs shall be carried out to the machinery or plant except under the direct supervision of the competent person.

(3) Facility shall be provided for purging the plant with inert gas or steam before opening for cleaning or repairs and before introducing solvent after repairs.

14. Operating personnel.- The operation of the plant and machinery in the solvent extraction plant shall be in the charge of such duly qualified and trained persons as are certified by the competent person to be fit for the purpose and no other person shall be allowed to operate the plant and machinery.

15. Employment of women and young persons. - No woman or young person shall be employed in the solvent extraction plant.

16. Vapour detection.-A suitable type of flameproof and portable combustible gas indicator shall be provided and maintained in good working order and a schedule of routine sampling of atmosphere at various location as approved by the Chief Inspector shall be drawn out and entered in a register maintained for the purpose.

17. Exemption.- If in respect of any factory, the Chief Inspector is satisfied that owing to the exceptional circumstances or infrequency of the processes or for any other reason, all or any of the provisions of this schedule is not necessary for the protection of the workers in the factory, the Chief Inspector may by a certificate in writing (which he may in his discretion revoke at any time) exempt such factory from all or any of such provisions subject to conditions, if any, as he may specify therein.

## SCHEDULE -XIX

### Manufacture or manipulation of manganese and its compounds

1. **Application.** - This schedule shall apply to every factory in which or in any part of which any manganese process is carried on.

2. **Definitions.**- For the purposes of this schedule-

(a) "manganese process" means processing, manufacture or manipulations of manganese or any ore or any mixture containing manganese;

(b) "Manipulations" means mixing, blending, filling, emptying, grinding, sieving, drying, packing, sweeping, or otherwise handling of manganese, or mixture containing manganese; and

(c) "efficient exhaust ventilation" means localised ventilation effected by mechanical means for the removal of dust or fume or at its source of origin so as to prevent it from escaping into the atmosphere of any place where any work is carried on. No draught shall be deemed to be efficient which fails to remove the dust or fume or mist at the point where it is generated and fails to prevent it from escaping into and spreading into the atmosphere of a work place.

3. **Isolation of a process.**- Every manganese process which may give rise to dust, vapour or mist containing manganese, shall be carried on in a totally enclosed system or otherwise effectively isolated from other processes so that other plants and processes and other parts of the factory and persons employed on other processes may not be affected by the same.

4. **Ventilation of process.**- No process in which any dust, vapour or mist containing manganese is generated, shall be carried out except under an efficient exhaust ventilation which shall be applied as near to the point of generation as practicable.

5. **Personal protective equipment.**- (1) The occupier of the factory shall provide and maintain in good and clean condition suitable overalls and head coverings for all persons employed in any manganese process and such overalls and head coverings shall be worn by the persons while working on a manganese process.

(2) The occupier of the factory shall provide suitable respiratory protective equipment for use by works in emergency to prevent inhalation of dusts, fumes or mists. Sufficient number of complete sets of such equipment shall always be kept near the work place and the same shall be properly maintained and kept always in a condition to be used readily.

(3) The occupier shall provide and maintain for the use of all persons employed, suitable accommodation for the storage and make adequate arrangements for cleaning and maintenance if personal protective equipment.

6. **Prohibition relating to women and young persons.** - No women or young persons shall be employed or permitted to work in any manganese process.

7. **Food, drinks, etc. prohibited in the work rooms.** - No food, drink, pan and supari or tobacco shall be allowed to be brought into or consumed by any worker in any workroom in which any manganese process is carried on.

8. **Mess room.**- There shall be provided and maintained for the use of the persons employed in a manganese process a suitable mess room which shall be furnished with sufficient tables and benches and adequate means for warming of food. The mess room shall be placed under the charge of a responsible person and shall be kept clean.

9. **Washing facilities.**- There shall be provided and maintained in a clean state and in good condition, for the use of persons employed on manganese process -

(a) A wash place under cover, with either -

(i) a trough with a smooth impervious surface fitted with a waste pipe without plug, and of sufficient length to allow at least 60 centimetres for every ten such persons employed at any one time, and having a constant supply of water from taps or jets above the trough at intervals of not more than 60 centimetres;

(ii) at least one wash basin for every five such persons employed at any one time, fitted with a waste pipe and plug and having a constant supply water; and

(b) sufficient supply of soap or other suitable cleaning material and nail brushes and clean towels.

10. **Cloakroom.**- If the Chief Inspector so requires there shall be provided and maintained for the use of persons employed in manganese process a cloakroom for clothing put off during working hours with adequate arrangements for drying the clothing.

11. **Cautionary placard and instructions.**- Cautionary notices in the form specified in appendix and printed in the language of the majority of the workers and employed, shall be affixed in prominent places in the factory where they can be easily and conveniently read by the workers and arrangement shall be made by the occupier to instruct periodically all workers employed in a manganese

process regarding the health hazards connected with their duties and the best preventive measures and methods to protect themselves. The notices shall always be maintained in a legible condition.

**12. Medical facilities and records of examinations and tests.**- (1) The occupier of every factory to which this schedule applies, shall-

(a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and

(b) provide to the medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The record of medical examinations and appropriate tests carried out by the said medical practitioner shall be maintained in a separate, register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

**13. Medical examination by Certifying Surgeon.** - (1) Every worker employed in any manganese process shall be medically examined by a Certifying Surgeon within 15 days of his first employment. Such examinations shall include tests for detection of serum calcium, serum phosphate and manganese in blood and urine and also include steadiness tests and other neuro-muscular coordination tests. No worker shall be allowed to work after 15 days of his first employment in the factory unless certified for such employment by the Certifying Surgeon.

(2) Every worker employed in a manganese process shall be re-examined by a Certifying Surgeon at least once in every three calendar months and such examination shall, wherever the Certifying Surgeon considers appropriate, include all the tests in sub-paragraph (1).

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraph (1) and (2), including the nature and the results of these test, shall also be entered by the certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit to work in the said process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**14. Exemption.**- If in respect of any factory, the Chief Inspector is satisfied that owing to any exceptional circumstances, or infrequency of the process, or for any other reason, application of all or any of the provisions of this schedule is not necessary for the protection of the persons employed in such factory, he may by an order in writing which he may at his discretion revoke, exempt such factory from all or any of the provisions on such conditions and for such period as he may specify in the said order.

## APPENDIX

### CAUTIONARY NOTICE

#### Manganese and Manganese Compounds

1. Dust free and mists of manganese and its compounds are toxic when inhaled or when ingested.
2. Do not consume food or drink near the work place.
3. Take a good wash before taking meals.
4. Keep the working area clean.
5. Use the protective clothing and equipment provided.
6. When required to work in situations where dusts, fumes or mists are likely to be inhaled, use respiratory protective equipment provided for the purpose.
7. If you get severe head-aches, prolonged sleeplessness or abnormal sensations on the body, report to the manager who would make arrangements for your examination and treatment.

## SCHEDULE -XX

### Manufacture or manipulation of dangerous pesticides

**1. Application.**- This schedule shall apply in respect of all factories or any part thereof in which the process of manufacture or manipulation of dangerous pesticide hereinafter referred to as the said manufacturing process is carried on.

**2. Definitions.**- For the purpose of this Schedule -

- (a) "dangerous pesticides" means any product proposed or used for controlling, destroying or repelling any pest or for preventing growth or mitigating effects of such growth including any of its formulations which is considered toxic under and is covered by the Insecticides Act, 1968 and the rules made thereunder and any other product, as may be notified from time to time by the State Government;
- (b) "manipulation" includes mixing, blending, formulating, filling, emptying, packing or otherwise handling;
- (c) "efficient exhaust draught" means localised mechanical ventilation for removal of smoke, gas, vapour, dust, fume or mist so as to prevent them from escaping into the air of any work room in which work is carried on. No

exhaust draught shall be considered efficient if it fails to remove smoke generated at the point where such gas, fume, dust, vapour or mist originates from the process.

**3. Instruction to workers.** - Every worker on his first employment shall be fully instructed on the properties including dangerous properties of the chemicals handled in the said manufacturing process and the hazards involved. The employees shall also be instructed in the measures to be taken to deal with any emergency. Such instructions shall be repeated periodically.

**4. Cautionary notice and placards.**- Cautionary notices and placards in the form specified in appendix to this schedule and printed in the language of the majority of the workers shall be displayed in all work places in which said manufacturing process is carried on so that they can be easily and conveniently read by the workers. Arrangements shall be made by the occupier and the manager of the factory to periodically instruct the workers regarding the health hazards arising to in the said manufacturing process and methods of protection. Such notices shall include brief instructions regarding the periodical clinical tests required to be undertaken for projecting health of the workers.

**5. Prohibition relating to employment of women or young persons.**- No woman or young person shall be employed or permitted to work in any room in which the said manufacturing process is carried on or in any room in which dangerous pesticide is stored.

**6. Food, drinks, and smoking prohibition.**-(1) No food, drink, tobacco, pan or supari shall be brought into or consumed by any worker in any workroom in which the said manufacturing process is carried out.

(2) Smoking shall be prohibited in any workroom in which the said manufacturing process is carried out.

**7. Protective clothing and protective equipment.**- (1) Protective clothing consisting of long pants and shirts or overalls with long sleeves and head coverings shall be provided for all workers employed in the said manufacturing process.

(2) (a) Protective equipment consisting of rubber gloves, gum boots, rubber aprons, chemical safety goggles and respirators shall be provided for all workers employed in the said manufacturing process.

(b) Gloves, boots, aprons shall be made from synthetic rubber where a pesticide contains oil.

(3) Protective clothing and equipment shall be worn by the workers supplied with such clothing and equipment.

(4) Protective clothing and equipment shall be washed daily from inside and outside if the workers handle pesticides containing nicotine or phosphorous and shall be washed frequently if handling other pesticides.

(5) Protective clothing and equipment shall be maintained in good repair.

**8. Floors and work-benches.**- (1) Floors in every workroom where dangerous pesticides are manipulated shall be of cement or other impervious material giving a smooth surface.

(2) Floors shall be maintained in good repair, provided with adequate slope leading to a drain and thoroughly washed once a day with the hose pipe.

(3) Work-benches where dangerous pesticides are manipulated shall be made of smooth, non-absorbing material preferably stainless steel and shall be cleaned at least once daily.

**9. Spillage and waste.**- (1) If a dangerous pesticide during its manipulation splashes or spills on the work-bench, floor or on the protective clothing worn by a worker, immediate action shall be taken for through decontamination of such areas or articles.

(2) Cloth, rags, paper or other material soaked or soiled with a dangerous pesticide shall be deposited in a suitable receptacle with tight fitting cover. Contaminated waste shall be destroyed by burning at least once a week.

(3) Suitable deactivating agents, where available, shall be kept in a readily accessible place for use while attending to a spillage.

(4) Easy means of access shall be provided to all parts of the plant for cleaning, maintenance and repairs.

**10. Empty containers used for dangerous pesticides.**- Containers used for dangerous pesticides shall be thoroughly cleaned of their contents and treated with an inactivating agent before being discarded or destroyed.

**11. Manual handling.** - (1) A dangerous pesticide shall not be required or allowed to be manipulated by hand except by means of a long handled scoop.

(2) Direct contact of any part of the body with a dangerous pesticide during its manipulation shall be avoided.

**12. Ventilation.**- (1) In every workroom or area where a dangerous pesticide is manipulated, adequate ventilation shall be provided at all times by the circulation of fresh air.

(2) Unless the process is completely enclosed, the following operations during manipulation of a dangerous pesticide shall not be undertaken without an efficient exhaust draught :-

(a) emptying a container holding a dangerous pesticide;

(b) blending a dangerous pesticide;

(c) preparing a liquid or powder formulation containing a dangerous pesticide; and

(d) changing or filling a dangerous pesticide into a container, tank hopper or machine or small sized containers.

(3) In the event of a failure of the exhaust draught provided on the above operation, the said operations shall be stopped forthwith.

**13. Time allowed for washing.**- (1) Before each meal and before the end of the day's work at least ten minutes in addition to the regular rest interval shall be allowed for washing to each worker engaged in the manipulation of dangerous pesticide.

(2) Every worker engaged in the manipulation of dangerous pesticides shall have a thorough wash before consuming any food and also at the end of the day's work.

**14. Washing and bathing facilities.**- (1) There shall be provided and maintained in a clean state and in good repair for the use of all workers employed in the factory where the said manufacturing process is carried on, adequate washing and bathing places having a constant supply of water under cover at the rate of one such place for every 5 persons employed.

(2) The washing places shall have standpipes placed at intervals of not less than one metre.

(3) Not less than one half of the total number of washing places shall be provided with bathrooms.

(4) Sufficient supply of clean towels made of suitable material shall be provided :

Provided that such towels shall be supplied individually for each worker if so ordered by the Inspector.

(5) Sufficient supply of soap and nail brushes shall be provided.



**15. Cloakroom.-** There shall be provided and maintained for the use of all workers employed in the factory where the said manufacturing process is carried on -

- (a) a cloakroom for clothing put off during working hours with adequate arrangements for drying clothing, if wet; and
- (b) separate and suitable arrangements for the storage of protective clothing provided under paragraph 7.

**16. Mess room.-** (1) There shall be provided and maintained for the use of all workers employed in the factory in which the said manufacturing process is carried on and remaining on the premises during the rest intervals, suitable mess room which shall be furnished with-

- (a) sufficient tables and benches with back rest, and
- (b) adequate means for warming food.

(2) The mess room shall be placed under the charge of responsible person and shall be kept clean.

**17. Manipulation not be undertaken.-** Manufacture or manipulation of a pesticides shall not be undertaken in any factory unless a certificate regarding its dangerous nature or otherwise is obtained from the Chief Inspector.

**18. Medical facilities and records of examinations and tests.-** (1) The occupier of every factory to which this schedule applies, shall-

- (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and
- (b) provide to the medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The record of such examinations carried out by the medical practitioner shall be maintained in a separate, register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

**19. Medical examination by Certifying Surgeon. -** (1) Every worker employed in the processes specified in paragraph 1 shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examinations shall include skin test for dermatitis and no worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.

(2) Every worker employed in the said process shall be re-examined by a Certifying Surgeon at least once in every six calendar months. Such examination shall, wherever the Certifying Surgeon considers appropriate, include the tests specified in sub-paragraph (1). Further every worker employed in the said processes shall also be examined once in every three months by the factory medical officer.

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraph (1) and (2), including the nature and the results of these test, shall also be entered by the certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit to work in the said process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**20. Exemption.-** If in respect of any factory the Chief Inspector is satisfied that owing to the exceptional circumstances or the infrequency of the said manufacturing process or for any other reason which shall record in writing all or any of the provisions of this schedule are not necessary for the protection of workers employed in the factory, he may by a certificate in writing exempt such factory, from all or any of the provisions on such condition as he may specify therein. Such certificate may at any time be revoked by the Chief Inspector after recording his reasons therefor.

## APPENDIX

### CAUTIONARY NOTICE

#### Insecticides and pesticides

1. Chemicals handled in this plant are poisonous substances.
2. Smoking, eating food or drinking, chewing tobacco in this area is prohibited. No food stuff or drink shall be brought in this area.
3. Some of these chemicals may be absorbed through skin and may cause poisoning.
4. A good wash shall be taken before meals.
5. A good bath shall be taken at the end of this shift.
6. Protective clothing and equipment supplied shall be used while working in this area.
7. Containers of pesticides shall not be used for keeping food stuffs.
8. Spillage of the chemicals on any part of the body or on the floor or work-bench shall be immediately washed away with water.
9. Clothing contaminated due to splashing shall be removed immediately.
10. Scrupulous cleanliness shall be maintained in this area.
11. Do not handle pesticides with bare hands, use scoops provided with handle.
12. In case of sickness like nausea, vomiting, giddiness, the manager should be informed who will make necessary arrangements for treatment.

13. All workers shall report for the prescribed medical tests regularly to protect their own health.

## SCHEDULE- XXI

### Manufacture, handling and usage of benzene and substances containing benzene

**1. Application.** - This schedule shall apply in respect of factories or parts thereof in which benzene or substances containing benzene are manufactured, handled or used.

**2. Definitions.**- For the purpose of this schedule -

- (a) "substances containing benzene" means substances wherein benzene content exceeds 1 per cent by volume;
- (b) "substitute" means a chemical which is harmless or less harmful than benzene and can be used in place of benzene;
- (c) "enclosed system" means a system which will not allow escape of benzene vapours to the workers atmosphere; and
- (d) "efficient exhaust draught" means localised ventilated effected by mechanical means for the removal of gases, vapours and dusts or fumes so as to prevent them from escaping into the air of any workroom. No draught shall be deemed to be efficient if it fails to remove smoke generated at the point where such gases, vapours, fumes or dusts originate.

**3. Prohibition and substitution.**- (1) Use of benzene and substances containing benzene is prohibited in the following processes :-

- (a) manufacture of varnishes, paints and thinners; and
- (b) cleaning and degreasing operations.

(2) Benzene or substances containing benzene shall be used as a solvent or diluent unless the process in which it is used is carried on in an enclosed system or unless the process is carried on in a manner which considered equally safe as if it were carried out in an enclosed system.

(3) Where suitable substitutes are available, they shall be used instead of benzene or substances containing benzene.

This provision, however, shall not apply to the following processes:-

- (a) production of benzene;
- (b) process where benzene is used for chemical synthesis;
- (c) motor spirits (used as fuel).

(4) The Chief Inspector may, subject to confirmation by the State Government, permit exemptions from the percentage laid down in sub-paragraph 2(a) and also from the provisions of sub-paragraph (2) of this paragraph temporarily under conditions and within limits of time to be determined after consultation with the employers and workers concerned.

**4. Protection against installation.** - (1) The process involving the use of benzene or substances containing benzene shall be as far as practicable be carried out in an enclosed system.

(2) Where, however, it is not practicable to carry out the process in an enclosed system, the workroom in which benzene or substances containing benzene are used shall be equipped with an efficient exhaust draught or other means for the removal of benzene vapours to prevent their escape into the air of the workroom so that the concentration of benzene in the air does not exceed 10 parts per million by volume or 30 milligrams per cubic meter.

(2) Air analysis for the measurement of concentration of benzene vapours in air shall be carried out every 8 hours or at such intervals as may be directed by the Chief Inspector at places where process involving use of benzene is carried on and the result of such analysis shall be recorded in a register specially maintained for this purpose. If the concentration of benzene vapours in air as measured by air analysis, exceeds 10 parts per million by volume or 30 milligrams per cubic meter, the Manager shall forthwith report the concentration to the Chief Inspector stating the reasons for such increase.

(4) Workers who for special reasons are likely to be exposed to concentration of benzene in the air of the workroom exceeding the maximum referred to in sub-paragraph (2) shall be provided with suitable respirators or face masks. The duration of such exposure shall be limited as far as possible.

**5. Measures against skin contact.**- (1) Workers who are likely to come in contact with liquid benzene or liquid substances containing benzene shall be provided with suitable gloves, aprons, boots and where necessary vapour tight chemical goggles, made of material not affected by benzene or its vapours.

(2) The protective wear referred to in sub-paragraph (1) shall be maintained in good condition and inspected regularly.

**6. Prohibition relating to employment of women and young persons.** - No woman or young person shall be employed or permitted to work in any workroom involving exposure to benzene or substances containing benzene.

**7. Labelling.**- Every container holding benzene or substances containing benzene shall have the word "Benzene" and approved danger symbols clearly visible on it and shall also display information on benzene content, warning about toxicity and warning about infallibility of the chemical.

**8. Improper use of benzene.** - (1) The use of benzene substances containing benzene by workers for cleaning their hands or their work clothing shall be prohibited.

(2) Workers shall be instructed on the possible dangers arising from such misuse.

**9. Prohibition of consuming food, etc. in workrooms.**- No worker shall be allowed to store or consume food or drink in the workroom in which benzene or substances containing benzene are manufactured, handled or used. Smoking and chewing tobacco or pan shall be prohibited in such workrooms.

**10. Instructions as regards risks.**- Every worker on his first employment shall be fully instructed on the properties of benzene or substances containing benzene which he has to handle and of the dangers involved. Workers shall also be instructed on the measures to be taken to deal with in an emergency.

**11. Cautionary notices.** - Cautionary notices in the form specified in appendix and printed in the language easily read and understood by the majority of the workers shall be displayed in prominent places in the workrooms where benzene or substances containing benzene are manufactured, handled or used.

**12. Washing facilities, cloakroom and mess room.**- In factories in which benzene or substances containing benzene are manufactured, handled or used, the occupier shall provide and maintain in a clean state and in good repair -

- (a) washing facilities under cover, of the standard of at least one tap for every 10 persons having constant supply of water with soap, and a clean towel provided individually to each worker if so ordered by the Inspector;
- (b) a cloakroom with lockers for each worker, having two compartments -one for street clothing and one for work-clothing; and
- (c) a mess room furnished with tables and benches with means for warming food, provided that where a canteen or other proper arrangements exist for the workers to take their meals, the requirements of mess room shall be dispensed with.

**13. Medical facilities and records of examinations and tests.-** (1) The occupier of every factory to which this schedule applies, shall-

- (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and
- (b) provide to the medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The record of such examinations carried out by the medical practitioner shall be maintained in a separate, register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

**14. Medical examination by Certifying Surgeon.** - (1) Every worker employed in the processes specified in paragraph 1 shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examinations shall include skin test for dermatitis and no worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.

(2) Every worker employed in a manganese process shall be re-examined by a Certifying Surgeon at least once in every three calendar months and such examination shall, wherever the Certifying Surgeon considers appropriate, include all the tests in sub-paragraph (1).

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraph (1) and (2), including the nature and the results of these tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit to work in the said process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

## APPENDIX

### CAUTIONARY NOTICE

#### Benzene and substances containing benzene

#### 1. Hazards:

- (a) Benzene and substances containing benzene are harmful.
- (b) Prolonged or repeated breathing of benzene vapours may result in acute or chronic poisoning.
- (c) Benzene can also be absorbed through skin which may cause skin or other diseases.

#### 2. Preventive measures :

- (a) Avoid breathing of benzene vapours.
- (b) Avoid prolonged or repeated contact of benzene with the skin.
- (c) Remove benzene soaked or wet clothing promptly.
- (d) If any time you are exposed to high concentration of benzene vapours and exhibit signs and symptoms such as dizziness, difficulty in breathing, excessive excitation and losing of consciousness, immediately inform your factory manager.
- (e) Keep all the containers of benzene closed
- (f) Handle, use and process benzene and substances containing benzene carefully in order to prevent their spillage on floor.
- (g) Maintain good housekeeping.

#### 3. Protective equipment :

- (a) Use respiratory protective equipment in places where benzene vapours are present in high concentration.
- (b) In emergency, use self generating oxygen mask or oxygen or air cylinder masks.
- (c) Wear hand gloves, aprons, goggles and gum boots to avoid contact of benzene with your skin and body parts.

#### 4. First-aid measures in case of acute benzene poisoning :

- (a) Remove the clothing immediately if it is wetted with benzene.
- (b) If liquid benzene enters eyes, flush thoroughly for at least 15 minutes with clean running water and immediately secure medical attention.

- (c) In case of unusual exposure to benzene vapour, call a physician immediately. Until he arrives, do the following :-
- (i) If the exposed person is conscious -
    - (aa) Move him to fresh air in open.
    - (bb) Lie down without a pillow and keep him quiet and warm.
  - (ii) If the exposed person is unconscious -
    - (aa) Lay him down preferably on the left side with the head low.
    - (bb) Remove any false teeth, chewing gum, tobacco or other foreign objects which may be in his mouth.
    - (cc) Provide him artificial respiration in case difficulty is being experienced in breathing.
    - (dd) In case of shallow breathing or cyanosis (blueness of skin, lips, ears, finger nail beds), he should be provided with medical oxygen or oxygen carbon dioxide mixture. If needed, he should be given artificial respiration. Oxygen should be administered by a trained person only.

## SCHEDULE- XXII

### Manufacturing process or operation in carbon disulphide plants

**1.Application.-** This schedule shall apply to all electric furnaces in which carbon disulphide is generated and all other plants where carbon disulphide after generation, is condensed, refined and stored. This schedule is in addition to and not in derogation of any of the provisions of the Act and Rules made thereunder.

**2.Construction, installation and operation.-**(1)The buildings in which electric furnaces are installed and carbon disulphide after generation is condensed and refined shall be segregated from other parts of the factory and shall be of open type to ensure optimum ventilation and the plant layout shall be such that only a minimum number of workers are exposed to the risk of any fire or explosion at any one time.

(2)Every electric furnace and every plant in which carbon disulphide is condensed, refined and stored with all their fittings and attachments shall be of good construction, sound material and of adequate strength to sustain the internal pressure to which the furnace or the plant may be subjected to and shall be so designed that carbon disulphide liquid and gas are in closed system during their normal working.

(3)The electric furnace supports shall be firmly grouted about 60 centimetres in concrete or by other effective means.

(4)Every electric furnace shall be installed and operated according to manufacturers' instructions and these instructions shall be clearly imparted to the personnel in charge of construction and operation.

(5)The instructions regarding observance of correct furnace temperature, sulphur dose, admissible current or power consumption and periodical checking of charcoal level shall be strictly complied with.

**3.Electrodes.-** (1)Where upper ring electrodes made of steel are used in the electric furnace, they shall be of seamless tube construction and shall have arrangement for being connected to cooling water system through a siphon built in the electrodes or through a positive pressure water-pump.

(2)The arrangement for cooling water referred to in sub-paragraph (1) shall be connected with automatic alarm system which will actuate in the event of interruption of cooling water in the electrodes and give visible and audible alarm signals in the control room and simultaneously stop power supply for the furnace operation and to stop the further supply of water. The alarm system and the actuating device shall be checked every day.

**4. Maintenance of charcoal level.-** When any electric furnace is in operation, it shall be ensured that the electrodes are kept covered with charcoal bed.

**5. Charcoal separator.-**A cyclone type of charcoal separator shall be fitted on the off take pipe between the electric furnace and sulphur separator to prevent entry of pieces of charcoal into the condensers and piping.

**6. Rupture discs and safety seal.-** (1)At least two rupture discs of adequate size which shall blow off at a pressure twice the maximum operating pressure shall be provided on each furnace and shall either be mounted directly on the top of the furnace or each through an independent pipe as close as possible to the furnace.

(2)A safety water seal shall be provided and tapped from a point between the charcoal separator and the sulphur separator.

**7. Pyrometer and manometers.-**(1)Each electric furnace shall be fitted with adequate number of pyrometers to give an indication of the temperature as correctly as reasonably practicable at various points in the furnace. The dials for reading the temperatures shall be located in the control room.

(2)Manometers or any other suitable devices shall be provided for indicating pressure -

- (a) in the off take pipe before and after the sulphur separator; and
- (b) in primary and secondary condensers.

**8.Check valves.-** All piping carrying carbon disulphide shall be fitted with check valves at suitable positions so as to prevent gas from flowing back into any electric furnace in the event of its shut down.

**9.Inspection and maintenance of electric furnaces.-** (1)Every electric furnace shall be inspected internally by a competent person:-

- (a) before being placed in service after installation;
- (b) before being placed in service after reconstruction or repairs; and
- (c) periodically every time the furnace is opened for cleaning or de-ashing or for replacing electrodes.

(2)When an electric furnace is shut down for cleaning or de-ashing

- (a) the brick lining shall be checked for continuity and any part found defective removed;
- (b) after removal of any part of the lining referred to in (a) the condition of the shell shall be closely inspected; and
- (c) any plates forming shall found corroded to the extent that safety of the furnace is endangered shall be replaced.

**10. Maintenance of records.-** The following hourly records shall be maintained in a log book -

- (a) manometer readings at the points specified in sub-paragraph 7(2);
- (b) gas temperature indicated by pyrometers and all other vital points near the sulphur separator and primary and secondary condensers;
- (c) water temperature and flow of water through the siphon in the electrodes; and
- (d) primary and secondary voltages and current and energy consumed.

**11. Electrical apparatus, wiring and fittings.-** All buildings in which carbon disulphide is refined or stored shall be provided with electrical apparatus, wiring and fittings which shall afford adequate protection from fire and explosion.

**12. Prohibition relating to smoking.-** No person shall smoke or carry matches, fire or naked light or other means of producing a naked light or spark in buildings in which carbon disulphide is refined or stored, and a notice in the language understood by a majority of the workers shall be posted in the plant prohibiting smoking and carrying of matches, fire or naked light or other means of producing naked light or spark into such rooms.

**13. Means of escape.-** Adequate means of escape shall be provided and maintained to enable persons to move to a safe place as quickly as possible in case of an emergency. At least two independent staircases of adequate width shall be provided in every building housing the furnaces at reasonable intervals at opposite ends. These shall always be kept clear of all obstructions and so designed to afford easy passage.

**14. Warnings in case of fire.-** There shall be adequate arrangements for giving warnings in case of fire or explosion which shall operate on electrically and in case of failure of electricity by some mechanical means.

**15. Fire-fighting equipment.-** (1) Adequate number of suitable fire extinguishers or other fire-fighting equipment shall be kept in constant readiness for dealing with risks involved and depending on the amount and nature of materials stored.

(2) Clear instructions as to how the extinguishers or other equipment should be used printed in the language which the majority of the workers employed understand, shall be affixed to each extinguisher or other equipment and the personnel trained in their use.

**16. Bulk Sulphur.-**(1) Open or semi-enclosed spaces for storage of bulk sulphur shall be sited with due regard to the dangers which may arise from sparks given off by nearby locomotives, etc., and precautions shall be taken to see that flames, smoking and matches and other sources of ignition do not come in contact with the clouds of dust arising during handling of bulk sulphur.

(2) All enclosures for bulk sulphur shall be of non-combustible construction, adequately ventilated and so designed as to provide a minimum of ledges on which dust may lodge.

(3) The bulk sulphur in the enclosures shall be handled in such a manner as to minimise the formation of dust clouds and no flame, smoking and matches or other sources of ignition shall be employed during handling and non-sparking tools shall be used whenever sulphur is shovelled or otherwise removed by hand.

(4) No repairs involving flames, heat or use of hand or power tools shall be made in the enclosure where bulk sulphur is stored.

**17. Liquid sulphur.-** Open flames, electric sparks and other sources of ignition, including smoking and matches, shall be excluded from the vicinity of molten sulphur.

**18. Training and supervision.-** (1) All electric furnaces and all plants in which carbon disulphide is condensed, refined or stored shall be under adequate supervision at all times while the furnaces and plant are in operation.

(2) Workers in charge of operation and maintenance of electric furnaces and the plants shall be properly qualified and adequately trained.

**19. Washing facilities.-**(1) The occupier shall provide and maintain in a clean state and in good repair, for the use of all persons employed wash place under cover with at least one tap or stand-pipe, having a constant supply of clean water for every five such persons, the taps or stand-pipes being spaced not less than 120 centimetres apart with a sufficient supply of soap and clean towels, provided that towels shall be supplied individually to each worker if so ordered by the Inspector.

(2) All the workers employed in the sulphur storage, handling and melting operations shall be provided with a nail brush.

**20. Personal protective equipment. -** (1) Suitable goggles and protective clothing consisting of overalls without packets, gloves and foot-wear shall be provided for the use of operatives -

- (a) when operating valves or cocks controlling fluids etc.,
- (b) drawing off a molten sulphur from sulphur pots;
- (c) handling charcoal or sulphur.

(2) Suitable respiratory protective equipment shall be provided and stored in the appropriate place for use during abnormal conditions or in an emergency.

(3) Arrangements shall be made for proper and efficient cleaning of all such protective equipment.

**21. Cloakrooms. -** There shall be provided and maintained for the use of all persons employed in the processes a suitable cloakroom for clothing put off during work hours and a suitable place separate from the cloakroom for the storage of overalls or working clothes. The accommodation so provided shall be placed in the charge of a responsible person and shall be kept clean.

**22. Unauthorised persons. -** Only maintenance and repair personnel, persons directly connected with the plant operation and those accompanied by authorised persons shall be admitted into the plant.

## SCHEDULE -XXIII

### Manufacture or manipulation of carcinogenic dye intermediates

**1.Application.-** The schedule shall apply in respect of all factories or any part thereof where processes in which the substances mentioned in paragraphs 3 and 4 are formed, manufactured, handled, or used and the processes incidental thereto in the course of which these substances are formed, are carried on. The processes indicated in this paragraph shall be referred to hereinafter as “the said processes”, and such a reference shall mean any or all the processes described in this paragraph.

**2. Definition.** - For the purpose of this schedule the following definitions shall apply, unless the context otherwise requires -

- (a) “controlled substances” means chemical substances mentioned in paragraph 4 of this schedule;
- (b) “efficient exhaust draught” means localised ventilation effected by mechanical means for the removal of gas, vapour, dust or fume so as to prevent them from escaping into the air of any place in which work is carried on. No draught, shall be deemed to be efficient which fails to remove smoke generated at the point where such gas, vapour, fume or dust originates; and
- (c) “prohibited substances” means chemical substances mentioned in paragraph 3 of this schedule.

**3.Prohibited substances.-** For the purpose of this schedule, the following chemical substances shall be classified as “prohibited substances” except when these substances are present or are formed as a by-product of a chemical reaction in a total concentration not exceeding one percent :-

- (a) beta-naphthylamine and its salts;
- (b) Benzedrine and its salts;
- (c) 4-amino biphenyl and its salts;
- (d) 4-nitro diphenyl and its salts; and
- (e) any substance containing any of these compounds.

**4. Controlled substances.-** For the purpose of this schedule, the following chemical substances shall be classified as “controlled substances” :-

- (a) alpha-naphthylamine or alpha-naphthylamine containing not more than one percent of beta-naphthylamine either as a by-product of chemical reaction or otherwise, and its salts;
- (b) ortho-tolidine and its salts;
- (c) dianisidine and its salts;
- (d) dichlorobenzidine and its salts;
- (e) auramine; and
- (f) magna.

**5. Prohibition of employment.-** No person shall be employed in the said processes in any factory in which any prohibited substance is formed, manufactured, processed, handled, or used except as exempted by the Chief Inspector as stipulated in paragraph 23.

**6. Requirements for processing or handling controlled substances.-**(1) Wherever any of the controlled substances referred to in paragraph 4 are formed, manufactured, processed, handled, or used, all practical steps shall be taken to prevent inhalation, ingestion or absorption of the said controlled substance by the workers while engaged in processing that substance, and its storage or transport within the plant, or in cleaning or maintenance of the concerned equipment, plant, machinery and storage areas.

(2) As far as possible all operations shall be carried out in a totally enclosed system. Wherever such enclosure is not possible, efficient exhaust draught shall be applied at the point where the controlled substances are likely to escape into the atmosphere during the process.

(3) The controlled substances shall be received in the factory in tightly closed containers and shall be kept so except when these substances are in process or in use. The controlled substances shall leave the factory only in tightly closed containers of appropriate type. All the containers shall be plainly labelled to indicate the contents.

**7. Personal protective equipment.-** (1) The following items of personal protective equipment shall be provided and issued to every worker employed in the said processes :-

- (a) long trousers and shirts or overalls with full sleeves and head coverings. The shirt or overall shall cover the neck completely; and
- (b) rubber gum-boots.

(2) The following items of personal protective equipment shall be provided in sufficient numbers for use by workers employed in the said processes when there is danger of injury during the performance of normal duties or in the event of emergency :-

- (a) rubber hand-gloves;
- (b) rubber aprons; and
- (c) airline respirators or other suitable respiratory protective equipment.

(3) It shall be the responsibility of the manager to maintain all items of personal protective equipment in a clean and hygienic condition and in good repair.

**8.Prohibition relating to employment of women and young persons.-** No woman or young person shall be employed or permitted to work in any room in which the said processes are carried on.

**9.Floors of workroom.-**The floor of every workroom in which the said processes are carried on shall be-

- (a) smooth and impervious to water provided that asphalt or tar shall not be used in the composition of the floor,
- (b) maintained in a state of good repair,
- (c) with a suitable slope for easy draining and provided with gutters, and
- (d) thoroughly washed daily with the drain water being led into a sewer through a closed channel.

**10.Disposal of empty containers.-** Empty containers used for holding controlled substances shall be thoroughly cleaned of their contents and treated with an inactivating agent before being discarded.

**11.Manual handling.-** Controlled substances shall not be allowed to be mixed, filled, emptied or handled except by means of a scoop with a handle. Such scoop shall be thoroughly cleaned daily.

**12.Instructions regarding risk.-** Every worker on his first employment in the said processes shall be fully instructed on the properties of the toxic chemicals to which he is likely to be exposed to, of the dangers involved and the precautions to be taken. Workers shall also be instructed on the measures to be taken to deal with an emergency.

**13.Cautionary placards.-** Cautionary placards in the form specified in appendix attached to this schedule and printed in the language of the majority of the workers employed in the said processes shall be affixed in prominent places frequented by them in the factory, where the placards can be conveniently read. Arrangements shall be made by the manager to instruct periodically all such workers regarding the precautions contained in the cautionary placards.

**14.Obligations of the workers.-** It shall be the duty of the persons employed in the said processes to submit themselves for the medical examination including exfoliative cytology of urine by the Certifying Surgeon or the qualified medical practitioner as provided for under these rules.

**15.Washing and bathing facilities.-**(1)The following washing and bathing facilities shall be provided and maintained in a clean state and in good repair for the use of all workers employed in the said processes :-

- (a) a wash place under cover having constant supply of water and provided with clean towels, soap and nail brushes and with at least one stand pipe for every five such workers;
- (b) 50 percent of the stand pipes provided under clause (a) shall be located in bathrooms where both hot and cold water shall be made available during the working hours of the factory and for one hour thereafter;
- (c) the washing and bathing facilities shall be in close proximity of the area housing the said processes;
- (d) clean towels shall be provided individually to each worker; and
- (e) in addition to the taps mentioned under clause (a), one stand pipe, in which warm water is made available, shall be provided on each floor.

(2) Arrangement shall be made to wash factory uniforms and other work clothes everyday.

**16.Food, drinks, etc. prohibited in workroom.-** No worker shall consume food, drink, pan, supari or tobacco or shall smoke in any workroom in which the said processes are carried on and no worker shall remain in any such room during intervals for meals or rest.

**17.Cloakroom.-** There shall be provided and maintained in a clean state and in good repair for the use of the workers employed in the said processes -

- (a) a cloakroom with lockers having two compartments - one for street clothes and the other for work clothes, and
- (b) a place separate from the locker room and the mess room, for the storage of protective equipment provided under paragraph 7. The accommodation so provided shall be under the care of a responsible person and shall be kept clean.

**18.Messroom.-** There shall be provided and maintained for the use of workers employed in the said processes who remain on the premises during the meal intervals, a mess room which shall be furnished with tables and benches and provided with suitable means for warming food.

**19.Time allowed for washing.-** Before the end of each shift 30 minutes shall be allowed for bathing for each worker who is employed in the said processes. Further, atleast 10 minutes shall be allowed for washing before each meal in addition to the regular time allowed for meals.

**20.Restriction on age of persons employed.-** No worker under the age of 40 years shall be engaged in the factory in the said processes for the first time after the date on which the schedule comes into force.

**21. Medical facilities and records of examinations and tests.-** (1) The occupier of every factory to which this schedule applies, shall-

- (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and
- (b) provide to the medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The record of such examinations carried out by the medical practitioner shall be maintained in a separate, register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

**22. Medical examination by Certifying Surgeon.-** (1) Every worker employed in the processes specified in paragraph 1 shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examinations shall include skin test for dermatitis and no worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.

(2) Every worker employed in a manganese process shall be re-examined by a Certifying Surgeon at least once in every three calendar months and such examination shall, wherever the Certifying Surgeon considers appropriate, include all the tests in sub-paragraph (1).

(3) The Certifying Surgeon after examining a worker, shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraph (1) and (2), including the nature and the results of these test, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit to work in the said process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**23.Exemptions - prohibited substances.-** (1)The Chief Inspector may by a certificate in writing (which he may at his discretion revoke at any time), subject to such conditions, if any, as may be specified therein, exempt any process in the course of which any of the prohibited substances is formed, processed, manufactured, handled, or used, from the provisions of paragraph 5 if he is satisfied that the process is carried out in a totally enclosed and hermetically sealed system in such a manner that the prohibited substance is not removed from the system except in the quantities no greater than that required for the purpose of control, of the process or such purposes as is necessary to ensure that the product is free from any of the prohibited substances.

(2)The Chief Inspector may allow the manufacture, handling or use of benzidine hydrochloride provided that all the processes in connection with it are carried out in a totally enclosed system in such a manner that no prohibited substance other than benzidine hydrochloride is removed therefrom except in quantities no greater than that required for the purpose of control of the processes or such purposes as is necessary to ensure that the product is free from prohibited substances and that adequate steps are taken to ensure that benzidine hydrochloride is, except while not in a totally enclosed system, kept wet not less than one part of water to two parts of benzidine hydrochloride at all times.

**24.Exemptions - general.-** If in respect of any factory, the Chief Inspector is satisfied that owing to the exceptional circumstances or infrequency of the processes or for any other reason, all or any of the provisions of this schedule is not necessary for the protection of the workers in the factory, the Chief Inspector may by a certificate in writing (which he may in his discretion revoke at any time), exempt such factory from all or any of such provisions subject to such conditions, if any, as he may specify therein.

## APPENDIX

### CAUTIONARY PLACARD/NOTICE

#### Carcinogenic dye intermediates

1. Dye intermediates which are nitro amino derivatives or aromatic hydrocarbons are toxic. You have to handle these chemicals frequently in this factory.
2. Use the various items of protective wear to safeguard your own health.
3. Maintain scrupulous cleanliness at all times. Thoroughly wash hands and feet before taking meals. It is essential to take a bath before leaving the factory.
4. Wash off any chemical falling on your body with soap and water. If splashed with a solution of the chemical, remove the contaminated clothing immediately. These chemicals are known to produce cyanosis. Contact the medical officer or appointed doctor immediately and get his advice.
5. Handle the dye intermediates only with long handled scoops, never with bare hands.
6. Alcoholic drinks should be avoided as they enhance the risk of poisoning by the chemicals.
7. Keep your food and drinks away from work place. Consuming food, drinks or tobacco in any form at the place of work is prohibited.
8. Serious effects from work with toxic chemicals may follow after many years. Great care must be taken to maintain absolute cleanliness of body, clothes, machinery and equipment.

## SCHEDULE-XXIV

### Operations involving high noise levels

**1. Application.-** This schedule shall apply to all operations in any manufacturing process having high noise level.

**2.Definitions.-** For the purpose of this schedule -

- (a) "Noise" means any unwanted sound.
- (b) "High noise level" means any noise level measured on the A-weighted scale is 90 dB or above.
- (c) "Decibel" means one-tenth of "Bel" which is the fundamental division of a logarithmic scale used to express the ratio of two specified or implied quantities, the number of "Bels" denoting such a ratio being the logarithm to the base of 10 of this ratio. The noise level (or the sound pressure level) corresponds to a reference pressure of  $20 \times 10^{-5}$  Newton per square meter or 0.0002 dynes per square centimeter which is the threshold of hearing, that is, the lowest sound pressure level necessary to produce the sensation of hearing in average healthy listeners. The decibel in abbreviated form is dB.
- (d) "Frequency" is the rate of pressure variations expressed in cycles per second or hertz.
- (e) "dBA" refers to sound level in decibels as measured on a sound level meter operating on the A-weighting net work with slow meter response.
- (f) "A-weighting" means making graded adjustments in the intensities of sound of various frequencies for the purpose of noise measurement, so that the sound pressure level measured by an instrument reflects the actual response of the human ear to the sound measured.

**3.Protection against noise.-** (1)In every factory, suitable, a suitable engineering control or administrative measures shall be taken to ensure, so far as is reasonably practicable, that no worker is exposed to sound levels exceeding the maximum permissible noise exposure levels specified in Tables 1 and 2.



**Table 1**  
**Permissible exposure in cases of continuous noise**

Total time of exposure (continuous dBA per day, in hours)	Sound pressure level in or a number of short term exposures)
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
¾	107
½	110
¼	115

Notes: 1. No exposure in excess of 115 dBA is to be permitted.

2. For any period of exposure falling in between any figure and the next higher or lower figure as indicated in column 1, the permissible sound pressure level is to be determined by extrapolation on a proportionate basis.

**Table 2**  
**Permissible exposure levels of impulsive or impact noise**

Peak sound pressure level in dB	Permitted number of impulses or impact per day
140	100
135	315
130	1,000
125	3,160
120	10,000

Notes: 1. No exposure in excess of 140 dB peak sound pressure level is permitted.

2. For any peak sound pressure level falling in between any figure and the next higher or lower figure as indicated in column 1, the permitted number of impulses or impacts per day is to be determined by extrapolation on a proportionate basis.

(2)For the purposes of this schedule, if the variations in the noise level involve maximum at intervals of one second or less, the noise is to be considered as a continuous one and the criteria given in Table 1 would apply. In other cases, the noise is to be considered as impulsive or impact noise and the criteria given in Table 2 would apply.

(3)When the daily exposure is composed of two or more periods of noise exposure at different levels their combined effect should be considered, rather than the individual effect of each. The mixed exposure should be considered to exceed the limit value if the sum of the fractions  $C_1 + \frac{C_2}{T_1} + \dots + \frac{C_n}{T_n}$  exceeds unity, -

$$C_1 + \frac{C_2}{T_1} + \dots + \frac{C_n}{T_n}$$

Where the C1, C2 etc. indicate the total time of actual exposure at a specified noise level and T1, T2, etc. denote the time of exposure of less than 90 dBA may be ignored in the above calculation.

(4)Where it is not possible to reduce the noise exposure to the levels specified in sub-rule (1) by reasonably practicable engineering control or administrative measures, the noise exposure shall be reduced to the greatest extent feasible by such control measures, and each worker so exposed shall be provided with suitable ear protectors so as to reduce the exposure to noise to the levels specified in sub-rule (1).

(5)Where the ear protectors provided in accordance with sub-paragraph (2) and worn by a worker cannot still attenuate the noise reaching near his ear, as determined by subtracting the attenuation value in dBA of the ear protectors concerned from the measured sound pressure level, to a level permissible under Table 1 or Table 2 as the case may be, the noise exposure period shall be suitably reduced to correspond to the permissible noise exposures specified in sub-paragraph (1).

- (6)(a) In all cases where the prevailing sound levels exceed the permissible levels specified in sub-paragraph (1) there shall be administered an effective hearing conservation programme which shall include among other hearing conservation measures, pre-employment and periodical auditory surveys conducted on workers exposed to noise exceeding the permissible levels, and rehabilitation of such workers either by reducing the exposure to the noise levels or by transferring them to places where noise levels are relatively less or by any other suitable means.
- (b) Every worker employed in areas where the noise exceeds the maximum permissible exposure levels specified in sub-rule (1) shall be subjected to any auditory examination by a Certifying Surgeon within 14 days of his first employment and thereafter, shall be re-examined at least once in every 12 months. Such initial and periodical examinations shall include tests which the Certifying Surgeon may consider appropriate and shall include determination of auditory thresholds for pure tones of 125, 250, 500, 1000, 2000, 4000 and 8000 cycles per second.

**SCHEDULE- XXV**  
**Manufacture of Rayon by viscose process**

**1. Definitions.** - For the purpose of this schedule –

- (a) “approved” means approved for the time being in writing by the Chief Inspector;
- (b) “breathing apparatus” means a helmet or face piece with necessary connections by means of which the person using it in a poisonous, asphyxiating or irritant atmosphere breathes unpolluted air; or any other approved apparatus;
- (c) “churn” means the vessel in which alkali cellulose pulp is treated with carbon disulphide;
- (d) “dumping” means transfer of cellulose xanthate from a dry churn to a dissolver;
- (e) “efficient exhaust draught” means localised ventilation by mechanical means for the removal of any gas or vapour, so as to prevent it from escaping into the air of any place in which work is carried on. No draught shall be deemed to be efficient if it fails to control effectively any gas or vapour generated at the point where such gas or fume originates;
- (f) “fume process” means any process in which carbon disulphide or hydrogen sulphide is produced, used or given off;
- (g) “life belt” means a belt made of leather or other suitable material which can be securely fastened round the body with a suitable length of rope attached to it, each of which is sufficiently strong to sustain the weight of a man;
- (h) “protective equipment” means apron, goggles, face shields, footwear, gloves and overalls made of suitable materials.

**2. Ventilation.** - (1) In all workrooms where a fume process is carried on, adequate ventilation by natural or mechanical means shall be provided so as to control, in association with other control measures, the concentration of carbon-di-sulphide and hydrogen sulphide in the air of every work environment within the permissible limits.

(2) Notwithstanding the requirements in sub-paragraph (1) an efficient exhaust draught shall be provided and maintained to control the concentration of carbon-di-sulphide and hydrogen sulphide in the air at the following locations :-

- (a) dumping hoppers of dry churns;
- (b) spinning machines;
- (c) trio rollers and cutters used in staple fibre spinning;
- (d) hydro-extractors for yarn cakes;
- (e) after treatment processes; and
- (f) spin baths.

(3) In so far as the spinning machines and trio rollers and cutters used in staple fibre spinning are concerned, they shall be, for the purpose of ensuring the effectiveness of the exhaust draft to be provided as required in sub-paragraph (1), enclosed as fully as practicable and provided with suitable shutters in sections to enable the required operations to be carried out without giving rise to undue quantities of carbon-di-sulphide escaping to the work environment.

(4) No dry churn shall be opened after completion of reaction without initially exhausting the residual vapours of carbon-di-sulphide by operation of a suitable and efficient arrangement for exhausting the vapours which shall be continued to be operated as long as the churn is kept opened.

(5) Whenever any ventilation apparatus normally required for the purpose of meeting the requirements in sub-paragraphs (2), (3), and (4) is ineffective, fails, or is stopped for any purpose whatsoever, all persons shall be required to leave the work areas where the equipment or processes specified in the above said sub-paragraphs are in use, as soon as possible, and in any case not later than 15 minutes after such an occurrence.

(6) (a) All ventilating systems provided for the purposes as required in sub-paragraphs (2), (3) and (4) shall be examined and inspected once every week by a responsible person. It shall be thoroughly examined and tested by a competent person once in every period of 12 months. Any defects found by such examinations or test shall be rectified forthwith.

(b) A register containing particulars of such examinations and tests, and the state of the systems and the repairs or alterations (if any) found to be necessary shall be kept and shall be available for inspection by an Inspector.

**3. Waste from spinning machines.** - Waste yarn from the spinning machines shall be deposited in suitable containers provided with close fitting covers. Such waste shall be disposed off as quickly as possible after decontamination.

**4. Lining of dry churns.** - The inside surface of all dry churns shall be coated with a non-sticky paint so that cellulose xanthate will not stick to the surface of the churn. Such coating shall be maintained in good condition.

**5. Air monitoring.** - (1) To ensure the effectiveness of the control measures, monitoring of carbon-di-sulphide and hydrogen sulphide in air shall be carried out once atleast in every shift and the record of the results so obtained shall be entered in a register specially maintained for the purposes.

(2) For the purpose of the requirement in sub-paragraph (1), instantaneous gas detector tubes shall not be used. Samples shall be collected over duration of not less than 10 minutes and analysed by an approved method. The locations where such monitoring is to be done shall be as directed by the Inspector.

(3) If the concentration of either carbon disulphide or hydrogen sulphide exceeds the permissible limits for such vapour or gas as laid down in Rule 123A, suitable steps shall be taken for controlling the concentrations in air of such contaminants. A report of such occurrences shall be sent to the Chief Inspector forthwith.

**6. Prohibition to remain in fume process room.** - No person during his intervals for meal, or rest shall remain in any room wherein fume process is carried on.

**7. Prohibition relating to employment of young persons.** - No young person shall be employed or permitted to work in any fume process or in any room in which any such process is carried on.

**8. Protective equipment.** - (1)The occupier shall provide and maintain in good condition protective equipment as specified in the Table for use of persons employed in the processes referred to therein.

**Table**

Process	Protective equipment
1. Dumping	Overalls, face-shields, gloves and footwear-all made of suitable material.
2. Spinning	Suitable aprons, gloves and footwear
3. Process involving or likely to involve contact with viscose solution.	Suitable gloves and footwear
4. Handling of sulphur	Suitable chemical goggles
5. Any other process involving contact with hazardous chemicals	Protective equipment as may be directed by the Chief Inspector by an order in writing

(2) A suitable room, rooms or lockers shall be provided exclusively for the storage of all protective equipment supplied to workers and no such equipment shall be stored at any place other than the room, rooms or lockers so provided.

**9. Breathing apparatus.** (1)There shall be provided in every factory where fume process is carried on, sufficient supply of -

- (a) breathing apparatus,
- (b) oxygen and a suitable appliances for its administration, and
- (c) life belts.

(2)(a) The breathing apparatus and other appliances referred to in sub-paragraph (1) shall be maintained in good condition and kept in appropriate locations so as to be readily available.

(b) The breathing apparatus and other appliances referred to in clauses (a) and (b) of sub- paragraph (1) shall be cleaned and disinfected at suitable intervals and thoroughly inspected once every month by a responsible person.

(c) A record of the maintenance of the condition of the breathing apparatus and other appliances referred to in sub-clause (1) shall be entered in a register provided for that purpose which shall be readily available for inspection by an Inspector.

(3) Sufficient number of workers shall be trained and periodically retrained in the use of breathing apparatus and administering artificial respiration so that at least 2 such trained persons would be available during all the working hours in each room in which fume process is carried on.

(4) Breathing apparatus shall be kept properly labelled in clean, dry, light-proof cabinets and if liable to be affected by fumes, shall be protected by placing them in suitable containers.

(5) No person shall be employed to perform any work for which breathing apparatus is necessary to be provided under sub-paragraph (1) unless he has been fully instructed in the proper use of that equipment.

(6)No breathing apparatus provided in pursuance of sub-paragraph (1) which has been worn by a person shall be worn by another person shall be worn by another person unless it has been thoroughly cleaned and disinfected since last being worn and the person has been fully instructed in the proper use of that equipment.

**10.Electric fittings.-** All electric fittings in any room in which carbon-di-sulphide is produced, used or given off or is likely to be given off into the work environment, other than a spinning room, shall be of flame-proof construction and all electric conductors shall either be enclosed in metal conduits or be lead-sheathed.

**11.Prohibition relating to smoking, etc.-** No person shall smoke or carry matches, fire or naked light or other means of producing a naked light or spark in a room in which fume process is carried on.

A notice in the language understood by the majority of the workers shall be posted at prominent locations in the plant prohibiting smoking and carrying of matches, fire or naked light or other means of producing naked light or spark into such rooms.

Provided that fire, naked light or other means of producing a naked light of spark may be carried on in such room only when required for the purposes of the process itself under the direction of a responsible person.

**12.Washing and bathing facilities.-** (1)There shall be provided and maintained in a clean state and in good repair for the use of all workers employed and in the processes covered by the schedule, adequate washing and bathing places having a constant supply of water under cover at the rate of one of such place for every 25 persons employed.

(2) The washing places shall have standpipes placed at intervals of not less than one metre.

(3) Not less than one half of the total number of washing places shall be provided with bathrooms.

(4) Sufficient supply of clean towels made of suitable material shall be provided:

Provided that such towels shall be supplied individually for each worker if so ordered by the Inspector.

(5) Sufficient supply of soap and nail brushes shall be provided.

**13. Rest Room.** - (1) A rest room shall be provided for the workers engaged in doffing operations of filament yarn spinning process.

(2) Such rest room shall be provided with fresh air supply and adequate seating arrangement.

**14. Cautionary notice and instructions** - (1) The following cautionary notice shall be prominently displayed in each fume process room.

“Cautionary Notice

I. Carbon disulphide (CS<sub>2</sub>) and Hydrogen Sulphide (H<sub>2</sub>S) which may be present in this room are hazardous to health.

II. Follow safety instructions.

III. Use protective equipment and breathing apparatus as and when required.

IV. Smoking is strictly prohibited in this area.”

This notice shall be in a language understood by the majority of the workers and displayed where it can be easily and conveniently read. If any worker is illiterate, effective steps shall be taken to explain carefully to him the contents of the notice so displayed.

(2) Arrangements shall be made to instruct each worker employed in any room in which a fume process is carried on regarding the health hazards connected with their work and the preventive measures and methods to protect themselves. Such instructions shall be given on his first employment and repeated periodically.

(3) Simple and special instructions shall be framed to ensure that effective measures will be carried out in case of emergency involving escape of carbon-di-sulphide and hydrogen sulphide. Those instructions shall be displayed in the concerned areas and workers shall be instructed and trained in the actions to be taken in such emergencies.

**15. Medical facilities and records of examinations and tests.** - (1) the occupier of every factory to which this schedule applies, shall-

(a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and

(b) provide to the said medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The record of such examinations carried out by the medical practitioner shall be maintained in a separate, register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

**16. Medical examination by Certifying Surgeon.** - (1) Every worker employed in lead processes shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examinations shall include skin test for dermatitis and no worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.

(2) Every worker employed in a manganese process shall be re-examined by a Certifying Surgeon at least once in every three calendar months and such examination shall, wherever the Certifying Surgeon considers appropriate, include all the tests in sub-paragraph (1).

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 23. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraph (1) and (2), including the nature and the results of this test, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit to work in the said process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**17. Exemptions.-** If in respect of any factory, the Chief Inspector is satisfied that owing to the exceptional circumstances or infrequency of the processes or for any other reason, all or any of the provisions of this schedule is not necessary for the protection of the workers in the factory, the Chief Inspector may by a certificate in writing which he may in his discretion revoke at any time, exempt such factory from all or any of such provisions subject to such conditions, if any, as he may specify therein.

## SCHEDULE XXVI

### Highly Flammable Liquids and Flammable Compressed Gases

**1. Application.** - These rules will be applicable to all factories where highly flammable liquids or flammable compressed gases are manufactured, stored, handled or used.

**2. Definition.** - For the purpose of this schedule -

- (a) "highly flammable liquid" means any liquid including its solution, emulsion or suspension which when tested in a manner specified by sections 14 and 15 of the Petroleum Act, 1934, (30 of 1934) gives off flammable vapours at a temperature less than 32 degree centigrade;
- (b) "flammable compressed gas" means flammable compressed gas as defined in section 2 of the Static and Mobile Pressure Vessels (Unfired) Rules 1981 framed under the Explosive Act, 1884.

**3. Storage.** - (1) Every flammable liquid or flammable compressed gas used in every factory shall be stored in suitable fixed storage tank, or in suitable closed vessel located in a safe position under the ground, in the open or in a store room of adequate fire resistant construction.

(2) Except as necessary for use, operation or maintenance, every vessel or tank which contains or had contained highly flammable liquid or flammable compressed gas shall be always kept closed and all reasonably practicable steps shall be taken to contain or immediately drain off to a suitable container any spill or leak that may occur.

(3) Every container, vessel, tank, cylinder, or store room used for storing highly flammable liquid or flammable compressed gas shall be clearly and in bold letters marked "Danger-Highly Flammable Liquid" or "Danger-Flammable Compressed Gas".

**4. Enclosed Systems for Conveying Highly Flammable Liquids.** - Wherever it is reasonably practicable, highly flammable liquids shall be conveyed within a factory in totally enclosed systems consisting of pipe lines, pumps and similar appliances from the storage tank or vessel to the point of use. Such enclosed systems shall be so designed, installed, operated and maintained as to avoid leakage or the risk of spilling.

**5. Preventing Formation of Flammable Mixture with Air.** - Wherever there is a possibility for leakage or spill of highly flammable liquid or flammable compressed gas from any equipment, pipe line, valve, joint or other part of a system, all practicable measures shall be taken to contain, drain off or dilute such spills or leakage as to prevent formation of flammable mixture with air.

**6. Prevention of Ignition.** - In every room, work place or other location where highly flammable liquid or flammable combustible gas is stored, conveyed, handled or used or where there is danger of fire or explosion from accumulation of highly flammable liquid or flammable compressed gas in air, all practicable measures shall be taken to exclude the sources of ignition. Such precautions shall include the following:

- (a) All electrical apparatus shall either be excluded from the area of risk or they shall be of such construction and so installed and maintained as to prevent the danger of their being a source of ignition;
- (b) effective measures shall be adopted for prevention of accumulation of static charges to a dangerous extent;
- (c) no person shall wear or be allowed to wear any foot wear having iron or steel nails or any other exposed ferrous materials which is likely to cause sparks by friction;
- (d) smoking, lighting or carrying of matches, lighters or smoking materials shall be prohibited;
- (e) transmission belts with iron fasteners shall not be used; and
- (f) all other precautions, as are reasonably practicable, shall be taken to prevent initiation of ignition from all other possible sources such as open flames, frictional sparks, overheated surfaces of machinery or plant, chemical or physical-chemical reaction and radiant heat.

**7. Prohibition of smoking.** - No person shall smoke in any place where highly flammable liquid or flammable compressed gas is present in circumstances that shall take all practicable measures to ensure compliance with this requirement including display of a bold notice indicating prohibition of smoking at every place where this requirement applies.

**8. Fire Fighting.** - In every factory where highly flammable liquid or flammable compressed gas is manufactured, stored, handled or used, appropriate and adequate means of fighting a fire shall be provided. The adequacy and suitability of such means which expression includes the fixed and portable fire extinguishing systems, extinguishing material, procedures and the process of fire fighting, shall be to the standards and levels prescribed by the Indian Standards applicable, and in any case not inferior to the stipulations under Model Rules 69.

**9. Exemptions.** - If in respect of any factory, the Chief Inspector is satisfied that owing to the exceptional circumstances or infrequency of the processes or for any other reason, all or any of the provisions of this schedule is not necessary for the protection of the workers in the factory, the Chief Inspector may by a certificate in writing which he may in his discretion revoke at any time, exempt such factory from all or any of such provisions subject to such conditions, if any, as he may specify therein.

## SCHEDULE XXVII

### Operations in Foundries

**1. Application.** - Provisions of this schedule shall apply to all parts of factories where any of the following operations or processes are carried on:

- (a) the production of iron castings or, as the case may be, steel castings by casting in moulds made of sand, loam, moulding composition or other mixture of materials, or by shell moulding, or by centrifugal casting and any process incidental to such production;
- (b) the production of non-ferrous castings by casting metal in moulds made of sand, loam, metal, moulding composition or other material or mixture of materials, or by shell mouldings, die-casting (including pressure die-casting), centrifugal casting or continuous casting and any process incidental to such production; and

- (c) the melting and casting of non-ferrous metal for the production of ingots, billets, slabs or other similar products, and the stripping thereof;
- but shall not apply with respect to -
- (i) any process with respect to the smelting and manufacture of lead and the Electric Accumulators;
  - (ii) any process for the purpose of a printing works; or
  - (iii) any smelting process in which metal is obtained by a reducing operation or any process incidental to such operation; or
  - (iv) the production of steel in the form of ingots; or
  - (v) any process in the course of the manufacture of solder or any process incidental to such manufacture; or
  - (vi) the smelting and casting of lead or any lead-based alloy for the production of ingots, billets, slabs or other similar products or the stripping thereof, or any process incidental to such melting, casting or stripping.

**2. Definition.** - For the purpose of this schedule -

- (a) "approved respirator" means a respirator of a type approved by the Chief Inspector;
- (b) "cupola of furnace" includes a receiver associated therewith;
- (c) "dressing or fettling operations" includes stripping and other removal of adherent sand, cores, runners, risers, flash and other surplus metal from a casting and the production of reasonably clean and smooth surface, but does not include (a) the removal of metal from a casting when performed incidentally in connection with the machining or assembling of castings after they have been dressed or fettled, or (b) any operation which is knock-out operation within the meaning of this schedule;
- (d) "foundry" means those parts of a factory in which the production of iron or steel or non-ferrous castings (not being the production of pig iron or the production of steel in the form of ingots) is carried on by casting in moulds made of sand, loam, moulding composition or other mixture of materials, or by shell moulding or by centrifugal casting in metal moulds lined with sand, or die casting including pressure die casting, together with any part of the factory in which any of the following processes are carried on as incidental processes in connection with and in course of, such production, namely, the preparation and preparation of moulds and cores, knock out operations and dressing or fettling operations;
- (e) "knock-out operations" means all methods of removing castings from moulds and the following operations, when done in connection therewith, namely, stripping, coring-out and the removal of runners and risers;
- (f) "pouring aisle" means an aisle leading from a main gangway or directly from a cupola or furnace to where metal is poured into moulds.

**3. Prohibition of use of certain materials as parting materials.**-(1) A material shall not be used as a parting material if it is a material containing compounds of silicon calculated as silica to the extent more than 5 percent by weight of the dry material :

Provided that this prohibition shall not prevent the following being used as a parting material if the material does not contain an admixture of any other silica -

- (a) Zirconium silicate (Zircon); (b) Calcined china clay; (c) Calcined aluminous fireclay
- (d) Sillimanite; (e) Calcined or fused alumina; (f) Olivine; (g) Natural sand.

(2) Dust or other matter deposited from a fettling or blasting process shall not be used as a parting material or as a constituent in a parting material.

**4. Arrangement and storage.** - For the purposes of promoting safety and cleanliness in workrooms the following requirements shall be observed:-

- (a) moulding boxes, loam plates, ladles, patterns, pattern plates, frames, boards, box weights, and other heavy articles shall be so arranged and placed as to enable work to be carried on without unnecessary risk;
- (b) suitable and conveniently accessible racks, bins, or other receptacles shall be provided and used for the storage of other gear and tools;
- (c) where there is bulk storage of sand, fuel, metal scrap or other materials or residues, suitable bins, bunkers or other receptacles shall be provided for the purpose of such storage.

**5. Construction of floors.**-(1) Floors of indoor workplaces in which the processes are carried on, other than parts which are of sand, shall have been surface of hard material.

(2) No part of the floor of any such indoor workplace shall be of sand except where this is necessary by reason of the work done.

(3) All parts of the surface of the floor of any such indoor workplace which are of sand shall, so far as practicable, be maintained in an even and firm condition.

**6. Cleanliness of indoor workplaces.**-(1) All accessible parts of the walls of every indoor workplace in which the processes are carried on and of everything affixed to those wall shall be effectively cleaned by a suitable method to a height of not less than 4.2 metres from the floor at least once in every period of fourteen months. A record of the carrying out of every such effective cleaning in pursuance of this paragraph including the date (which shall be not less than five months nor more than nine months after the last immediately preceding washing, cleaning or other treatment).

(2) Effective cleaning by a suitable method shall be carried out at least once every working day of all accessible parts of the floor of every indoor workplace in which the processes are carried on, other than parts which are of sand; and the parts which are of sand shall keep in good order.

**7. Manual operations involving molten metal.**-(1) There shall be provided and properly maintained for all persons employed on manual operations involving molten metal with which they are liable to be splashed, a working space for that operation -

- (a) which is adequate for the safe performance of the work; and
- (b) which, so far as reasonably practicable, is kept free from obstruction?

(2) Any operation involving the carrying by hand of a container holding molten metal shall be performed on a floor all parts of which where any person walks while engaged in the operation shall be on the same level:

Provided that, where necessary to enable the operation to be performed without undue risk, nothing in this paragraph shall prevent the occasional or exceptional use of a working space on a different level from the floor, being a space provided with a safe means of access from the floor for any person while engaged in the operation.

**8. Gangways and pouring aisles.-** (1) In every workroom to which this paragraph applies constructed, reconstructed or converted for use as such after the making of this Schedule and, so far as reasonably practicable, in every other workroom to which this Paragraph applies, sufficient and clearly defined main gangway shall be provided and properly maintained which –

- (a) shall have an even surface of hard material and shall, in particular, not be of sand or have on them more sand than is necessary to avoid risk of flying metal from accidental spillage;
- (b) shall be kept, so far as reasonably practicable, free from obstruction;
- (c) if not used for carrying molten metal, shall be at least 920 millimetres in width;
- (d) if used for carrying molten metal shall be -
  - (i) where truck ladles are used exclusively, at least 600 millimetres wider than the overall width of the ladle;
  - (ii) where hand shanks are carried by not more than two men, at least 920 millimetres in width;
  - (iii) where hand shanks are carried by more than two men, at least 1.2 metres in width; and
  - (iv) where used for simultaneous travel in both directions by men carrying hand shanks, at least 1.8 metres in width.

(2) In workroom to which this Paragraph applies constructed, reconstructed or converted for use as such after the making of this Schedule, sufficient and clearly defined pouring aisles shall be provided and properly maintained which -

- (a) shall have an even surface of hard material and shall, in particular, not be sand or have on them more sand than is necessary to avoid risk of flying metal from accidental spillage;
- (b) shall be kept so far as reasonably practicable free from obstruction;
- (c) if molten metal is carried in hand ladles or bulk ladles by not more than two men per ladle, shall be at least 460 millimetres wide, but where any moulds alongside the aisle are more than 510 millimetres above the floor of the aisle, the aisle shall be not less than 600 millimetres wide;
- (d) if molten metal is carried in hand ladles or bulk ladles by more than two men per ladle, shall be at least 760 millimetres wide;
- (e) if molten metal is carried in crane, trolley or truck ladles, shall be of a width adequate for the safe performance of the work.

(3) Requirements of sub-paragraph (1) and (2) shall not apply to any workroom or part of a workroom if, by reason of the nature of the work done therein, the floor of that workroom or, as the case may be, that part of a workroom has to be of sand.

(4) In this paragraph “workroom to which this paragraph applies” means a part of a ferrous or non-ferrous foundry in which molten metal is transported or used, and a workroom to which this paragraph applies shall be deemed for the purposes of this paragraph to have been constructed, reconstructed or converted for use as such after the making of this schedule if the construction, reconstruction or conversion thereof was begun after the making of this schedule.

**9. Work near cupolas and furnaces.-** No person shall carry out any work within a distance of 4 metres from a vertical line passing through the delivery end of any spout of a cupola or furnace, being a spout used for delivering molten metal, or within a distance of 2.4 metres from a vertical line passing through the nearest part of any ladle which is in position at the end of such a spout, except, in either case, where it is necessary for the proper use of maintenance of a cupola or furnace that work should be carried out within that distance of that work is being carried out at such a time and under such conditions that there is no danger to the person carrying it out from molten metal which is being obtained from the cupola or furnace or is in a ladle in position at the end of the spout.

**10. Dust and fumes.-** (1) Open coal, coke or wood fires shall not be used for heating or drying ladles inside a workroom unless adequate measures are taken to prevent, so far as practicable, fumes or other impurities from entering into or remaining in the atmosphere of the workroom.

(2) No open coal, coke or wood fires shall be used for drying moulds except in circumstances in which the use of such fires is unavoidable.

(3) Mould stoves, core stoves and annealing furnaces shall be so designed constructed, maintained and worked as to prevent, so far as practicable, offensive or injurious fumes from entering into any workroom during any period when a person is employed therein.

(4) All knock-out operations shall be carried out -

- (a) in a separate part of foundry suitably partitioned off, being a room or part in which, so far as reasonably practicable, effective and suitable local exhaust ventilation and a high standard of general ventilation are provided; or
- (b) in an area of the foundry in which, so far as reasonably practicable, effective and suitable local exhaust ventilation is provided, or where compliance with this requirement is not reasonably practicable, a high standard of general ventilation is provided.

(5) All dressing or fettling operations shall be carried out -

- (a) in a separate room or in a separate part of foundry suitably partitioned off; or
- (b) in an area of the foundry set apart for the purpose;

and shall, so far as reasonably practicable, be carried out with effective and suitable local exhaust ventilation or other equally effective means of suppressing dust, operating as near as possible to the point of origin of the dust.

**11. Maintenance and examination of exhaust plant. -** (1) All ventilation plant used for the purpose of extracting, suppressing or controlling dust or fumes shall be properly maintained.

(2) All ventilating plant used for the purpose of extracting, suppressing or controlling dust or fumes shall be examined and inspected once every week by a responsible person. It shall be thoroughly examined and tested by a competent person at least once in every such examination and test shall be entered in an approved register which shall be available for inspection by an Inspector. Any defect found on any such examination and carrying out the examination and test to the occupier or manager of the factory.

**12. Protective equipment.** - (1) The occupier shall provide and maintain protective equipment specified for the protection of workers,

- (a) suitable gloves to other protection for the hands for workers engaged in handling any hot material likely to cause damage to the hands by burn, scald, or scar, or in handling pig iron, rough castings or other articles likely to cause damage to the hands by cut or abrasion;
- (b) approved respirators for workers carrying out any operations creating a have dust concentration which cannot be dispelled quickly and effectively by the existing ventilation arrangements.

(2) No respirator provided for the purposes of clause 1(b) has been worn by a person shall be worn by another person if it has not since been thoroughly cleaned and disinfected.

(3) Persons who for any of their time –

- (a) work at a spout of or attend to, a cupola or furnace in such circumstances that material there from may come into contact with the body, being material at such a temperature that its contact with the body would cause a burn; or
- (b) are engaged in, or in assisting with, the pouring of molten metal; or
- (c) carry by hand or move by manual power any ladle or mould containing molten metal; or
- (d) are engaged in knocking-out operations involving material at such a temperature that its contact with the body would cause a burn;

shall be provided with suitable footwear and gaiters which is worn by them to prevent, so far as reasonably practicable, risk of burns to his feet and ankles.

(4) Where appropriate, suitable screens shall be provided for protection against flying materials (including splashes of molten metal and sparks and chips thrown off in the course of any process).

(5) The occupier shall provide and maintain suitable accommodation for the storage and make adequate arrangements for cleaning and maintaining of the protective equipment supplied in pursuance of this paragraph.

(6) Every person shall make full and proper use of the equipment provided for his protection in pursuance of sub-paragraph (1) and (4) and shall without delay report to the occupier, manager, or other appropriate person any defect in, or less of, the same.

**13. Washing and bathing facilities.**- (1) There shall be provided and maintained in clean state and good repair for the use of all workers employed in the foundry -

- (a) a wash place under cover with either -
  - (i) a trough with impervious surface fitted with a waste pipe without plug, and of sufficient length to allow at least 60 centimetres for every 10 such persons employed at any one time and having a constant supply of clean water from taps or jets above the trough at intervals of not more than 60 centimetres or
  - (ii) at least one tap or stand pipe for every 10 such persons employed at any one time, and having a constant supply of clean water, the tap or stand pipe being spaced not less than 1.2 metres apart; and
- (b) not less than one half of the total number of washing places provided under clause (a) shall be in form of bath rooms.
- (c) a sufficient supply of clean towels made of suitable material changed daily, with sufficient supply of nail brushes and soap.

(2) The facilities provided for the purposes of sub-paragraph (1) shall be placed in charge of a responsible person or persons and maintained in a clean and orderly condition.

**14. Disposal of dross and skimming.** - Dross and skimming removed from molten metal or taken from a furnace shall be placed forthwith in suitable receptacles.

**15. Disposal of waste.** - Appropriate measures shall be taken for the disposal of all waste products from shell moulding (including waste burnt sand) as soon as reasonably practicable after the castings have been knocked-out.

**16. Material and equipment left out of doors.** - All material and equipment left out of doors (including material, and equipment so left only temporarily or occasionally) shall be so arranged and placed as to avoid unnecessary risk. There shall be safe means of access to all such material and equipment and, so far as reasonably practicable, such access shall be by roadways or pathways which shall be properly maintained. Such roadways or pathways shall have a firm and even surface and shall, so far as reasonably practicable be kept free from obstruction.

**17. Medical facilities and records of examinations and tests.** - (1) The occupier of every factory to which this schedule applies, shall-

- (a) employ a qualified medical practitioner for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector of Factories; and
- (b) provide to the medical practitioner all the necessary facilities for the purpose referred to in clause (a).

(2) The record of such examinations carried out by the medical practitioner shall be maintained in a separate, register approved by the Chief Inspector of Factories, which shall be kept readily available for inspection by the Inspector.

**18. Medical examination by Certifying Surgeon.** - (1) Every worker employed in the processes specified in paragraph 1 shall be examined by a Certifying Surgeon within 15 days of his first employment. Such examinations shall include skin test for dermatitis and no worker shall be allowed to work after 15 days of his first employment in the factory unless certified fit for such employment by the Certifying Surgeon.



(2) Every worker employed in a manganese process shall be re-examined by a Certifying Surgeon at least once in every three calendar months and such examination shall, wherever the Certifying Surgeon considers appropriate, include all the tests in sub-paragraph (1).

(3) The Certifying Surgeon after examining a worker shall issue a Certificate of Fitness in Form 2. The record of examination and re-examinations carried out shall be entered in the Certificate and the Certificate shall be kept in the custody of the manager of the factory. The record of each examination carried out under sub-paragraph (1) and (2) including the nature and the results of these tests, shall also be entered by the Certifying Surgeon in a health register in Form 24.

(4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.

(5) If at any time the Certifying Surgeon is of the opinion that a worker is no longer fit for employment in the said processes on the ground that continuance therein would involve special danger to the health of the worker, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in those documents should also include the period for which he considers that the said person is unfit to work in the said process shall be provided with alternate placement facilities unless he is fully incapacitated in the opinion of the Certifying Surgeon, in which case the person affected shall be suitably rehabilitated.

(6) No person who has been found unfit to work as said in sub-paragraph (5) shall be re-employed or permitted to work in the said processes unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.

**19. Exemptions.** -If in respect of any factory, the Chief Inspector is satisfied that owing to the exceptional circumstances or infrequency of the processes or for any other reason, all or any of the provisions of this schedule is not necessary for the protection of the workers in the factory, the Chief Inspector may by a certificate in writing which he may in his discretion revoke at any time, exempt such factory from all or any of such provisions subject to such conditions, if any, as he may specify therein.

**FORM A**  
**Part 1**

Prescribed under rule 3(3)

**Form of Application for grant of Certificate of Competency**

1. Name
2. Date of Birth
3. Name of the Organisation (if not self-employed)
4. Designation
5. Educational qualification (copies of testimonials to be attached)
6. Details of professional experience (in chronological order)

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Name of the Organisation	Period of Service	Designation	Area of Responsibility
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7. Membership, if any, of professional bodies
8. (i) Details of facilities (examination, testing, etc.) at his disposal.  
(ii) Arrangements for calibrating and maintaining the accuracy of these facilities.
9. Purpose for which Competency Certificate is sought (section or sections of the Act should be stated).
10. Whether the applicant has been declared as a competent person under any statute (if so, the details)
11. Any other relevant information.
12. Declaration by the applicant.

I, ....., hereby declare that the information furnished above is true.

I undertake

- (a) that in the event of any change in the facilities at my disposal (either addition or deletion) or my leaving the aforesaid organisation, I will promptly inform the Chief Inspector;
- (b) to maintain the facilities in good working order, calibrated periodically as per manufacturers instructions or as per National Standards; and
- (c) to fulfill and abide by all the conditions stipulated in the certificate of competency and instructions issued by the Chief Inspector from time to time.

Place &  
Date

Signature of the applicant :

**Declaration by the Institution (if employed)**

I, ....., certify that Shri ..... whose details are furnished above, is in our employment and nominate him on behalf of the organisation for the purposes of being declared as a competent person under the Act. I also undertake that I will.

- (a) notify the Chief Inspector in case the competent person leaves our employment;
- (b) provide and maintain in good order all facilities at his disposal as mentioned above;
- (c) notify the Chief Inspector any change in the facilities (either addition or deletion)

Signature  
 Designation  
 Telephone No.  
 Official Seal

Date:

**FORM A**

**Part 2**

**Form of Application for grant of Certificate of Competency to an Institution**

1. Name and full address of the Organisation
2. Organisation's status(specify whether Government, Autonomous, Co-operative, Corporate or Private)
3. Purpose for which Competency Certificate is sought (specify section(s) of the Act)
4. Whether the Organisation has been declared as a competent person under this or any other statute. If so, give details.
5. Particulars of persons employed and possessing qualification and experience as set out in Schedule annexed to sub-rule (1) of rule 2A

S.No.	Name and Designation	Qualifications	Experience	Section(s) and the rules under which Competency is sought for.
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- 1.
- 2.

6. Details of facilities (relevant to item 3 above) and arrangements made for their maintenance and arrangements made for their maintenance and periodic calibration.
7. Any other relevant information.
8. Declaration:  
 I, ..... hereby, on behalf of ..... Certify the details furnished above are correct to the best of my knowledge. I undertake to ---  
 (i) maintain the facilities in good working order, calibrated periodically as per manufacturers instructions or as per National Standards; and  
 (ii) to fulfil and abide by all the conditions stipulated in the certificate of competency and instructions issued by the Chief Inspector from time to time.

Place & Date

Signature of Head of the  
 Institution or of the persons  
 authorised to sign on his behalf.  
 Designation

**FORM B**

Prescribed under rule 3(3)

**Form of Certificate of Competency issued to a person or an institution**

I, ....., in exercise of the powers conferred on me under section 2(ca) of the Factories Act and the Rules made thereunder, hereby recognise .....(Name of the Institution) or Shri .....(Name of the person) employed in .....(Name of the Institution) to be a competent person for the purpose of carrying out tests, examinations, inspections and certification for such buildings, dangerous machinery, lifts and hoists, lifting machines and lifting tackles, pressure plants, confined space, ventilation system and process or plant and equipment as the case may be, used in a factory located in ..... under Section ..... and the Rules made thereunder.

- \*Strike out the words not applicable.  
 This certificate is valid from .....to .....
- This certificate is issued subject to the conditions stipulated hereunder: -
- (i) Tests, examinations and inspections shall be carried out in accordance with the provisions of the Act and the Rules made thereunder;
  - (ii) Tests, examination and inspections shall be carried out under direct supervision of the competent person or by a person so authorised by an institution recognised to be a competent person.

- (iii) The certificate of competency issued in favour of a person shall stand cancelled if the person leaves the organisation mentioned in his application;
- (iv) The institution recognised as a competent person shall keep the Chief Inspector informed of the names, designations and qualifications of the persons authorised by it to carry out tests, examinations and inspections.

Date                      Station                      Official Seal                      Signature of the Chief Inspector

NOTE: A separate certificate should be issued under each relevant Section. A person or an institution may be recognised competent for the purpose of more than one Section of the Act.

**FORM C**

(Certificate of Stability)  
Prescribed under rule 6 (1)

- 1. Name of the factory .....
- 2. Village, town and district  
in which the factory is situated .....
- 3. Full postal address of the factory .....
- 4. Name of the occupier of the factory .....
- 5. Nature of manufacturing process to  
be carried on in the factory .....
- 6. Number of floors on which  
workers will be employed .....

I certify that I have inspected the building/buildings, the plans of which have been approved by the Chief Inspector in his letter No.... dated ..... and examined the various parts including the foundations with special reference to the machine, plant etc., that have been installed. I am of the opinion that the building/buildings which has/have been constructed/reconstructed/extended/taken into use is/are in accordance with the plans approved by the Chief Inspector in his letter mentioned above, that it is/they are structurally sound and that its/their stability will not be endangered by its/their use as factory/part of a factory for the manufacture of ..... for which the machinery, plant, etc. installed are intended.

Signature.....  
Qualifications.....  
Address.....  
Date .....

If employed by a company or association, )  
name and address of the company or )  
association )

(2) The Certificate of Stability referred to in sub-rule (1) shall be signed by a competent person.

Provided that where no such competent person has been recognized, the Certificate of Stability may be signed by one of the following categories of persons, namely -

- (i) A member or Associate Member of Institute of the Civil Engineers OR
- (ii) A member of the Institute of Structural Engineer OR
- (iii) A fellow member or Associate Member of the Institute of Engineers (India) OR
- (iv) Civil Engineers of the State or Central Government Departments including retired Civil Engineer not below the rank of Executive Engineers.

**FORM D**

Prescribed under rule 86(3) (b)

**2. Name and address of the applicant**

**3. Site Ownership Data**

- 3.1 Revenue details of site such as Survey No. Plot No. etc.
- 3.2 Whether the site is classified as forest and if so, whether approval of the Central Government under Section 5 of the Indian Forests Act, 1927 has been taken.

3.3 Whether the proposed site attracts the provisions of Section 3(2) (v) of the E.P.Act, 1986, if so, the nature of the restrictions.

3.4 Local authority under whose jurisdiction the site is located.

#### **4. Site Plan**

4.1 Site Plan with clear identification of boundaries and total area proposed to be occupied and showing the following details nearby the proposed site.

(a) Historical monument, if any, in the vicinity.

(b) Names of neighbouring manufacturing units and human habitats, educational and training institutions, petrol installations, storages of LPG and other hazardous substances in the vicinity and their distances from the proposed unit.

(c) Water sources (rivers, streams, canals, dams, water filtration plants, etc.) in the vicinity.

(d) Nearest hospitals, fire stations, civil defence stations and police stations and their distances.

(e) High tension electrical transmission lines, pipelines for water, oil gas or sewerage; railway lines, roads, stations; jetties and other similar installations.

4.2 Details of soil conditions and depth at which hard strata obtained.

4.3 Contour map of the area showing nearby hillocks and difference in levels.

4.4 Plot Plan of the factory showing the entry and exit points, roads within, water drains, etc.

#### **5. Project Report**

5.1 A summary of the salient features of the Projects.

5.2 Status of the organisation (Government, Semi Government, Public or Private etc.)

5.3 Maximum number of persons likely to be working in the factory.

5.4 Maximum amount of power and water requirements and source of their supply.

5.5 Block diagram of the buildings and installations, in the proposed supply.

5.6 Details of housing colony, hospital, school and other infrastructural facilities proposed.

#### **6. Organisation structure of the proposed manufacturing unit/factory**

6.1 Organisation diagrams of –

- Proposed enterprise in general

- Health; Safety and Environment protection departments and their linkage to operation and technical departments.

6.2 Proposed Health and Safety Policy.

6.3 Area allocated for treatment of wastes and effluent.

6.4 Percentage outlay on safety, health and environment protection measures.

#### **7. Meteorological data relating to the site**

7.1 Average, minimum and maximum of

- Temperature

- Humidity

- Wind velocities during the previous ten years

7.2 Seasonal variations of wind direction

7.3 Highest water level reached during the floods in the area recorded so far.

7.4 Lightning and seismic data of the area.

#### **8. Communication Links**

8.1 Availability of telephone/telex/wireless and other communication facilities for outside communication.

8.2 Internal communication facilities proposed

#### **9. Manufacturing Process Information**

9.1 Process flow diagram

9.2 Brief write-up on process and technology

9.3 Critical process parameters such as pressure buildup temperature rise and run-away reactions

9.4 Other external effects critical to the process having safety implications, such as ingress of moisture or water, contact with incompatible substances, sudden power failure.

9.5 Highlights of the built-in safety/pollution control devices or measures/incorporated in the manufacturing technology.

#### **10. Information of Hazardous Materials**

10.1 Raw materials, intermediates, products and by-products and their quantities (Enclose Material Safety Data Sheet in respect of each hazardous substance)

10.2 Main and intermediate storages proposed for raw materials/intermediates/products/by-products (maximum quantities to be stored at any time).

10.3 Transportation methods to be used for materials inflow and outflow, their quantities and likely routes to be followed

##### **10.4 Safety measures proposed for:**

- handling of materials;

- internal and external transportation; and

- disposal (packing and forwarding of finished products)

#### **11. Information on Dispersal/Disposal of Wastes and Pollutants**

- 11.1 Major Pollutants (gas, liquid, solid) their characteristics and quantities (average and at peak loads)
- 11.2 Quality and quantity of solid wastes generated, method of their treatment and disposal
- 11.3 Air, water and soil pollution problems anticipated and the proposed measures to control the same, including treatment and disposal of effluents.

**12. Process Hazards Information**

- 12.1 Enclose a copy of the report on environmental impact assessment
- 12.2 Enclose a copy of the report on Risk Assessment study.
- 12.3 Published (open or classified) reports, if any, on accident situations/occupational health hazards or similar plants elsewhere (within or outside the country)

**13. Information of proposed Safety and Occupational Health Measures**

- 13.1 Details of fire fighting facilities and minimum quantity of water, CO2 and or other fire fighting measures needed to meet the emergencies
- 13.2 Details of in-house medical facilities proposed

**14. Information on Emergency Preparedness**

- 14.1 Onsite emergency plan
- 14.2 Proposed arrangements, if any, for mutual aid scheme with the group of neighbouring factories

**15. Any other relevant information**

I certify that the information furnished above is correct to the best of my knowledge and nothing of importance has been concealed while furnishing it.

Name and Signature of the Applicant

**FORM 1**

Prescribed under rule 5(2)

**APPLICATION FOR PERMISSION TO CONSTRUCT, EXTEND OR TAKE INTO USE ANY BUILDING AS A FACTORY**

- 1. Applicant's Name  
Calling  
Applicant's address
- 2. Full Name and postal address of the Factory
- 3. Situation of the Factory

State

District

Town or Village

Name of Sub-Division

Nearest Police Station

Nearest Railway Station

Nearest Steamer Ghat

- 4. Particulars of plan to be installed

Signature of the applicant

N.B. The application shall be accompanied by the following documents:-

- 1. Flow chart of the manufacturing process supplemented by a brief description of the process in its various stages

2. Plan in ammonia/blue print drawn to proper scale showing
  - i) The site of the factory and immediate surroundings including the adjacent buildings and other structures
  - ii) The plan elevation and necessary cross section of the various buildings indicating all relevant details escape routes in case of fire. The plans shall also clearly indicate the position of plant and machineries and passageway and it should be signed by Assistant Engineer or Assistant Architect.
3.
  - i) Land ownership certificate from SDC
  - ii) Non encumbrance certificate of the land issued by Sub Register.
  - iii) Special power of attorney if the land is not standing in the name of the applicant.
4.
  - i) No objection certificate from local authority viz. Gram Panchayat, Municipality, Town Committee etc.
  - ii) No objection certificate from immediate neighbours certified by Local authority.
5.
  - i) List of raw materials with their physical and chemical properties and danger limits.
  - ii) List of products (including by products) with their physical and chemical properties and dangerous limits.
6. List of machineries with their HP and other capacity and detailed number of employees.
7. Chemical data sheets and safety manual in case of chemical factories.
8. Copy of approval from explosive Department In case of factories using/manufacturing explosive substances.
9. Copy of approval from water/air pollution control board in case of factories polluting water/air,
10. Copy of approval from prohibition Department in case of factories using/manufacturing prohibited substances.
11. Details of safety fitting, equipments, device and measures to be adopted with a list of protective wears and fire protection to be provided.
12. Declaration by the applicant the genuiness of the documents submitted by him/her.

## FORM 2

Prescribed under Rules 7, 9(2) and 16

### APPLICATION FOR REGISTRATION AND GRANT OF RENEWAL OF LICENCE FOR THE YEAR .....

(To be submitted in triplicate)

1. (a) Full name of the factory :  
 (b) Factory licence number  
 if already registered before :
2. (a) Full postal address and situation of the factory :  
 (b) Full postal address to which communications  
 relating to factory should be sent:
3. Nature of manufacturing process or processes -  
 (a) carried on in the factory in the last twelve months  
 (in the case of factories already in existence); and:  
 (b) to be carried on in the factory during the next  
 twelve months (in the case of all the factories) :
4. Names and values of principal  
 products manufactured during  
 the last twelve months (in the case of  
 factories already in existence);
 

	Name	Value
1. ....	.....	.....
2. ....	.....	.....
3. ....	.....	.....
5. (a) Maximum number of workers proposed  
 to be employed in any one day during the year:  
 (b) Maximum number of workers employed  
 on any one day during the last twelve months  
 (in the case of factories already in existence) :  
 (c) Number of workers to be ordinarily  
 employed in the factory :
6. (a) Nature and total amount of power (kilowatts) -  
 (i) installed; or :  
 (ii) proposed to be installed :

- (b) Maximum amount of power (kilowatts) proposed to be used :
7. Full name and residential address of the person who shall be the manager of the factory for the purposes of the Act :
8. Full name and residential address of the occupier, that is -
- (a) the proprietor of the factory in case of a private firm or proprietary concern:
- (b) the directors in case of a public limited liability company or firm
1. ....  
2. ....  
3. ....
- (c) (i) the managing agent in case where a managing agent is employed ; :  
(ii) the directors of the above managing agent :  
1. ....  
2. ....  
3. ....
- (d) the shareholders in case of a private company where no managing agent is employed; or :  
1. ....  
2. ....  
3. ....  
4. ....
- (e) the chief administrative head in case of a Government or local fund factory :
9. Full name and address of the owner of the premises or building (including the precincts thereof) referred to in section 93. :
10. In the case of a factory constructed or extended after the date of commencement of the rules -
- (a) reference number and date of approval of the plans for site whether for old or new building and for construction or extension of factory by the State Government/ Chief Inspector; and :
- (b) reference number and date of approval of the arrangements, if any, made for the disposal of trade waste and effluents and the name of the authority granting such approval :
11. (a) Amount of fee paid : Rs. ....  
(b) In case of payment in Treasury -  
(i) name of Treasury; :  
(ii) date of payment; and :  
(iii) challan number  
(Challan to be enclosed) :  
(c) In case of transmission by crossed cheque -  
(i) name of nationalised bank ; :  
(ii) crossed cheque number; and :  
(iii) date of cheque :  
(Crossed cheque drawn in favour of the Chief Inspector of Factories to be enclosed)  
(d) In case of transmission by crossed postal order -  
(i) name of post office; :  
(ii) crossed postal order number; and :  
(iii) date of postal order :  
(Crossed postal order drawn in favour of the Chief Inspector of Factories to be enclosed)
- Signature of occupier :  
Date :  
Signature of manager :

Notes:-

1. This form should be completed in ink in block letters or typed.
2. If power is not used at the time of filling up this form, but is introduced later, the fact should be communicated to the Chief Inspector of Factories immediately.
3. If any of the persons named against item 8 is minor, the fact should be clearly stated.
4. In the case of a factory where under the proviso to sub-sections (1) and (2) of section 100, a person has been nominated as the occupier, information required in item 8 should be supplied only in respect of that person.
5. In the case of a factory where a managing agent or agents have been appointed as occupiers under the Indian Companies Act, 1956, information required in item 8 should be supplied only in respect of that person or persons.

**FORM 3**

Prescribed under rule 8(1)

**LICENCE TO WORK A FACTORY**

Licence No. -----

Reg.No. -----

Date of Reg. -----

Licence is hereby granted to -----  
 for the premises known as -----  
 situated at -----

for use as a factory within the limits stated hereinafter, subject to provisions of the Factories Act, 1948, and the rules made thereunder.  
 The ----- 19..

Issuing Authority

	Calendar Year	Valid For		Fee	Date of Payment	Excess fee for late payment	Date of payment	Signature of the Issuing Authority
		Maximum number of workers on any one day	Maximum Installed Power Capacity in Kilo watts					
Granted Under Rule 7								
Renewed Under Rule 8								

TRANSFERS

To whom transferred	Year of transfer	Date of payment of Transfer fee	Signature of the Issuing Authority

AMENDMENTS

Year when Amended	Amended		Date of payment of amendment fee	Additional fee	Date of Payment	Signature of the Issuing Authority
	Workers	Installed Power Capacity in Kilowatts				



**FORM 4**  
Prescribed under rule 17  
**NOTICE OF CHANGE OF MANAGER**

1. (a) Name of the factory :  
(b) Current licence number of the factory :
2. Postal address of the factory :
3. Name of outgoing manager :
4. (a) Name of new manager :  
(b) Residential address :  
(c) Telephone number :
5. Date of appointment of new manager :
6. Signature of new manager :

Signature of occupier:

Date

**FORM 5**  
Prescribed under rule 21(2)  
**CERTIFICATE OF FITNESS**

---

1. (a) Serial Number : Serial Number :  
(b) Date : Date :
  2. Name of person examined : I certify that I have personally examined (name) .....
  3. Father's Name : son/daughter of .....
  4. Sex : .....
  5. Residence : residing at .....
  6. Date of birth, if available and/ or certified age : who is desirous of being employed in a factory, and that his/her age, as nearly as can be ascertained from my examination, is... years
  7. Physical fitness : that he/she is fit for employment in factory as an adult/child
  8. descriptive marks : His /her descriptive marks are .....
  9. Reason for  
(a) refusal of certificate;  
of.....  
(b) certificate being..... :
- Signature or left hand : Signature or left hand thumb  
Thumb impression of the : impression of the person  
person examined : examined :
- Initials of  
Certifying Surgeon : Signature of Certifying Surgeon :
- 

Note: - In case of physical disability, the exact details of the cause of the physical disability should be clearly stated.

**FORM 6**

Prescribed under sub -rule (4) of rule 80

**RECORD OF EYE EXAMINATION**

Sl. No.	Department /Works	Name of Worker	Sex	Age(on last birthday )	Occupation		Examination of eye sight		Signature of ophthalmologist	Remarks
					Nature	Date of employment	Date	Result		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.

**FORM 7**

Prescribed under rules 22, 53 and 111 (7) (b)

**RECORD OF LIMEWASHING, PAINTING, ETC.**

Part of factory, e.g., name of room	Parts limewashed, painted, varnished or oiled, eg. walls, ceilings, wood work, etc.	Treatment, i.e., whether limewashed, painted, varnished or oiled	Date on which limewashing, painting, varnishing or oiling was carried out			Remarks
			Date	Month	Year	
1.	2.	3.	4.	5.	6.	7.

Signature of the manager:

Date :

**FORM 8**  
Prescribed under rule 30

**HUMIDITY REGISTER**

Department: .....

Hygrometer: Distinctive mark or number : .....  
Position in department : .....

Year : ..... Month: .....

Date	Readings of hygrometer						If no humidity insert 'none'	Remarks	Signature of the person taking the reading
	Between 7 and 9 a.m.		Between 11 a.m. and 2 p.m. (but not in the rest interval)		Between 4 and 5.30 p.m.				
	Dry bulb	Wet bulb	Dry bulb	Wet bulb	Dry bulb	Wet Bulb			
1 <sup>st</sup>									
2 <sup>nd</sup>									
3 <sup>rd</sup>									
4 <sup>th</sup>									
5 <sup>th</sup>									
6 <sup>th</sup>									
7 <sup>th</sup>									
8 <sup>th</sup>									
9 <sup>th</sup>									
10 <sup>th</sup>									
11 <sup>th</sup>									
12 <sup>th</sup>									
13 <sup>th</sup>									
14 <sup>th</sup>									
15 <sup>th</sup>									
16 <sup>th</sup>									
17 <sup>th</sup>									
18 <sup>th</sup>									
19 <sup>th</sup>									
20 <sup>th</sup>									
-									
-									
-									
-									
31 <sup>st</sup>									

Certified that the above entries are correct.

Signature and designation of the person taking the readings :

**FORM 9**

Prescribed under rule 60

**REGISTER OF WORKERS EMPLOYED FOR WORK ON OR NEAR MACHINERY IN MOTION**

- 1. Name of worker :
- 2. Serial number as in the register of workers under section 62 :
- 3. Father's name :
- 4. Date of birth and age :
- 5. Nature of work :
- 6. Qualifications, if any, or period of service on similar work :
- 7. Date when tight fitting clothing was provided :
- 8. Remarks :

I certify that the above mentioned worker whose signature or left hand thumb impression is given below is a properly trained male adult worker who is competent to mount or shift belts, lubricate or do other adjusting operations on the machinery installed in my factory while they are in motion.

Signature or left hand thumb impression of worker :

Signature of Occupier:  
Date :

**FORM 10**

Prescribed under rule 62 (1)

**REPORT OF EXAMINATION OF HOISTS AND LIFTS**

Occupier (or owner) of premises :  
Address :

- 1. (a) Type of hoist or lift and identification number or description :  
(b) Date of construction or reconstruction (if ascertainable) :
- 2. Are all parts of the hoist or lift of good mechanical construction, sound material and adequate strength (so far as ascertainable) ? :
- 3. Are the following parts of the hoists or lift properly maintained and in good working order ? If not, state what defects have been found :
  - (a) Enclosure of hoistway or liftway :
  - (b) Landing gates and cage gate (s) :
  - (c) Interlocks and the landing gates and cage gate(s) :
  - (d) Other gate fastenings :
  - (e) Cage and platform and fittings, guides, buffers, interior of the hoistway or liftway :
  - (f) Overrunning devices :
  - (g) Suspension ropes or chain and their attachments :
  - (h) Safety gear i.e., arrangements for preventing fall of platform or cage brakes :
    - (i) Brakes :
    - (j) Worm or spur gearing :
    - (k) Other electrical equipment :
    - (l) Other parts :
- 4. What parts (if any) were inaccessible? :
- 5. Repairs, renewals or alterations, (If any) required and the period within which they should be executed :
- 6. Maximum safe working load subject to repairs, renewals or alterations (if any) specified in item 5. :
- 7. Other particulars :

I/We certify that on (date)..... I/We thoroughly examined this hoist or lift and that the above is a correct report of the result.

Signature(with date) :  
Qualification :  
Address :

If employed by a company association,  
name and address of the company or association :

**FORM 11**

Prescribed under rule 64(9) (b)

***REPORT OF EXAMINATION OR TEST OF PRESSURE VESSELS OR PLANT***

1. Name of occupier (or factory) :
2. Situation and address of factory :
3. Name, description and distinctive number of pressure vessel or plant :
4. Name and address of manufacturer and reference to their test certificate or certificate of competent person :
5. Nature of process in which pressure vessel or plant is used :
6. Particulars of pressure vessel or plant -
  - (a) Date of construction :
  - (b) Thickness of walls :
  - (c) Date on which the pressure vessel or plant was first taken into use:
  - (d) Maximum permissible working pressure recommended by the manufacturer :
  - (e) Design pressure, if known :
  - (f) Brief history of pressure vessel or plant was first taken into use :
7. Date of last hydrostatic test (if any) and pressure applied :
8. Is the pressure vessel or plant in open, or otherwise exposed to weather or to damp? :
9. What parts (if any) were inaccessible?
10. What examination and test were made? (Specify pressure if hydrostatic test carried out) :
11. Condition of pressure vessel or plant} (State any defects materially affecting} External :  
the maximum permissible working }  
pressure or the safe working of the } Internal :  
pressure vessel or plant. }
12. Are the required fittings and appliances provided in accordance with the rules :
13. (a) Are all fittings and appliances properly maintained and in good condition? :  
(b) Have the pressure settings been checked and corrected? :
14. (a) Repairs (if any) required :

- (b) Period within which the repairs should be executed :
  - (c) Any other condition which the person making the examination thinks it necessary for securing safe working :
15. Maximum permissible working pressure, calculated from dimensions and from the thickness and other data by the present examination, due allowance being made for conditions of working if unusual or exceptionally severe. (State minimum thickness of walls measured during the examination) :
16. Where repairs affecting the maximum pressure are required, state the working pressure -
- (a) before the expiration of the period specified in item 14. :
  - (b) after the expiration of such period if the required repairs have not been completed :
  - (c) after the completion of the required repairs :
17. Other observations :

I certify that on (date).....the pressure vessel or plant described above was thoroughly cleaned and (so far as its construction permits) made accessible for thorough examination and for such tests as were necessary for thorough examination and that on the said date, I thoroughly examined this pressure vessel or plant, including its fittings, and that the above is a true report of my examination.

Signature :  
 Qualification :  
 Address :  
 Date :  
 If employed by a company or association, name and address of the company or association :

**FORM 12**

Prescribed under rule 65 (8) (b)

**REGISTER OF EXAMINATION OF GAS HOLDERS**

Distinguishing Number or Letters of Gas holder	Particulars of manufacture					Particulars of examination carried out Under sub-rules 63(4) and (5)			Particulars of repair			
	Maker's Name	Date of manufacture	No. of lifts	Max. capacity in cubic metres	Pressure thrown by gas-holder when full of gas	Method of examination used	Date of examination	Name & desg. Of the person making this exam.	Nature of repairs	Date of repairs and painting	By when repairs are carried out	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13

Signature of Occupier or Manager

**FORM 13**  
Prescribed under rule 65 (8) (c)

**REPORT OF EXAMINATION OF WATER-SEALED GASHOLDER**

1. Name of occupier (or factory) :
2. Situation and address of factory :
3. Name, description, distinguishing number or letter and type of gasholder:
4. Name and address of the manufacturer :
5. (a) Number of lifts :
- (b) Maximum capacity in cubic metres :
- (c) Pressure thrown by holder when full of gas :
6. Particulars of gas to be stored in the holder :
7. Particulars as to the condition of -
  - (a) crown :
  - (b) side sheeting, including grips and cups :
  - (c) guiding mechanism (Roller carriages, rollers, pins, guide rails or ropes) :
  - (d) tank; and
  - (e) other structure, if any (columns, framing and bracing) :
8. Particulars as to the position of the lifts at the time of examination :
9. Particulars as to whether the tank and lifts were found sufficiently level for safe working and if not, as to the steps taken to remedy the defect. :
10. Date of examination and by when it was carried out :
11. Condition of vessel -
  - (a) External :
  - (b) Internal :
12. (a) Are all fittings and appliances properly maintained and in good condition? :
- (b) Repairs, if any, required and period within which they should be executed :
- (c) Any other condition which the person making the examination thinks it necessary for securing safe working :
13. Other observations :

I certify that on (date)..... the gasholder described above was thoroughly examined and such of the tests as were necessary made on the same day and that the above is a true report of any examination.

Signature (with date) :  
Qualification :  
Address :

If employed by a company or association,  
name and address of the company or association :



**FORM 14**

Prescribed under rule 125(4) (a)

**REGISTER OF COMPENSATORY HOLIDAYS**

Sl.No.	Number in the register of workers	Name	Group or relay numbers	Numbers and date of exempting order	Year	Weekly rest days last due to the exempting order in				Date of compensatory holidays given in				Last year days carried to the next year	Remarks
						January to March	April to June	July to September	October to December	January to March	April to June	July to September	October to December		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.

**FORM 15**

Prescribed under rule 126

**OVERTIME MUSTER ROLL FOR EXEMPTED WORKERS**

Month ending ..... 19.....

Number in the Register of adult Workers	Name of exempted worker	Department	Dates on which overtime has been worked	Extent of overtime on each occasion	Total overtime hours worked or production in case of piece workers	Normal hours	Normal rate of pay for piece work or rate of pay per hour	Overtime rate of pay	Normal earnings	Overtime earnings	Total earnings	Date on which Overtime payment made
1	2	3	4	5	6	7	8	9	10	11	12	13

**FORM 16**

Prescribed under rule 127

**NOTICE OF PERIODS OF WORK FOR ADULT WORKERS**

Name of the factory.....Place.....District.....

Periods of work Groups Delays	Men												Women												Description of Groups Group Letter    Nature of work	Remarks			
	Total no. of men employed												Total no. of women employed																
	A			B			C			D			E			F			G			H							
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		

On working days

From ..

To ..

From ..

To ..

From ..

To ..

On partial

Working days

From ..

To ..

From ..

To ..

Date on which this notice is first exhibited :

Signature of manager :

Date :

**FORM 17**

Prescribed under rule 128

**REGISTER OF ADULT WORKERS**

Sl. No.	Name	Residential Address	Father' Name	Nature Of Work	Letter of group as in Form 16	Number of relay if working in shifts	Number and date of certificate if an adolescent		Remarks
							Number of certificate And date	Token number giving Reference to the certificate	
1	2	3	4	5	6	7	8	9	10

**FORM 18**

Prescribed under rule 133

***NOTICE OF PERIODS OF WORK FOR CHILD WORKERS***

Name of factory ..... Place ..... District.....

Period of work	Children						Description of group		Remarks
	Total number of children employed						Group letter	Nature of work	
	A		B		C				
Groups	1	2	1	2	1	2			
Relays									
From							A		
To							B		
							C		

Date on which this notice is first exhibited:

Signature of manager:

Date:

**FORM 19**  
Prescribed under rule 134  
**REGISTER OF CHILD WORKERS**

Sl. No.	Name	Residential Address	Father's name	Date of First Employment	Number of certificate and its date	Token number giving reference to certificate	Letter of Group as in Form 18	Number of relay, if working in shifts	Remarks
1	2	3	4	5	6	7	8	9	10

**FORM 20**  
Prescribed under rule 135  
**REGISTER OF LEAVE WITH WAGES**  
Part I - Adults  
Part II - Children

Factory: \_\_\_\_\_ Name of worker: \_\_\_\_\_  
Department: \_\_\_\_\_ Father's Name: \_\_\_\_\_

Sl. No.	Sl.no. in the register of adult/child workers	Date of entry into service	Interruptions					Leave due with effect from	Whether leave not desired during the next 12 months	Date from which the worker is allowed leave	Wages for Leave Paid in	Discharged worker		Remarks
			Sickness and accidents	Authorized Leave	Lock Out or Legal Strike	Involuntary Unemployment	Others					Date of Discharge	Date & amount of payment made in lieu of leave due	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Note: - Separate page shall be allotted to each worker

**FORM 21**

Prescribed under rule 136(1)

***LEAVE BOOK***

Factory:

Name of worker:

Department:

Father's name:

Sl. No.	Sl.no. in the register of adult/child workers	Date of entry into service	Interruptions					Leave due with effect from	Whether Leave not desired during the next 12 months	Date from Which the worker is allowed leave	Wages for Leave Paid in	Discharged worker		Remarks
			Sick ness	Autho rised Leave	Lock out or legal strike	Involunta ry unem Ployment	Ot he rs					Date of di schar ge	Date & amount of payment made in lieu of leave due	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Note: The leave book shall be made out separately for each worker on thick bound sheets.

***FORM 22***

Prescribed under rule 141

***NOMINATION FOR PAYMENT OF PAY DUE FOR PERIOD OF HOLIDAYS IN THE EVENT OF DEATH OF WORKER***

I hereby require that in the event of my death before resuming work, the balance of my pay due for the period of holidays shall be paid to .....who is my .....and resides at .....

Witnesses : Attested.

Signature : Signature or left hand thumb

Name :

Designation :

Address :

Signature :

Name :

Designation :

Address :

Particulars of worker such as serial number in the register of adult/child workers, section or department, etc. :

Date :

impression of worker :

**FORM 23**

Prescribed under rule 21(5)

**CERTIFICATE OF FITNESS**

Serial number:

I certify that I have personally examined (name) .....Son of (father's name)..... residing at (address).....who is desirous of being employed as (designation) ..... in (process, department and factory) .....and that his age, as nearly as can be ascertained from my examination, is.....years, and that he is, in my opinion, fit/unfit for employment in the above mentioned factory as mentioned above.

2. He may be produced for further examination after a period of.....

3. The serial number of the previous certificate is.....

Signature or left hand thumb impression  
of person examined :

Signature of Certifying Surgeon

Date:

I certify that I examined the person mentioned above on	I extend this certificate until (if certificate is not extended, the period for which the worker is considered unfit for work is to be mentioned)	Signs and symptoms Observed during Examination	Signature of the certifying surgeon

**FORM 24**

Prescribed under rule 21(5) and rule 99

**HEALTH REGISTER**

Sl. No.	Department /Works	Name of	Sex	Age (at last Birthday)	Date of employment on present work	Date of leaving or transfer to other work with reasons	Nature of job or occupation	Raw materials, by-products likely to be exposed to	Dates of medical examination and the results thereof		Signs and symptoms observed	Nature of tests and results	If declared unfit for work, state period of suspension with reasons in	Whether certificate of unfitness issued to the workers	Re-certified fit to resume duty on	Signature of the Certifying surgeon with date
									Dates	Result Fit or Unfit						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

**FORM 25**

Prescribed under rule 144(3)

**REPORT OF ACCIDENT OR DANGEROUS OCCURRENCE RESULTING IN DEATH OR  
BODILY INJURY**

E.S.I.C. Employer's Code number : E.S.I.C. Insurance  
Number of the injured person :

1. Name of occupier (or factory)/employer :
2. Address of works / premises where the  
accident or dangerous occurrence took place :
3. Nature of industry :
4. Branch or department and exact place where  
the accident or dangerous occurrence took place :
5. Name and address of the injured person :
6. (a) Sex :
- (b) Age (at the last birthday) :
- (c) Occupation of the injured person :
7. Local E.S.I.C. Office to which the  
injured person is attached :
8. Date, shift and hour of accident  
or dangerous occurrence :
9. (a) Hour at which the injured person started work  
on the day of accident or dangerous occurrence :  
(b) whether wages in full or part are payable to him  
for the day of the accident or dangerous occurrence :
10. (a) Cause or nature of accident  
or dangerous occurrence :  
(b) If caused by machinery-  
(i) Give the name of machine and the part causing  
the accident or dangerous occurrence :  
(ii) state whether it was moved by mechanical power  
at the time of accident or dangerous occurrence :  
(c) State exactly what the injured person was doing at  
the time of accident or dangerous occurrence :  
(d) In your opinion, was the injured person at the  
time of accident or dangerous occurrence -  
(i) acting in contravention of provisions  
of any law applicable to him; or  
(ii) acting in contravention of any orders  
given by or on behalf of his employer; or  
(iii) acting without instructions from his employer?  
(e) In case reply to (d) (i), (ii) or (iii) is in the affirmative,  
state whether the act was done for the purpose of  
and in connection with the employer's trade or business. :
11. In case the accident or dangerous  
occurrence took place while  
travelling in the employer's  
transport, state whether -  
(a) the injured person was  
travelling as a passenger  
to or from his place of  
of works; :  
(b) the injured person was travelling  
with the express or implied  
permission of his employer; :

- (c) the transport is being operated by or on behalf of the employer or some other person by whom it is provided in pursuance of arrangements made with the employer; and :
- (d) the vehicle is being/not being operated in the ordinary course of public transport service :
- 12. In case the accident or dangerous occurrence took place while meeting emergency, state- (a) its nature; and (b) whether the injured person at the time of accident or dangerous occurrence was employed for the purpose of his employer's trade or business in or about the premises at which the accident or dangerous occurrence took place. :
- 13. Describe briefly how the accident or dangerous occurrence took place :
- 14. Names and addresses of witnesses : (1) (2)
- 15. (a) Nature and extent of injury (e.g. fatal, loss of finger, fracture of leg, scald, scratch followed by sepsis, etc.) : (b) Location of injury (e.g. right leg, left hand, left eye, etc.)
- 16. (a) If the accident or dangerous occurrence was not fatal, state whether the injured person was disabled for more than 48 hours : (b) date and hour of return of work :
- 17. (a) Physician, dispensary or hospital from whom or which the injured person received or is receiving treatment : (b) Name of dispensary/panel doctor elected by the injured person :
- 18. (a) Has the injured person died? : (b) If so, date of death :

I certify that to the best of my knowledge and belief the above particulars are correct in every respect.

Signature of manager/employer:  
Name, designation and address  
of manager/employer :  
Date of despatch of report:

(This space is to be completed by the Inspector of Factories)

District .....

Date of receipt:

Number of the accident or dangerous occurrence:

Causation:

Other particulars (e.g. fatal, leg injury, arm injury, etc.):

Date of investigation :

Result of investigation :



FORM 26

Prescribed under rule 144(3)

**REPORT OF DANGEROUS OCCURENCE WHICH DOES NOT RESULT IN DEATH OR BODILY INJURY**

1. Name and address of factory :
2. Name of occupier :
3. Name of manager :
4. Nature of industry :
5. Branch or department and exact place  
where the dangerous occurrence took place :
6. Date and hour of dangerous occurrence :
7. Nature of dangerous occurrence  
(State exactly what happened) :

I certify that to the best of my knowledge and belief the above particulars are correct in every respect.

Signature of manager:

Name, designation and address of manager :

Date of despatch of report

---

(To be completed by the Inspector of Factories)

- District :  
Number of the  
dangerous occurrence :  
Date of investigation :  
Result of investigation :

Date of receipt :

Causation :

FORM 27

Prescribed under rule 145.

**NOTICE OF POISONING OR DISEASE**

(See instruction on reverse)

1. Name of factory :
2. Address of factory :
3. Address of office of occupier :
4. Residential address :
5. Nature of industry :
6. (a) Name of patient :  
(b) Works number of patient :  
(c) Address of patient :
7. Precise occupation of patient:
8. Nature of poisoning or disease  
from which patient is suffering :
9. Has the case been reported to the  
Certifying Surgeon :

Signature of manager:

Date :

---

(To be filled in by the Chief Inspector)

Number of the case :

Remarks :

## FORM 28

Prescribed under rule 147

### ABSTRACT OF THE FACTORIES ACT, 1948 AND THE MANIPUR FACTORIES RULES, 2020

(To be affixed in a conspicuous and convenient place at or near the main entrance to the factory)

#### INTEPRETATION

1. "Factory" means any premises including the precincts thereof -

Wherein ten or more workers are working, or were working on any day of the preceding twelve months, and in any part of which a manufacturing process is being carried on with the aid of power, or is ordinarily so carried on, or whereon twenty or more workers are working, or were working on any day of the preceding twelve months, and in any part of which a manufacturing process is being carried on without the aid of power, or is ordinarily so carried on but does not include a mine subject to the operation of the Mines Act, 1952 (35 of 1952), or a mobile unit belonging to the armed forces of the Union, a railway running shed or a hotel, restaurant or eating place.

Explanation :- For computing the number of workers for the purposes of this clause all the workers in different relays in a day shall be taken into account.

2. "Worker" means a person employed, directly or through any agency (including a contractor) with or without the knowledge of the principal employer, whether for remuneration or not, in any manufacturing process, or in any other kind of work incidental to, or connected with, the manufacturing process, or the subject of the manufacturing process; but does not include any member of the armed forces of the Union.

3. "Manufacturing process" means any process for -

- (i) making, altering, repairing, ornamenting, finishing, packing, oiling, washing, cleaning, breaking up, demolishing, or otherwise treating or adapting any article or substance with a view to its use, sale, transport, delivery or disposal, or
- (ii) pumping oil, water, sewage or any other substances; or
- (iii) generating, transforming or transmitting power; or
- (iv) composing types of printing, printing by letter press, lithography, photogravure or other similar process or book binding; or
- (v) constructing, reconstructing, repairing, refitting, finishing or breaking up ships or vessels ; or
- (vi) preserving or storing any article in cold storage.

Working hours, holidays, and intervals after rest, etc.

4. Hours of work for adults (Sections 51 and 54).- No adult worker shall be required or allowed to work in a factory for more than 48 hours in any week and for more than 9 hours in any day.

5. Relaxation of hours of work for adult (Section 64) .- The ordinary limits on working hours of adults may be relaxed in certain special cases, e.g., workers engaged on urgent repairs; in work in the nature of preparatory or complementary work which must necessarily be carried on outside the limits laid down for the general working of the factory; in work which is necessarily so intermittent that the intervals for rest; in any work which for technical reasons must be carried on continuously; in making or supplying articles of prime necessity which must be made or supplied every day; in a manufacturing process which cannot be carried on except during fixed seasons, or at times dependent on the irregular action of natural forces; in engine rooms or boiler houses or in attending to power plant or transmission machinery; in the printing of news papers, who are held up on account of the breakdown of machinery; in the loading or unloading of railway wagons or lorries or trucks; and in any work which is notified by the State Government in the Official Gazette as a work of national importance.

Except in the case of urgent repairs, the relaxation shall not exceed the following limits of work inclusive of overtime:-

- (i) the total number of hours of work in any day shall not exceed ten;
- (ii) the spread over inclusive of intervals for rest, shall not exceed 12 hours in any one day;
- (iii) the total number of hours of work in a work, including overtime, shall not exceed sixty;
- (iv) the total number of hours of overtime work shall not exceed fifty for any one quarter.

6. Payment for overtime (Section 59).- Where a worker works in a factory for more than 9 hours in any day or for more than 48 hours in any week, he shall, in respect of overtime work, be entitled to wages at the rate of twice his ordinary rate of wages.
7. Exemption of supervisory staff (Section 64).- Chapter VI, other than the provisions of clause (b) of sub-section (1) of section 66 and of the proviso to that sub-section, of the Act-Working hours of adults - does not apply to persons holding positions of supervision or management or are employed in a confidential position in a factory, provided that where the ordinary rate of wages of such person does not exceed rupees seven hundred and fifty per month, they are entitled to extra wages in respect of overtime work under Section 59.
8. Weekly holiday (Adults) (Section 52).- No adult worker shall be required or allowed to work in a factory on the first day of the week, unless -
- (a) he has, or will have, a holiday for a whole day on one of the three days immediately before or after the said day, and
- (b) the manager of the factory has, before the said day or the substituted day under clause (a) whichever is earlier, -
- (i) delivered a notice at the office of the Inspector of his intention to require the worker to work on the said day and of the day which is to be substituted; and
- (ii) displayed a notice to that effect in the factory:

Provided that no substitution shall be made which will result in any worker working for more than ten days consecutively without a holiday for a whole day.

9. Compensatory holidays (Section 53).- Where a worker in a factory, as a result of exemption from the ordinary provision relating to weekly holidays, is deprived of any of the weekly holidays, he shall be allowed, within the month in which the holidays were due to him or within the two months immediately following that month, compensatory holidays of equal number of the holidays so lost.

10. Intervals for rest for adults (Section 55 and 56).- The periods of work of adult workers in a factory each day shall be fixed that no period shall exceed 5 hours and that no worker shall work for more than 5 hours before he has had an interval for rest of at least half an hour and that inclusive of his intervals for rest shall not spread over more than ten and a half hours in any day or, with the permission of the Chief Inspector in writing, 12 hours.

11. Prohibition of double employment (Section 60, 71 & 99).- No child or, except in certain circumstances, an adult worker, shall be required or allowed to work in any factory on any day on which he has already been working in any other factory.

If a child works in a factory on any day on which he has already been working in another factory, the parent or guardian of the child or the person having custody of or control over him or obtaining any direct benefit from his wages, shall be punishable with fine, which may extend to Rs.50 unless it appears to the court that the child so worked without the consent or connivance of such parent, guardian or person.

12. Prohibition of employment of children under 14 (Section 67). - No child who has not completed his fourteenth year shall be required or allowed to work in any factory.

13. Hours of work for children (Section 71).- No child shall be employed or permitted to work in any factory for more than four and a half hours in any day and during the period of at least twelve consecutive hours which shall include the interval between 10 P.M. and 6.A.M. The periods of work of all children employed in a factory shall be limited to two shifts which shall not overlap or spread over more than 5 hours each and each child shall be employed in only one of the relays.

The provision relating to weekly holidays shall also apply to child workers and no exemption from this provision may be granted in respect of any child.

14. Prohibition of employment of women (Section 66). - No women shall be required or allowed to work in any factory except between the hours of 6 A.M. and 7 P.M. The State Government may vary those limits or exempt this restriction in case of women working in fish-curing or fish-canning factories.

#### **Leave with wages**

15. Leave with wages (Section 79, 80 and 83).- Every worker who has worked for a period of 240 days or more in a factory during a calendar year shall be allowed during the subsequent calendar year leave with wages for a number of days calculated at the rate of -

- (i) if an adult, one day for every twenty days of work performed by him during the previous calendar year; and
- (ii) If a child, one day for every 15 days of work performed by him during the previous calendar year.

Explanation. 1. For the purpose of this sub-section -

- (a) any days of lay off, by agreement or contract or as permissible under the standing orders;

- (b) in the case of female worker, maternity leave for any number of days not exceeding twelve weeks; and
  - (c) the leave earned in the year prior to that in which the leave is enjoyed;
- shall be deemed to be days on which the worker has worked in a factory for the purpose of computation of the period of 240 days or more, but he shall not earn leave for these days.

Explanation 2. - The leave admissible under this sub-section shall be exclusive of all holidays whether occurring during or at either end of the period of leave.

For the leave allowed to him, a worker shall be paid at a rate equal to the daily average of his total full-time earning, for the days on which he actually worked during the month immediately preceding the leave exclusive of any overtime and bonus, but inclusive of dearness allowance and the cash equivalent of the advantage accruing through the concessional sale to the worker of food grains and other articles.

A worker whose service commences otherwise than on the first day of January shall be entitled to leave with wages at the rate indicated above, if he has worked for two-thirds of the total number of days in the remainder of the calendar year.

If a worker is discharged or dismissed from service or quits his employment or is superannuated or dies while in service, during the course of the calendar year, he or his heir or nominee as the case may be, shall be entitled to wages in lieu of the quantum of leave to which he was entitled immediately before his discharge, dismissal, quitting of employment, superannuation or death, calculated at the rates specified above, even if he had not worked for the entire period specified above. Such payment shall be made -

- (i) whether the worker is discharged or dismissed or quits employment, before the expiry of the second working day from the day of such discharge, dismissal or quitting; and
- (ii) where the worker is superannuated or dies while in service, before the expiry of two months from the date of such superannuation or death.

If the employment of a worker who is entitled to leave with wages is terminated by the occupier before he has taken the entire leave to which he is entitled, or if having applied for and having not been granted such leave, the worker quits his employment before he has taken the leave, the occupier of the factory shall pay him the amount payable in respect of the leave not taken, and such payment shall be made before the expiry of the second working day after the day on which his employment is terminated and a worker who quits his employment, on or before the next pay day.

The manager shall maintain a register of leave with wages in the prescribed Form 20 and shall provide each worker with a book called the "Leave Book" in the prescribed Form 21. The leave book shall be the property of the worker and the manager or his agent shall not demand it except to make entries of the dates of holidays or interruptions in service, and shall not keep it for more than a week at a time. If a worker loses his leave book, the manager shall provide him with another copy on payment of Rs. 10 (Ten) and shall complete it from his record.

### **Health**

16. Cleanliness (Section 11).- Except in cases specially exempted, all inside walls and partitions, all ceilings or tops of rooms and all walls, sides and tops of passages and stair-cases in a factory shall be kept whitewashed or colour washed. The whitewashing or colour washing shall be carried out at least once in every period of fourteen months. The floor of every workroom shall be cleaned at least once in every week by washing, using disinfectant, where necessary, or by some other effective method.

17. Disposal of wastes and effluents (Section 12).- Effective arrangements shall be made in every factory for the treatment of wastes and effluents due to the manufacturing process carried on therein, so as to render them innocuous, and for their disposal.

18. Ventilation and temperature (Section 13).- Effective and suitable provision shall be made in every factory for securing and maintaining in every workroom adequate ventilation by the circulation of fresh air and such a temperature as will secure to workers therein reasonable conditions of comfort and prevent injury to health.

19. Overcrowding (Section 16).- Unless exemption has been granted, there shall be in every workroom of a factory in existence on the date of commencement of this Act at least 350 cubic feet and of a factory built after the commencement of this Act at least 500 cubic feet of space for every worker

employed therein, and for this purpose no account shall be taken of any space which is more than 14 feet above the level of the floor of the room.

20. Lighting (Section 17).- In every part of a factory where workers are working or passing, there shall be provided and maintained sufficient and suitable lighting, natural artificial, or both.

21. Drinking water (Section 18).- In every factory effective arrangements shall be made to provide and maintain at suitable points conveniently situated for all workers employed therein, a sufficient supply of wholesome drinking water.

In every factory wherein more than 250 workers are ordinarily employed the drinking water shall, during hot weather be cooled by ice or other effective methods. The cooled drinking water shall be supplied in every canteen, lunchroom and restroom and also at conveniently accessible points throughout the factory.

22. Latrines and urinals (Section 19).- In every factory sufficient latrine and urinal accommodation of the prescribed types (separate enclosed accommodation for male and female workers) shall be provided conveniently situated and accessible to workers at all times while they are at the factory. Every latrine shall be under cover and so partitioned off as to secure privacy and shall have a proper door and fastenings. Sweepers shall be employed whose primary duty it would be to keep clean latrines, urinals and washing places.

23. Spittoons (Section 20). - In every factory, there shall be provided a sufficient number of spittoons of the type prescribed in convenient places and they shall be maintained in clean and hygienic condition. No person shall spit within the premises of factory except in the spittoons provided for purpose. Whoever spits in contravention of this provision shall be punishable with fine not exceeding five rupees.

### **Safety**

24. Fencing of machinery (Section 21).- In every factory dangerous parts of machinery e.g., every moving part of a prime mover and every flywheel connected to prime mover, etc. etc. shall be securely fenced by safeguards of substantial construction which shall be constantly maintained and kept in position while the parts of machinery they are fencing in motion or in use.

25. Work on or near machinery in motion (Section 22).- No woman or young person shall be allowed in any factory to clean, lubricate or adjust any part of a prime mover or any transmission machinery is in motion, or to clean, lubricate or adjust any part of any machine if the cleaning, lubrication or adjustment thereof would expose the woman or young person to risk of injury from any moving part either of that machine or of any adjacent machinery.

26. Employment of young persons on dangerous machines (Section 23).- No young person shall work at any machine declared to be dangerous unless he has been fully instructed as to the dangers arising in connection with the machine and precautions to be observed and has received sufficient training in work at the machine or is under adequate supervision by a person who has a thorough knowledge and experience of the machine.

27. Casing of new machinery (Section 26).- In all machinery driven by power and installed in any factory after the commencement of this Act, every set screw, bolt or key on any revolving shaft, spindle, wheel or pinion shall be so sunk, encased or otherwise effectively guarded as to prevent danger; all spur, worm and other toothed or friction gearing which does not require frequent adjustment while in motion shall be completely encased, unless it is so situated as to be as safe as it would be if it were completely encased.

Whoever sells or lets on hire or, as agent of a seller or hirer, causes or procures to be sold or let on hire, for use in a factory any machinery driven by power which does not comply with these provisions or any rules made under this section, shall be punishable with imprisonment for a term which may extend to three months or with fine which may extend to five hundred rupees or with both.

28. Prohibition of employment of women and children near cotton openers (Section 27). - No woman or child shall be employed in any part of a factory for pressing cotton in which a cotton opener is at work.

29. Excessive weights (Section 34).- No woman or young person shall, unaided by another person, lift, carry or move by hand or on head, any material, article, tool or appliance exceeding the maximum limit in weight set out in the following schedule :-

30. Protection of eyes (Section 35 and Rules).- Effective screens or suitable goggles shall be provided for the protection of persons employed in or in the immediate vicinity of processes which involve risk of injury to eyes from particles or fragments thrown off in the processes or which involve risk of injury to eyes by reason of exposure to excessive light or infra-red or ultra-violet radiations.

31. Precautions in case of fire (Section 38). - Every factory shall be provided with adequate means of escape in case of fire for the persons employed therein. The doors affording exit from any room shall, unless they are of sliding type, be constructed to open outwards. Every window, door or other exit affording a means of escape in case of fire, other than the means of exit in ordinary use, shall be distinctively marked. Effective and clearly audible means of giving warning in case of fire to every person employed in the factory shall be provided. Effective measures shall be taken to ensure that wherein more than twenty workers are ordinarily employed in any place above the ground floor, or wherein explosive or highly inflammable materials are used or stored, all the workers are familiar with the means of escape in case of fire and have been adequately trained in the routine to be followed in such case.

### **Welfare**

32. Washing facilities (Section 42).- In every factory adequate and suitable facilities for washing shall be provided and maintained for the use of the workers therein. Such facilities shall include soap and nail brushes or other suitable means of cleaning and the facilities shall be conveniently accessible and shall be kept in a clean and orderly condition.

If female workers are employed separate washing facilities shall be provided and so enclosed or screened that the interiors are not visible from any place where persons of the other sex work or pass.

33. Facilities for storing and drying clothing (Section 43 and Rules).- In the case of certain dangerous operations e.g., lead processes, liming and tanning of raw hides and skins etc. suitable places for keeping clothing not worn during working hours and for the drying of wet clothing shall be provided and maintained.

34. Facilities for sitting (Section 44).- In every factory suitable arrangements for sitting shall be provided and maintained for all workers obliged to work in a standing position in order that they may take advantage of any opportunities for rest which may occur in the course of their work.

35. First-aid and ambulance room (Section 45).- There shall in every factory be provided and maintained sops to be readily accessible during all working hours first-aid boxes or cupboards equipped with the prescribed contents. Each first-aid box or cupboard shall be kept in the charge of a separate responsible person who holds a certificate in first-aid treatment recognised by the State Government who shall always be available during the working hours of the factory.

In every factory wherein more than 500 workers are ordinarily employed there shall be provided and maintained an ambulance room of the prescribed size, containing the prescribed equipment, and in the charge of such medical and nursing staff as may be prescribed and those facilities shall always be made readily available during the working hours of the factory.

36. Canteens (Section 46).- In specified factories wherein more than 250 workers are ordinarily employed, a canteen or canteens shall be provided and maintained by the occupier for the use of the workers. Food, drink and other items served in the canteen shall be sold on a non-profit basis and the prices charged shall be subject to the approval of a Canteen Managing Committee which shall be appointed by the manager and shall consist of an equal number of persons nominated by the occupier and elected by the workers. The number of elected workers shall be in the proportion of 1 for every 1,000 workers employed in the factory, provided that in no case shall there be more 5 or less than 2 workers on the Committee. The Committee shall be consulted from time to time as to the quality and quantity of food stuffs to be served in the canteen, the arrangement of the menus, etc. etc. Where the canteen is managed by a co-operative society, it is not necessary to appoint a Canteen Managing Committee and the prices to be charged may include a margin of profit up to a maximum of 5 per cent of its working capital.

37. Shelters, restrooms and lunchrooms (Section 47).- In every factory wherein more than 150 workers are ordinarily employed, adequate and a suitable lunchroom, with provision for drinking water, where workers can eat meals brought by them, shall be provided and maintained for the use of the workers.

38. Creches (Section 48 and Rules).- In every factory wherein more than 30 women workers are ordinarily employed there shall be provided and maintained a suitable room or rooms for the use of children under the age of six years of such women. The creche shall be adequately furnished and equipped and in particular there shall be one suitable cot or a cradle with the seating accommodation for the use of each mother while she is feeding or attending to her child, and a sufficient supply of suitable toys for older children.

There shall be in or adjoining the creche a suitable washroom for the washing of the children and their clothing. An adequate supply of clean clothes, soap and clean towels shall be made available for each child while it is in the creche at least a quarter litre of clean pure milk shall be available for each child on every day it is accommodated in the creche and the mother of such a child shall be allowed in the course of her daily work suitable intervals to feed the child. For children above two years of age, there shall be provided, in addition, an adequate supply of wholesome refreshment. A suitably fenced and shady open air playground shall also be provided for the older children.

39. Welfare Officers (Section 49). - In every factory wherein 500 or more workers are ordinarily employed the occupier shall employ in the factory such number of Welfare Officers as may be prescribed.

### Special Provisions

40. Dangerous operations (Section 87 and Rules).- Employment of women, adolescents and children is prohibited or restricted in certain operations declared to be dangerous, e.g., electroplating, manufacture and repair of electric accumulators, glass manufacture, grinding or glazing of metals, manufacture and treatment of lead and certain compounds of lead, sand blasting, etc.

41. Notice of accidents (Section 88 and Rules).- When an accident occurs which results in the death of any person or which results in such bodily injury to any person as is likely to cause his death, or any dangerous occurrence specified in the schedule annexed hereto takes place in a factory, the manager of the factory shall forthwith send a notice thereof by telephone, special messenger or telegram to the Inspector and the Chief Inspector. When any accident or any dangerous occurrence specified in the schedule annexed hereto, which results in the death of any person or which results in such bodily injury to any person as is likely to cause his death, takes place in a factory, forthwith notice shall be sent also to the District Magistrate or Sub-divisional Officer, to the officer-in-charge of the nearest police station; and to the relatives of the injured or deceased person.

42. Notice of certain diseases (Section 89 and Rules).- Where any worker in a factory contracts any of the following diseases, the manager of the factory shall send notice in Form 27 thereof forthwith both to the Chief Inspector and the Certifying Surgeon :-

Lead, phosphorus, mercury, manganese, arsenic, carbon bi-sulphide or benzene poisoning; or poisoning by nitrous fumes or by halogens or halogen derivatives of the hydrocarbons of the aliphatic series; or of chrome ulceration, anthrax, silicosis, toxic anaemia, toxic jaundice, primary epitheliomatous cancer of the skin, or pathological manifestations due to radium or other radioactive substances or x-rays.

43. No charge for facilities and convenience (Section 114).- No fee or charge shall be realised from any worker in respect of any arrangements or facilities to be provided, or any equipments or appliances to be supplied by the occupier under the provisions of this Act.

44. Powers of Inspectors (Sections 9 and 82).- Inspectors have power to inspect factories any time and may require the production of registers, certificates, etc. prescribed under the Act and the Rules.

Any Inspector may institute proceedings on behalf of any workers to recover any sum required to be paid by an employer under the provisions relating to leave with wages, which the employer has not paid.

45. Obligations of workers (Section 97 and 111).- No worker in a factory-

- (i) shall wilfully interfere with or misuse any appliance, convenience or other thing provided in a factory for the purposes of securing the health, safety or welfare of the workers therein;
- (ii) shall wilfully and without any reasonable cause do anything likely to endanger himself or others; and
- (iii) shall wilfully neglect to make use of any appliance or other thing provided in the factory for the purpose of securing the health or safety of the workers therein.

If any worker employed in a factory contravenes any of these provisions or any rule or order made thereunder he shall be punishable with imprisonment for a term which may extend

to three months, or with fine which may extend to Rs.100, or with both.

If any worker employed in a factory contravenes any provision of this Act or any rules or orders made thereunder, imposing any duty or liability on workers, he shall be punishable with fine which may extend to Rs.20.

46. Certificates of fitness (Sections 69, 70 and 98).- No child who has completed his fourteenth year or an adolescent shall be required or allowed to work in any factory unless a certificate of fitness granted with reference to him is in the custody of the manager of the factory and such child or adolescent carries, while he is at work, a token giving a reference to such certificate. Any fee payable for such a certificate shall be paid by the occupier and shall not be recoverable from the young person, his parents or guardian.

An adolescent who has been granted a certificate of fitness to work in a factory as an adult and who while at work in a factory carries a token giving reference to the certificate shall be deemed to be an adult for all the purposes of the provisions of the Act relating to the working hours of adults and the employment of young persons. An adolescent who has not been granted a certificate of fitness to work in a factory as an adult shall, notwithstanding his age, be deemed to be a child for all the purposes of this Act.

Whoever knowingly uses or attempts to use, as a certificate of fitness granted to himself, a certificate granted to another adolescent to work in a factory as an adult, or who having procured such a certificate knowingly allows it to be used, or an attempt to use it to be made, by another person, shall be punishable with imprisonment for a term which may extend to two months or with fine which may extend to Rs.100 or with both.

47. Registers, notices and returns (Sections 61, 62, 63, 72, 73, 74 and 110).- A register of adult workers in the prescribed Form 17 and a register of child workers in the prescribed Form 19 shall be maintained by the manager of every factory.

A notice of periods of work for adults and a notice of periods of work for children in the prescribed forms 16 and 18 shall be correctly maintained and displayed in every factory. No adult worker or child shall be required or allowed to work in any factory otherwise than in accordance with their respective notices of periods of work displayed in the factory.

The owners, occupiers or managers of factories shall submit the prescribed periodical returns to the Inspector regularly.

## FORM 29

Prescribed under rule 148

### *ANNUAL RETURN*

For the year ending 31<sup>st</sup> December, .....

1. Registration number of factory :
2. Name of factory :
3. Name of occupier :
4. Name of the manager :
5. District :
6. Full postal address of factory :
7. Nature of industry :

#### Number of workers and particulars of employment

8. No. of days worked in the year :
9. No. of man-days worked during the year
  - (a) Men :
  - (b) Women :
  - (c) Children :
10. Average number of workers employed daily (See explanatory note)
  - (a) Adults
    - (i) Men :
    - (ii) Women :
  - (b) Adolescents
    - (i) Male :
    - (ii) Female :
  - (c) Children
    - (i) Male :
    - (ii) Female :
11. Total no. of man-hours worked including overtime.
  - (a) Men :
  - (b) Women :
  - (c) Children :



12. Average number of hours worked per week (See explanatory note)

- (a) Men :
- (b) Women :
- (c) Children :

13. (a) Does the factory carry out any process or operations declared as dangerous under Section 87 (See Rule 116):

(b) If so, give the following information

Name of the dangerous process Or operations carried on	Average No. of persons employed daily in each of the processes or operations given in Col.1
1	2

- i)
- ii)
- iii) etc.

Leave with Wages

14. Total number of workers employed during the year :

- (a) Men :
- (b) Women :
- (c) Children :

15. Number of workers who were entitled to annual leave with wages during the year

- (a) Men :
- (b) Women :
- (c) Children :

16. Number of workers who were granted leave during the year

- (a) Men :
- (b) Women :
- (c) Children :

17. (a) Number of workers who were discharged, or dismissed from the service, or quit employment, or were superannuated, or died while in service during the year :

(b) Number of such workers in respect of when wages in lieu of leave were paid :

18. (a) Number of Safety Officers required to be appointed as per notification under Section 40-B :

(b) Number of Safety Officers appointed :

Ambulance room

19. Is there an ambulance room provided in the factory as required under Section 45? :

Canteen

20. (a) Is there a canteen provided in the factory as required under Section 46? :

- (b) Is the canteen provided managed?
  - i) departmentally, or :
  - ii) through a contractor? :

Shelters or Rest Rooms and Lunch Rooms

21. (a) Are there adequate and suitable shelters or rest rooms provided in the factory as required under Section 47? :

- (b) Are there adequate and suitable lunch rooms provided in the factory as required under Section 47? :

Creches

22. Is there a Creche provided in the factory as required under Section 48? :

23. (a) Number of Welfare Officers to be appointed as required under Section 49 :

(b) Number of Welfare Officers appointed :

Accidents

24. (a) Total number of accidents

(See explanatory notes)

i) Fatal :

ii) Non-Fatal :

(b) Accidents in which workers returned to work during the year to which this return relates :

i) Accidents (workers injured) occurring during the year in which injured workers returned to work during the same year

(aa) Number of accidents :

(bb) Man-days lost due to accidents :

ii) Accidents (workers injured) occurring in the previous year in which injured workers returned to work during the year to which this return relates

(aa) Number of accidents :

(bb) Man-days lost due to accidents :

(c) Accidents (workers injured) occurring during the year in which injured workers did not return to work during the year to which this return relates

i) Number of accidents :

ii) Man-days lost due to accidents :

Certified that the information furnished above is to the best of my knowledge and belief, correct.

Signature of the manager

Date

---

**Explanatory Notes:**

1. The average number of workers employed daily should be calculated by dividing the aggregate number of attendance on working days (that is, man-days worked by the number of working days in the year. In reckoning attendance, attendance by temporary as well as permanent employee should be counted, and all employees should be included, whether they are employed directly or under contractors. Attendance on separate shifts (e.g. night and day shifts) should be counted separately. Days on which the factory was closed for whatever cause, and days on which the manufacturing processes are not carried on should not be treated as working days. Partial attendance for less than half a shift on a working day should be ignored, while attendance for half a shift or more on such day should be treated as full attendance.

2. For seasonal factories, the average number of workers employed during the working season and the off-season should be given separately. Similarly the number of days worked and average number of manhours worked per week during the working and off-season should be given separately.

3. The average number of hours worked per week means the total actual hours worked by all workers during the year excluding the rest intervals but including overtime work divided by the product of total number of workers employed in the factory during the year and 52. In case the factory has not worked for the whole year, the number of weeks during which the factory worked should be used in place of the figure 52.

4. Every person killed or injured should be treated as one separate accident. If in one occurrence six persons were injured or killed, it should be counted as six accidents.

5. In item 24(a), the number of accidents which took place during the year should be given. In case of non-fatal accidents only these accidents which prevented workers from working for 48 hours or more, should be indicated.

### FORM 30

Prescribed under rule 148

### HALF -YEARLY RETURN

For the half-year ending 30<sup>th</sup> June, 20...../31 December, 20.....

1. Registration number of factory :
2. Name of factory :
3. Name of occupier :
4. Name of manager :
5. District :
6. Postal address of factory :
7. Nature of industry :
8. Average number of workers employed daily  
(See explanatory note)
  - (a) Adults - i. Man :
  - ii. Women :
  - (b) Adolescents- i. Male :
  - ii. Female :
  - (c) Children - i. Male :
  - ii. Female :
9. Number of days worked during the half-year ending 30<sup>th</sup> June, 19...../31<sup>st</sup> December, 19.... :

Signature of Manager:

Date :

#### **Explanatory Note:-**

The average daily number should be calculated by dividing the aggregate number of attendance on working days by the number of working days during the half-year. In reckoning attendance, attendance by temporary as well as permanent employees should be counted, and all employees should be included, whether they are employed directly or under contractors.

Attendance on separate shifts (e.g., night and day shifts) should be counted separately. Days on which the factory was closed, for whatever cause, and days on which the manufacturing processes were not carried on should not be treated as working days. Partial attendance for less than half a shift on a working day should be ignored, while attendance for a half a shift or more on such day should be treated as full attendance.

**FORM 31**  
Prescribed under rule 152  
**MUSTER ROLL**

Name of factory..... Place ..... District.....

Serial No.	Name of worker	Father's Name	Nature of work	Daily attendance for month of ..... 19.....												Remarks		
				Dates														
				1	2	3	4	5	6	7	8	9	..	..	..		..	

**FORM 32**  
Prescribed under rule 153  
**REGISTER OF ACCIDENTS AND DANGEROUS OCCURRENCES**

Name of Injured person (if any)	Date of Accident or dangerous occurrence	Date of report (in Form 25) to Inspector	Nature of accident or dangerous occurrence	Date of return of injured Person to work	Number of days the injured Person was absent from work
1	2	3	4	5	6

**SCHEDULE- A**  
(Competent person: qualifications, experience and other requirements)  
Prescribed under rule 3(1)

S.No.	Section or Rules under which competency is recognised	Qualification required	Experience for the purpose	Facilities at his command
1.	Rules made under Section 6 and Section 112 – Certificate of stability for buildings	Degree in Civil or Structural Engineering; or equivalent	i) A minimum of 10 years experience in the design of construction or testing or repairs of structures; ii) Knowledge of non-destructive testing, various codes of practices that are current and the effect of the vibrations and natural forces on the stability of the building; and iii) Ability to arrive at a reliable conclusion with regard to the safety of the structure or the building.	
2.	Rules made under Section 21(2) – “Dangerous Machines”	Degree in Electrical or Mechanical or Textile Engineering or equivalent.	(i) a minimum of 7 years experience in- a) design or operation or maintenance; or b) testing, examination and inspection of relevant machinery, their guards, safety devices and appliances. (ii) he shall – a) be conversant with safety devices and their proper functioning; b) be able to identify defects and any	Gauges for measurement; instruments for measurement of speed and any other equipment or device to determine the safety in the use of the dangerous machines.

			<p>c) other cause leading to failure; and have ability to arrive at a reliable conclusion with regard to the proper functioning of safety device and appliance and machine guard.</p>	
3.	Section 28 – Lifts and Hoists	A degree in Electrical and /or Mechanical Engineering or the equivalent	<p>(i) A minimum experience of 7 years in-</p> <p>(a) design or erection or maintenance; or</p> <p>(b) inspection and test procedures of lifts and hoists;</p> <p>(ii) He shall be –</p> <p>(a) Conversant with relevant codes of practices and test procedures that are current;</p> <p>(b) Conversant with other statutory requirements concerning the safety of the Hoists and Lifts;</p> <p>(c) able to identify defects and arrive at a reliable conclusion with regard to the safety of Hoists and Lifts.</p>	Facilities for load testing, tensile testing, gauges equipment/ gadgets for measurement and any other equipment required for determining the safe working conditions of Hoists and Lifts.
4.	Section 29 – Lifting Machinery and Lifting Tackles	Degree in Mechanical or Electrical or Metallurgical Engineering or its equivalent	<p>(u) A minimum experience of 7 years in-</p> <p>(a) design or erection or maintenance; or</p> <p>(b) testing, examination and inspection, of lifting machinery, chains, ropes and lifting tackles.</p> <p>(u) He shall be –</p> <p>(a) Conversant with the relevant codes of practices and test procedures that are current;</p> <p>(b) Conversant with fracture mechanics and metallurgy of the material of construction;</p> <p>(c) Conversant with heat treatment/ stress relieving techniques as applicable to stress bearing components and parts of lifting machinery and lifting tackles;</p> <p>(d) Capable of identifying defects and arriving at a reliable conclusion with regard to the safety of lifting machinery, chains, ropes, and lifting tackles.</p>	Facilities for load testing, tensile testing, heat treatment, equipment/gadget for measurement, gauges and such other equipment to determine the safe working conditions of the lifting machinery tackle.
	section 31 – ‘Pressure Plant’	Degree in Chemical or Electrical or Metallurgical or Mechanical Engineering or its equivalent.	<p>(u) A minimum experience of 10 years in</p> <p>(a) design or erection or maintenance, or</p> <p>(b) testing, examination and inspection of pressure plants.</p> <p>(u) He shall be –</p> <p>(a) Conversant with the relevant codes of practices and test procedures relating to pressure vessels;</p> <p>(b) Conversant with statutory requirements concerning the safety of unfired pressure vessels and equipment operating under pressure;</p> <p>(c) Conversant with non-destructive testing techniques as are applicable to pressure vessels;</p> <p>(d) able to identify defects and arrive at a reliable conclusion with regard to the safety of pressure plants.</p>	Facilities for carrying out hydraulic test, non-destructive test, gauges equipment/ gadgets for measurement and any other equipment or gauges to determine the safety in use of pressure vessels.

5.	<p>(tt) section 36 – Precautions against dangerous fumes</p> <p>(tt) Rules made under Sections 41 &amp; 112 concerning ship-building and ship repairs,</p> <p>(tt) Handling and processing of asbestos,</p> <p>(tt) Manufacture of Rayon by viscose process,</p> <p>(v) Foundry operations.</p>	Master's degree in Chemistry, or a degree in Chemical Engineering.	<p>(i) a minimum of 7 years in collection and analysis of environmental samples and calibration of monitoring equipment;</p> <p>(tt) He shall –</p> <p>(a) be conversant with the hazardous properties of chemicals and their permissible limit values;</p> <p>(b) be conversant with the current techniques of sampling and analysis of the environmental contaminants; and</p> <p>(c) be able to arrive at a reliable conclusion as regards the safety in respect of entering and carrying out hot work.</p>	Meters, instruments and devices duly calibrated and certified for carrying out the tests and certification of safety in working in confined spaces.
6.	<p>Ventilation systems as required under various Schedules framed under Section 87, such as Schedules on –</p> <p>(tt) Grinding or glazing or metals and processes and incidental thereto,</p> <p>(ii) Cleaning or smoothing, roughening, etc. of articles, by a jet sand, metal shot, or grit, or other abrasive propelled by a blast of compressed air of steam.</p>	Degree in Mechanical or Electrical Engineering or equivalent.	<p>(i) A minimum of 7 years in the design, fabrication, installation, testing of ventilation system and systems used for extraction and collection of dusts, fumes and vapours and other ancillary equipment.</p> <p>(ii) He shall be conversant with relevant codes of practice and tests procedures that are current in respect of ventilation and a traction system for fumes, and shall be able to arrive at a reliable conclusion with regard to effectiveness of the system.</p>	Facilities for testing the ventilation system, instruments and gauges for testing the effectiveness of the extraction systems for dusts, vapours and fumes, and any other equipment needed for determining the efficiency and adequacy of these systems. He shall have the assistance of a suitable qualified technical person who can come to a reasonable conclusion as to the adequacy of the system.

SCHEDULE- B  
(FEE SCHEDULE)  
Prescribed under rule 8(1)

Total K.W. installed inclusive of mobile equipment	MAXIMUM No. OF PERSONS TO BE EMPLOYED ON ANY DAY DURING THE YEAR										
	10	20	50	100	250	500	750	1000	2000	5000	Above 5000
1	2	3	4	5	6	7	8	9	10	11	12
	Fee payable in Rs.										
Nil	250	500	750	1000	1500	2250	3000	5000	7500	13750	20000
Upto 15 K.W.	500	750	1000	1500	2250	3750	5000	10000	15000	22500	30000
Above 15 K.W. Upto 50 K.W.	750	1000	1500	2250	3750	6000	10000	15000	22500	30000	37500
Above 50 K.W. Upto 100 K.W.	1000	1500	2250	3750	6000	10000	15000	22500	30000	35000	45000
Above 100 K.W. Upto 250 K.W.	1500	2250	3750	6000	10000	15000	20000	30000	39000	45000	50000
Above 250 K.W. Upto 500 K.W.	2250	3750	5000	8000	15000	20000	25000	37500	45000	50000	55000
Above 500 K.W. Upto 1000 K.W.		4000	8000	15000	20000	25000	30000	45000	50000	55000	60000
Above 1000 K.W. Upto 2000 K.W.		8000	15000	20000	25000	30000	35000	50000	55000	60000	65000
Above 2000 K.W. Upto 5000 K.W.		15000	20000	25000	30000	35000	40000	55000	60000	65000	70000
Above 5000 K.W. Upto 7500 K.W.		20000	25000	30000	35000	40000	45000	60000	65000	70000	75000
Above 7500 K.W. Upto 10000 K.W.		25000	30000	35000	40000	45000	50000	65000	70000	75000	80000
Above 10000 K.W.		30000	35000	40000	45000	50000	60000	70000	75000	80000	85000

NOTE: 1 H.P. = 0.745 K.W.  
1 K.V.A. = 0.8 K.W.

1. The fee for amendment/transfer/duplicate copy of a licence shall be Rs. 100 (One hundred rupees) plus the amount payable(if any)
2. Factory Permit application processing fee is based on the category of Factory and is as follows: Section 85-Rs. 1,000; Section 2m(i)-Rs. 5,000; Section 2m(ii)-Rs. 7,000 and for Factories requiring Site-Appraisal Committee-Rs. 10,0000/-
3. Late fine 25% in excess of the fee.

## SCHEDULE- C

Prescribed under rule 23

### Part A

1. Blast furnaces.
2. Brick and tile works in which unglazed bricks or tiles are made.
3. Cement Works.
4. Chemical works.
5. Copper mills.
6. Gas works.
7. Iron and Steel mills.
8. Stone, slate and marble works.
9. The following parts of factories :-
  - (a) Rooms used only for the storage of articles.
  - (b) Rooms in which the walls or ceilings consist of galvanised iron, glazed bricks, glass, slate, asbestos, bamboo or thatch.
  - (c) Parts in which dense steam is continuously evolved in the process.
- (d) Parts in which pitch, tar or like material is manufactured or is used to a substantial extent, except in brush works.
- (e) Parts of a glass factory known as glass house.
- (f) Rooms in which graphite is manufactured or is used to a substantial extent in any process.
- (g) Parts in which coal, coke, oxide of iron, ochre, lime or stone is crushed or ground.
- (h) Parts of walls, partitions, ceilings or tops of rooms which are at least 6 meters above the floor.
- (i) Ceilings or tops of rooms in print works, bleach works or dye works, with the exception of finishing rooms or warehouses.
- (j) Inside walls of oil mills below a height of 1.5 meters from the ground floor level.
- (k) Inside walls in tanneries below a height of 1.5 meters from the ground floor level where a wet process is carried on.

### Part- B

1. Coach and motor body works.
2. Electric generating or transforming stations.
3. Engineering works.
4. Factories in which sugar is refined or manufactured.
5. Foundries other than foundries in which brass casting is carried on.
6. Gun factories.
7. Shipbuilding works.
8. Those parts of factories where unpainted or unvarnished wood is manufactured.

## SCHEDULE- D

(Wet-bulb and Dry-bulb readings)

Prescribed under rule 26

Readings in degrees centigrade

Dry-bulb	Wet-bulb	Dry-bulb	Wet-bulb	Dry-bulb	Wet-bulb
15.5	14.5	25.0	24.0	34.5	30.0
16.0	15.0	25.5	24.5	35.0	30.5
16.5	15.5	26.0	25.0	35.5	31.0
17.0	16.0	26.5	25.5	36.0	31.0
17.5	16.0	27.0	26.0	36.5	31.5
18.0	16.5	27.5	26.0	37.0	31.5
18.5	17.0	28.0	26.5	37.5	32.0
19.0	18.0	28.5	27.0	38.0	32.0
19.5	18.5	29.0	27.0	38.5	32.0
20.0	19.0	29.5	28.0	39.0	32.5
20.5	19.5	30.0	28.0	39.5	32.5
21.0	20.0	30.5	28.5	40.0	33.0



21.5	20.5	31.0	28.5	40.5	33.0
22.0	21.0	31.5	29.0	41.0	33.0
22.5	21.0	32.0	29.0	41.5	33.0
23.0	21.5	32.5	29.0	42.0	33.0
23.5	22.0	33.0	29.5	42.5	33.0
24.0	23.0	33.5	29.5	43.0	33.5
24.5	23.5	34.0	30.0	43.5	33.5

## SCHEDULE- E

(Furtherers Safety Precautions)

Prescribed under rule 59

### Textile Machinery except Machinery used in Jute Mills

1. Application. - The requirements of this schedule shall apply to machinery in factories engaged in the manufacture or processing of textiles other than jute textiles. The schedule would not apply to machinery in factories engaged exclusively in the manufacture of synthetic fibres.

2. Definitions.- For the purpose of this schedule -

- (a) "Calender" means a set of heavy rollers mounted on vertical side frames and arranged to pass cloth between them. Calenders may have two to ten rollers, or bowls, some of which can be heated.
- (b) "Embossing calender" means a calender with two or more rolls, one of which is engraved for producing figure effects of various kinds on a fabric.
- (c) "Card" means a machine consisting of cylinders of various sizes - and in certain cases flats covered with card clothing and set in relation to each so that fibres in staple form may be separated into individual relationship. The speed of the cylinders and their direction of rotation varies. The finished product is delivered as silver. Cards of different types are the revolving flat card, the roller and clearer card, etc.
- (d) "Card clothing" means the material with which the surfaces of the cylinder, deffer, flats, etc. of a card are covered and consists of a thick foundation material made of, either textile fabrics through which are pressed many fine closely spaced specially bent wires, or mounted saw toothed wire.
- (e) "Comber" means a machine for combing fibres of cotton wool, etc. The essential parts are device for feeding forward a fringe of fibres at regular intervals and an arrangement of combs or pins, which, at the right time, pass through the fringe. All tangled fibres, short fibres, and nips are removed and the long fibres are laid parallel.
- (f) "Combing machinery" means a general classification of machinery including combers, silver lap machines, ribbon lap machines, and gill boxes, but excluding cards.
- (g) "Rotary staple "cutter" means a machine consisting of one or more rotary blades used for the purpose of cutting textile fibres into staple lengths.
- (h) "Garnett machine" means any of a number of types of machines for opening hard twisted waste of wool, cotton, silk, etc. Essentially, such machines consist of a licker-in; one or more cylinders, each having a competent worker and stripper rolls; and a fancy roll and deffer. The action of such machines is somewhat like that a wool card, but it is much more severe in that the various rolls are covered with garnett wire instead of card clothing.
- (i) "Gill box" means a machine used in the worsted system of manufacturing yarns. Its function is to arrange fibres in parallel order. Essentially, it consists of a pair of feed rolls and a series of followers where the followers move at a faster surface speed and perform a combing action.
- (j) "In running rolls" means any pair of rolls or drums between which there is a "nip".
- (k) "Interlocking arrangement" means a device that prevents the setting in motion of a dangerous part of a machine or the machine itself while the guard cover or the door provided to safeguard against danger is open or unlocked, and which will also hold the guard, cover or door closed and locked while the machine or the dangerous part is in motion.
- (l) "Kier" means a large metal vat, usually a pressure type, in which fabrics may be boiled out, bleached, etc.
- (m) "Ribbon lapper" means a machine or a part of a machine used to prepare laps for feeding a cotton comb; its purpose is to provide a uniform lap in which the fibres have been straightened as much as possible.

- (n) "Sliver lapper" means a machine or a part of a machine in which a number of parallel card slivers are drafted slightly, lie side by side in a compact sheet, and wound into a cylindrical package.
- (o) "Loom" means a machine for effecting the interlocking of two series of yarns crossing one another at right angles. The warp yarns are wound on a warp beam and pass through headless and reeds. The filling is shot across in a shuttle and settled in place by reeds and slay, and the fabric is wound on a cloth beam.
- (p) "Starch mangle" means a mangle that is used specifically for starching cotton goods. It commonly consists of two large rolls and a shallow open vat with several immersion rolls. The vat contains the starch solution.
- (q) "Water mangle" means a calendar having two or more rolls used for squeezing water from fabrics before drying. Water mangles also may be used in other ways during the finishing of various fabrics.
- (r) "Mule" means a type of spinning frame having a head stock and a carriage as its two main sections. The headstock is stationary. The carriage is movable and it carries the spindles which draft and spin the roving into yarn. The carriage extends over the whole width of the machine and moves slowly toward and away from the head stock during the spinning operation.
- (s) "Nip" is the danger zone between two rolls or drums which by virtue of their positioning and movements create a nipping hazard.
- (t) "Openers and pickers" means a general classification of machinery which includes breaker pickers, intermediate pickers, finisher pickers, single process pickers, multiple process pickers, willow machines, card and picker waste cleaners, thread extractors, shredding machines, roving waste openers, shoddy pickers, bale breakers, feeders, vertical openers, lattice cleaners, horizontal cleaners, and any similar machinery equipped with either cylinders, screen section, calendar section, rolls, or beaters used for the preparation of stock for further processing.
- (u) "Paddler" means a trough for a solution and two or more squeeze rolls between which cloth passes after being passed through a mordant or dye bath.
- (v) "Plaiting machine" means a machine used to lay cloth into folds of regular length for convenience of subsequent process or use.
- (w) "Roller printing machine" means a machine consisting of a large central cylinder, or pressure bowl, around the lower part of the perimeter of which is placed a series of engraved color rollers (each having a color through), a furnisher roller, doctor blades, etc. The machine is used for printing fabrics.
- (x) "Continuous bleaching range" means a machine for bleaching of cloth in rope or open-width form with the following arrangement. The cloth, after wetting out, pass through a squeeze roll into a saturator containing a solution of caustic soda and then to an enclosed J-Box. A V-shaped arrangement is attached to the front part of the J.Box for uniform and rapid saturation of the cloth with steam before it is packed down in the J.Box. The cloth, in a single strand rope form, passes over a guide roll down the first arm of the "V" and up the second. Steam is injected into the "V" at the upper end of the second arm so that the cloth is rapidly saturated with steam at this point. The J-Box capacity is such that cloth will remain hot for a sufficient time to complete the securing action. It then passes a series of washers with a squeeze roll in between. The cloth then passes through a second set of saturator, J-Box and washer, where it is treated with the peroxide solution. By slight modification of the form of the unit, the same process can be applied to open-width cloth.
- (y) "Mercerizing range" means a 3-bowl mangle, a tenter frame, and a number of boxes for washing and scouring. The whole set up is in a straight line and all parts operate continuously. The combination is used to saturate the cloth with sodium hydrozide stretch it while saturated, and washing out most of the caustic before releasing tension.
- (z) "Sanforizing machine" means a machine consisting of a large steam-heated cylinder, and endless, thick, wollen felt blanket which is in close contact with the cylinder for most of its perimeter, and an electrically heated shoe which presses the cloth against the blanket while the latter is in a stretched condition as it curves around feed-in roll.
- (aa) "Shoaring machine" means a machine used for shoaring cloth. Cutting action is provided by a number of steel blades spirally mounted on a roller. The roller rotates in close contact with a fixed ledger blade. There may be from one to six such rollers on a machine.
- (bb) "Singeing machine" means a machine which comprises of a heater roller, plate, or an open gas flame. The cloth or yarn is rapidly passed over the roller or the plate or through the open gas flame to remove fuzz or hairiness by burning.

- (cc) "Slasher" means a machine used for applying a size mixture to warp yarns. Essentially, it consists of a stand for holding section beams, a size box, one or more cylindrical dryers or an enclosed hot air dryer, and a beaming and for winding the yarn on the loom beams.
- (dd) "Tenter frame" means a machine for drying cloth under tension. It essentially consists of a pair of endless travelling chains fitted with clips of fine pins and carried on tracks. The cloth is firmly held at the selvages by the two chains which diverge as they move forward so that the cloth is brought to the desired width.
- (ee) "Warper" means a machine for preparing and arranging the yarns intended for the warp of a fabric, specifically, a beam warper.

**3. General safety requirements.-** (1) Every textile machine shall be provided with individual mechanical or electrical means for starting and stopping such machines. Belt shifter on machines driven by belts and shafting should be provided with a belt shifter lock of an equivalent positive locking device.

(2) Stopping and starting handles or other controls shall be of such design and so positioned as to prevent the operator's hand or fingers from striking against any moving part of any other part of the machine.

(3) All belts, pulleys, gears, chains, sprocket wheels, and other dangerous moving parts of machinery which either form part of the machinery or are used in association with it, shall be securely guarded.

**4. Openers and pickers. -** (1) In all opening or picker machinery, beaters and other dangerous parts shall be securely fenced by suitable guards so as to prevent contact with them. Such guards and doors or covers or openings giving access to any dangerous part of the machinery shall be provided with interlocking arrangement.

Provided that in the case of doors or covers of openings giving access to any dangerous part, other than beater covers, instead of the interlocking arrangement, such openings may be so fenced by guards which prevent access to any such dangerous part and which is either kept positively locked in position or fixed in such a manner that it cannot be removed without the use of hand tools.

(2) The feed rolls on all opening and picking machinery shall be covered with a guard designed to prevent the operator from reaching the nip while the machinery is in operation.

(3) The lap forming rollers shall be fitted with a guard or cover, which shall prevent access to nip at the intake of the lap roller and fluted roller as long as the weighted rack, is down. The guard or cover shall be so locked that it cannot be raised until the machine is stopped, and the machine cannot be started until the cover or guard is closed.

Provided that the foregoing provision shall not apply to the machines equipped with automatic lap forming devices.

Provided further any such machine equipped with an automatic lap-forming device shall not be used unless the automatic lap forming device is in efficient working order.

**5. Cotton cards. -** (1) All cylinder doors shall be secured by inter-locking arrangement which shall prevent the door being opened until the cylinder has ceased to revolve and shall render it impossible to restart the machine until the door has been closed.

Provided that the latter requirement in respect of the automatic locking device shall not apply while stripping or grinding operations are carried out;

Provided further that stripping or grinding operations shall be carried out only by specially trained adult workers wearing tight fitting clothing whose names have been recorded in the register prescribed in this behalf as required in sub-section (1) of section 22.

(2) The licker-in shall be guarded so as to prevent access to the dangerous parts.

(3) Every card shall be equipped with an arrangement that would enable the card cylinder to be driven by power during stripping/grinding operations without having to either shift the main belt to the fast pulley of the machine or to dismantle the interlocking mechanism. Such an arrangement shall be used only for stripping or grinding operations.

**6. Garnett machines. -**

(1) Garnett licker-ins shall be enclosed.

(2) Garnet fancy rolls shall be enclosed by guards. These shall be installed in a way that keeps worker rolls reasonably accessible for removal or adjustment.

(3) The underside of the garment shall be guarded by a screen mesh or other form of enclosures to prevent access.

**7. Gill boxes. -** (1) The feed end shall be guarded so as to prevent fingers being caught in the pins of the intersecting fallers.

(2) All nips of in-running rolls shall be guarded by suitable nip guards conforming to the following specifications :-

Any opening which the guard may permit when fitted in position shall be so restricted with respect to the distance of the opening from any nip point through that opening and in any circumstances the maximum width of the opening shall not exceed the following:

Distance of opening from nip point Maximum width of opening

0 to 38 mm	6 mm
39 to 63 mm	10 mm
64 to 88 mm	13 mm
89 to 140 mm	15 mm
141 to 165 mm	19 mm
166 to 190 mm	22 mm
191 to 215 mm	32 mm

- 8.** Sliver and ribbon lappers (cotton). - The calendar drums and the lap spool shall be provided with a guard to prevent access to the nip between the in-running rolls.
- 9.** Speed frames. - Jack box wheels at the head stock shall be guarded and the guard shall have interlocking arrangement.
- 10.** Spinning mules. - Wheels on spinning mule carriages shall be provided with substantial wheel guards, extending to within 6 mm of the rails.
- 11.** Warpings. - Swivelled double-bar gates shall be installed on all warpings operating in excess of 410 meters/min. These gates shall have interlocking arrangement, except for the purpose of inching or jogging:  
Provided that the top and bottom bars of the gate shall be at least 1.05 and 0.53 meters high from the floor or working platform, and the gate shall be located 38 mm from the vertical tangement to the beam head.
- 12.** Slashers. -
- (1) Cylinder dryers. -
    - (a) All open nips of in-running rolls shall be guarded by nip guards conforming to the requirements in paragraph 7.
    - (b) When slashers are operated by control levers, these levers shall be connected to a horizontal bar or treadle located not more than 170 cm above the floor to control the operation from any point.
    - (c) Slashers operated by push button control shall have stop and start buttons located at each end of the machine, and additional buttons located both sides of the machine at the size box and the delivery end. If calendar rolls are used, additional buttons shall be provided at both sides of the machine at points near the nips, except when slashers are equipped with an enclosed dryer as in paragraph (b).
  - (2) Enclosed hot air dryer. -
    - (a) All open nips of the top squeezing rollers shall be guarded by nip guards conforming to the requirements in paragraph 7 (2).
    - (b) When slashers are operated by control levers, these levers shall be connected to a horizontal bar or treadle located not more than 170 cm. above the floor to control the operation from any point.
    - (c) Slashers operated by push-button control shall have stop and start buttons located at each end of the machine and additional buttons located on both sides of the machine at the size box and the delivery end. If calendar rolls are used, additional buttons shall be provided at both sides of the machine at points near the nips, except when slashers are equipped with an enclosed dryer as in paragraph (b).
- 13.** Looms. - (1) Each loom shall be equipped with suitable guards designed to minimise the danger from flying shuttles.  
(2) Beam weights for tension in beam shall be of such construction so as to prevent it falling during its adjustment.
- 14.** Valves of kiers, tanks, and other containers. - (1) Each valve controlling the flow of steam, injurious gases or liquids into a kier or any other tank or container into which a person is likely to enter in connection with a process, operation, maintenance or for any other purpose, shall be provided with a suitable locking arrangement to enable the said person to lock the valve securely in the closed position and retain the key with him before entering the kier, tank or container.  
(2) Wherever boiling tanks, caustic tanks and any other containers from which liquids which are hot, corrosive or toxic may overflow or splash, are so located that the operator cannot see the contents from the floor or working area emergency shut off valves which can be controlled from a point not subject to danger of splash shall be provided to prevent danger.
- 15.** Shearing machines. - All revolving blades on shearing machines shall be guarded so that the opening between the cloth surface and the bottom of the guard will not exceed 10 mm.
- 16.** Continuous bleaching range (cotton and rayon). - The nip of all in-running rolls on open-width bleaching machine rolls shall be protected with a guard to prevent the worker from being caught at the nip. The guard shall extend across the entire length of the nip.
- 17.** Mercerizing range (piece goods). - (1) A stopping device shall be provided at each end of the machine.  
(2) A guard shall be provided at each end of the frame between the in-running chain and the clip opener.

(3) A nip guard shall be provided for the in-running rolls of the mangle and washers and the guard shall conform to the requirements in paragraph 7(2)

**18. Tender frames.** - (1) A stopping device shall be provided at each end of the machine.

(2) A guard shall be provided at each end of the machine frame at the in-running chain and clip opener.

**19. Paddlers.** - Suitable nip guards conforming to the requirement in paragraph 7(2) shall be provided to all dangerous in-running rolls.

**20. Centrifugal extractors.** - (1) Each extractor shall be provided with a guard for the basket, and the guard shall have inter-locking arrangement.

(2) Each extractor shall be equipped with a mechanically or electrically operated brake to quickly stop the basket when the power driving the basket is shut off.

**21. Squeezer or wringer extractor, water mangle, starch mangle, back washer (worsted yarn) crabbing machines, and decating machines.** - All in-running rolls shall be guarded with nip guards conforming to the requirements in paragraph 7(2).

**22. Sanforizing and palmer machine.** - (1) Nip guards shall be provided on all accessible in-running rolls and these shall conform to the requirements in paragraph 7(2).

(2) Access from the sides to the nips of in-running rolls should be fenced by suitable side guards.

(3) A safety trip rod, cable or wire centre cord shall be provided across the front and back of all palmer cylinders extending the length of the face of the cylinder. It shall operate readily whether pushed or pulled. This safety trip shall be not more than 170 cm. above the level at which the operator stands and shall be readily accessible.

**23. Rope washers.** -(1) Splash guards shall be installed on all rope washers unless the machine is so designed as to prevent the water or liquid from splashing the operator, the floor, or working surface.

(2) A safety trip rod, cable or wire centre cord shall be provided across the front and back of all rope washers extending the length of the face of the washer. It shall operate readily whether pushed or pulled. This safety trip shall be not more than 170 cm. above the level on which the operator stands and shall be readily accessible.

**24. Laundry washer tumbler or shaker.** -(1) Each drying tumbler, each double cylinder shaker or clothes tumbler and each washing machine shall be equipped with an inter-locking arrangement which will prevent the power operation of the inside cylinder when the outer door on the case or shell is open and which will prevent the inner cylinder from being opened without shutting off the power and the cylinder coming to a stop. This should not prevent the movement of the inner cylinder by means of a hand operated mechanism or an inching device.

(2) Each closed barrel shall also be equipped with adequate means for holding open the doors or covers of the inner and outer cylinders or shells while it is being loaded or unloaded.

**25. Printing machine (roller type).** - (1) All in-running rolls shall be guarded by nip guards conforming to the requirement in paragraph 7(2).

(2) The engraved roller gears and the large crown wheel shall be guarded.

**26. Calenders.** - The nip at the in-running side of the rolls shall be provided with a guard extending across the entire length of the nip and arranged to prevent the fingers of the workers from being pulled in between the rolls or between the guard and the rolls, and so constructed that the cloth can be fed into the rolls safely.

**27. Rotary staple cutters.** -The cutter shall be protected by a guard to prevent hands reaching the cutting zone.

**28. Plaiting machines.** - Access to the trap between the knife and card bar shall be prevented by a guard.

**29. Hand baling machine.** - An angle iron handle-stop guard shall be installed at right angle to the frame of the machine. The stop guard shall be so designed and so located that it will prevent the handle from travelling beyond the vertical position should the handle slip from the operator's hand when the pawl has been released from the teeth of the take-up gear.

**30. Flat-work ironer.** - Each flat-work or collar ironer shall be equipped with a safety bar or other guard across the entire front of the feed or first pressure rolls so arranged that the striking of the bar or guard by the hand of the operator or other person will stop the machine. The guard shall be such that the operator or other person cannot reach into the rolls without removing the guard. This may be either a vertical guard on all sides or a complete cover. If a vertical guard is used, the distance from the floor or working platform to the top of guard shall be not less than 1.83 meters.

## SCHEDULE -F

(Further Safety Precautions)  
Prescribed under rule 59

### Cotton Ginning

Line Shaft. - The line shaft or second motion in cotton ginning factories, when below floor level, shall be completely enclosed by a continuous wall or unclimbable fencing with only so many openings as are necessary for access to the shaft for removing cotton seed, cleaning and oiling; and such openings shall be provided with gates or doors which shall be kept closed and locked.

## SCHEDULE -G

(Further Safety Precautions)  
Prescribed under rule 59

### Woodworking Machinery

1. Definitions.- For the purposes of this schedule -
  - (a) "Woodworking machine" means a circular saw, band saw, planing machine, chain mortising machine or vertical spindle moulding machine operating on wood or cork;
  - (b) "Circular saw" means a circular saw working in a bench (including a rack bench), but does not include a pendulum or similar saw which is moved towards the wood for the purpose of cutting operation;
  - (c) "band saw" means a band saw, the cutting portion of which runs in a vertical direction but does not include a log saw or band resawing machine; and
  - (d) "Planning machine" means a machine for overhand planing or for thicknessing or for both operations.
2. Stopping and starting device. - An efficient stopping and starting device shall be provided on every woodworking machine. The control of this device shall be in such a position as to be readily and conveniently operated by the person in charge of the machine.
3. Space around machines. - The space surrounding every woodworking machine in motion shall be kept free from obstruction.
4. Floors. - The floor surrounding every woodworking machine shall be maintained in good and level condition, and shall not be allowed to become slippery, and as far as practicable shall be kept free from chips or other loose material.
5. Training and supervision. -
  - (1) No person shall be employed at a woodworking machine unless he has been sufficiently trained to work that class of machine, or unless he works under the adequate supervision of a person who has a thorough knowledge of the working of the machine.
  - (2) A person who is being trained to work a woodworking machine shall be fully and carefully instructed as to the dangers of the machine and the precautions to be observed to secure safe working of the machine.
6. Circular saws.- Every circular saw shall be fenced as follows :-
  - (a) behind and in direct line with the saw there shall be riving knife, which shall have a smooth surface, shall be strong, rigid and easily adjustable, and shall also conform to the following conditions :-
    - (i) the edge of the knife nearer the saw shall form an arc of a circle having a radius of not exceeding the radius of the largest saw used on the bench;
    - (ii) the knife shall be maintained as close as practicable to the saw, having regard to the nature of work being done at the time, and at the level of the bench table the distance between the front edge of the knife and the teeth of the saw shall not exceed 12 millimetres; and
    - (iii) for a saw of a diameter of less than 60 centimetres, the knife shall extend upwards from the bench table to within 25 millimetres of the top of the saw, and for a saw of a diameter 60 centimetres or over shall extend upwards from the bench table to a height of at least 23 centimetres;
  - (b) The top of the saw shall be covered by a strong and easily adjustable guard, with a flange at the side of the saw farthest from the fence. The guard shall be kept so adjusted that the said flange shall extend below the roots of the teeth of the saw. The guard shall extend from the top of the riving knife to a point as low as practicable at the cutting edge of the saw; and
  - (c) The part of the saw below the bench table shall be protected by two plates of metal or other suitable material, one on each side of the saw; such plates shall not be more than 15 centimetres apart, and shall extend from the axis of the saw outwards to a distance of not less than 5 centimetres beyond the

- teeth of the saw. Metal plates, if not beaded, shall be of thickness of least 2.5 millimeters, or, if beaded, be of a thickness of at least 1.25-millimeter.
7. Push sticks. - A push stick or other suitable appliance shall be provided for use at every circular saw and at every vertical spindle moulding machine to enable the work to be done without unnecessary risk.
  8. Band saws.- Every band saw shall be guarded as follows :-
    - (a) both sides of the bottom pulley shall be completely encased by sheet or expanded metal or other suitable material ;
    - (b) the front of the top pulley shall be covered with sheet or expanded metal or other suitable material; and
    - (c) all portions of the blade shall be enclosed or otherwise securely guarded, except the portion of the blade between the bench table and the top guide.
  9. Planing machines. -
    - (1) A planing machine (other than a planing machine, which is mechanically fed,) shall not be used for overhand planing unless it is fitted with a cylindrical cutter block.
    - (2) Every planing machine used for overhand planing shall be provided with a “bridge” guard capable of covering the full length and breadth of the cutting slot in the bench, and so constructed as to be easily adjusted both in a vertical and horizontal direction.
    - (4) The feed roller of every planing machine used for thicknessing, except the combined machine for overhead planing and thicknessing shall be provided with an efficient guard.
  10. Vertical spindle moulding machines. -
    - (1) The cutter of every vertical spindle-moulding machine shall be guarded by the most efficient guard having regard to the nature of the work being performed.
    - (2) The wood being moulded at a vertical spindle moulding machine shall, if practicable, be held in a jig or holder of such construction as to reduce as far as possible the risk of accident to the worker.
  11. Chain mortising machines. - The chain of every chain mortising machine shall be provided with a guard which shall enclose the cutters as far as practicable.
  12. Adjustment and maintenance of guards.- The guards and other appliances required under this schedule shall be -
    - (a) maintained in an efficient state;
    - (b) constantly kept in position while the machinery is in motion; and
    - (c) so adjusted as to enable the work to be done without unnecessary risk.
  13. Exemption. - Paragraphs 6, 8, 9 and 10 shall not apply to any wood working machine in respect of which it can be proved that other safeguards are provided, maintained and used which render the machine as safe as it would be if guarded in the manner prescribed in this schedule.

## **SCHEDULE -H**

(Furthers Safety Precautions)  
*Prescribed under rule 59*

### **Rubber Mill**

1. Installation of machines.- Mills for breaking down, cracking, grating, mixing, refining and warming rubber or rubber compounds shall be so installed that the top of the front roll is not less than 105 centimetres above the floor or working level :
 

Provided that in existing installations where the top of the front roll is below this height a strong, rigid distance-bar guard shall be fitted across the front of the machine in such position that the operator cannot reach the nip of the rolls.
2. Safety devices.-
 

Rubber mills shall be equipped with -

  - (a) hoppers so constructed or guarded that it is impossible for the operators to come into contact in any manner with the nip of the rolls; or
  - (b) Horizontal safety-trip rods or tight wire cables across both front and rear, which will, when pushed or pulled, operate instantly to disconnect the power and apply the brakes, or to reverse the rolls.
3. Safety-trip rods or tight wire cables on rubber mills shall extend across the entire length of the face of the rolls and shall be located not more than 175 centimetres above the floor or working level.
4. Safety-trip rods and tight wire cables on all rubber mills shall be examined and tested daily in the presence of the manager or other responsible person and if any defect is disclosed by such examination and test the mill shall not be used until such defect has been remedied.

**SCHEDULE -I**  
(Further Safety Precautions)  
**Prescribed under rule 59**

**Centrifugal Machines**

1. Definition. - “Centrifugal machines” include centrifugal extractor’s separators and driers.
2. Every part of centrifugal machine shall be -
  - (a) of good design and construction and of adequate strength;
  - (b) properly maintained; and
  - (c) examined thoroughly by a competent person at regular intervals.
3. Inter-locking guard for drum or basket. -
  - (1) The cage housing, the rotating drum or basket of every centrifugal machine shall be provided with a strong lid. The design and construction of the cage as well as lid should be such that no access is possible to the drum or basket when the lid is closed.
  - (2) Every centrifugal machine shall be provided with an efficient interlocking device that will effectively prevent the lid referred to in sub-paragraph (1) from being opened while the drum or basket is in motion and prevent the drum or basket being set in motion while the lid is in the open position.
4. Braking arrangement. - Every centrifugal machine shall be provided with an effective braking arrangement capable of bringing the drum or basket to rest within as short a period of time as reasonably practicable after the power is cut off.
5. Operating speed. - No centrifugal machine shall be operated at a speed in excess of the manufacturer’s rating which shall be legibly stamped at easily visible places both on the inside of the basket and on the outside of the machine casing.
6. Exceptions. - Sub-paragraph (2) of paragraph 3, paragraphs 4 and 5 shall not apply in case of top lung machines or similar machines used in the sugar manufacturing industry.

**SCHEDULE -J**  
(Further Safety Precautions)  
**Prescribed under rule 59**

**Power Press**

1. Application. - The Schedule shall apply to all types of power presses including press brakes, except when used for working hot metal.
2. Definition.- For the purpose of this Schedule -
  - (a) “approved” means approved by the Chief Inspector ;
  - (b) “fixed fencing” means fencing provided for the tools of a power press being fenced which has no moving part associated with or dependent upon the mechanism of a power and includes that part of a closed tool which acts as a guard;
  - (c) “power press” means a machine used in metal or other industries for moulding, pressing, blanking, raising, drawing and similar purposes;
  - (d) “Safety device” means the fencing and any other safeguard provided for the tools of a power press.
3. Starting and stopping mechanism. - The starting and stopping mechanism shall be provided with a safety stop so as to prevent over running of the press or descent of the ram during tool setting, etc.
4. Protection of tool and die. -
  - (1) Each press shall be provided with a fixed guard with a slip plate on the underside enclosing the front and all sides of the tool.
  - (2) Each die shall be provided with a fixed guard surrounding its front and sides, and extending to the back in the form of a tunnel through which the pressed article falls to the rear of the press.
  - (3) The design, construction and mutual position of the guards referred to in (1) and (2) shall be such as to preclude the possibility of the worker’s hand or fingers reaching the danger zone.
  - (4) The machine shall be fed through a small aperture at the bottom of the die guard, but a wider aperture may be permitted for second or subsequent operations if feeding is done through a chute.
  - (5) Not withstanding anything contained in sub-clauses (1) and (2) an automatic or an inter-locked guard may be used in place of a fixed guard, but where such guards are used they shall be maintained in an efficient working condition and if any guard develops a defect, the power press shall not be operated unless the defect of the guard is removed
5. Appointment of persons to prepare power presses for use. -



(1) Except as provided in sub-paragraph (4), no person shall set, re-set, adjust or try out the tools on a power press or install or adjust any safety device thereon, being installation or adjustment preparatory to production of die proving, or carry out an inspection and test of any safety device thereon required by paragraph 8 unless he -

- (a) has attained the age of eighteen;
- (b) has been trained in accordance with the sub-paragraph (2); and
- (c) has been appointed by the occupier of the factory to carry out those duties in respect of the class or description of power press or the class or description of safety device to which the power press or safety device (as the case may be) belongs; and the name of every such person shall be entered in a register in Form 9.

(2) The training shall include suitable and sufficient practical instruction in the matter in relation to each type of power press and safety device in respect of which it is proposed to appoint the person being trained.

6. Examination and testing of power presses and safety devices. -

(1) No power press or safety device shall be taken into use in any factory for the first time in that factory, or in case of a safety device for the first time on any power press, unless it has been thoroughly examined and tested, in the case of a power press, after installation in the factory, or in the case of a safety device, when in position on the power press in connection with which it is to be used.

(2) No power press shall be used unless it has been thoroughly examined and tested by a competent person within the immediately preceding period of twelve months.

(3) No power press shall be used unless every safety device (other than fixed fencing) thereon has within the immediately preceding period of six months when in position on that power press, been thoroughly examined and tested by a competent person.

(4) The competent person carrying out an examination and test under the foregoing provisions shall make a report of the examination and test containing the following particulars and every such report shall be kept readily available for inspection :

- (a) name of the occupier of the factory;
- (b) address of the factory;
- (c) identification number or mark sufficient to identify the power press or the safety device;
- (d) date on which the power press or the safety device was first taken into use in the factory;
- (e) the date of each periodical thorough examination carried out as per requirements of sub-paragraph (2) above;
- (f) particulars of any defects effecting the safety working of the power press or the safety device found at any such thorough examination and steps taken to remedy such defects.

7. Defects disclosed during a thorough examination and tests. -

(1) Where any defect is disclosed in any power press or in any safety device by any examination and test under paragraph 6 and in the opinion of the competent person carrying out the examination and test, either -

- (a) the said defect is a cause of danger to workers and in consequence the power press or safety device (as the case may be) ought not to be used until the said defect has been remedied; or
- (b) the said defect may become a cause of danger to workers and in consequence the power press or safety device (as the case may be) ought not to be used after the expiration of a specified period unless the said defect has been remedied,

such defect shall, as soon as possible after the completion of the examination and test, be notified in writing by the competent person to the occupier of the factory and, in the case of a defect falling within clause (b) of this sub-paragraph such notification shall include the period within which, in the opinion of the competent person, the defect ought to be remedied.

(2) In every case where notification has been given under this paragraph, a copy of the report made under paragraph 6(4) shall be sent by the competent person to the inspector for the area within fourteen days of the completion of the examination and test.

(3) When any such defect is notified to the occupier in accordance with the foregoing provisions of this paragraph the power press or safety device (as the case may be) having the said defect shall not be used -

- (a) in the case of a defect falling within clause (a) of sub-paragraph (1) until the said defect has been remedied; and
- (b) in the case of defect falling within clause (b) of sub-paragraph (1), after the expiration of the said defect has been remedied.

- (4) As soon as is practicable after any defect of which notification has been given under sub-paragraph (1) has been remedied, a record shall be made by or on behalf of the occupier stating the measures by which and the date on which the defect was remedied.
8. Inspection and test of safety devices. -
- (1) No power press shall be used after the setting, resetting or adjustment of the tools thereon unless a person appointed or authorised for the purpose under Paragraph 5 has inspected and tested every safety device thereon while it is in position on the said power press :
- Provided that an inspection, test and certificate as aforesaid shall not be required where any adjustment of the tools has not caused or resulted in any alteration to or disturbance of any safety device on the power press and if, after the adjustment of the tools, the safety devices remain, in the opinion of such a person as aforesaid, in efficient working order.
- (2) Every power press and every safety device thereon while it is in position on the said power press shall be inspected and tested by a trained person every day.
9. Defects disclosed during an inspection and test. -
- (1) Where it appears to any person as a result of any inspection and test carried out by him under paragraph 8 that any necessary safety device is not in position or is not properly in position on a power press or that any safety device which is in position on a power press is not in his opinion suitable, he shall notify the manager forthwith.
- (2) Except as provided in sub-paragraph (3) where any defect is disclosed in a safety device by any inspection and test under paragraph 8, the person carrying out the inspection and test shall notify the manager forthwith.
- (3) Where any defect in a safety device is the subject of a notification in writing under paragraph 7 by virtue of which the use of the safety device may be continued during a specified period without the said defect having been remedied, the requirement in sub-paragraph (2) of this paragraph shall not apply the said defect until the said period has expired.
10. Identification of power presses and safety devices. - For the purpose of purpose of identification every power press and every safety device provided for the same shall be distinctively and plainly marked.
11. Training and instructions to operators. - The operators shall be trained and instructed in the safe method of work before starting work on any power press.
12. Exemptions. -
- (1) If in respect of any factory, the Chief Inspector is satisfied that owing to the circumstances or infrequency of the processes or for any other reason, all or any of the provisions of this Schedule are not necessary for the protection of the workers employed on any power press or any class or description of power press or in the factory, the Chief Inspector may by a certificate in writing (which he may in his discretion revoke at any time), exempt such factory from all or any of such provisions subject to such conditions, if any, as he may specify therein.
- (2) Where such exemption is granted, a legible copy of the certificate, showing the conditions (if any) subject to which it has been granted, shall be kept posted in the factory in a position where it may be conveniently read by the persons employed.

**SCHEDULE -K**  
(Furthers Safety Precautions)  
***Prescribed under rule 59***

**Shears, Slitters and Guillotine Machines**

1. Definition.- For the purpose of this schedule -
- (a) “guillotine” means a machine ordinarily equipped with straight, bevel-edged blade operating vertically against a stationary resisting edge and used for cutting metallic or non-metallic substances;
- (b) “shears” or “shearing machine” means a machine ordinarily equipped with straight, bevel-edged blades operating vertically against resisting edges, or with rotary, overlapping cutting wheels, and used for shearing metals or non-metallic substances;
- (c) “slitter” or “slitting machine” means a machine ordinarily equipped with circular disc-type knives, and used for trimming or cutting into metal or non-metallic substances or for slitting them into

narrow strips; for the purpose of this Schedule, this term includes bread or other food slicers equipped with rotary knives or cutting discs.

## 2. Guillotining and Shears. -

(1) Where practicable, a barrier metal guard of adequate strength shall be provided at the front of the knife, fastened to the machine frame and shall be so fixed as would prevent any part of the operator's body to reach the descending blade from above, below or through the barrier guard or from the side;

Provided that in case of machines used in the paper printing and allied industries, where a fixed barrier metal guard is not suitable on a account of the height and volume of the material being fed, there shall be provided suitable starting devices which require simultaneous action of both the hands of the operator or an automatic device which will remove both the hands of the operator from the danger zone at every descent of the blade.

(2) At the back and of such machines, an inclined guard shall be provided over which the slit pieces would slide and be collected at a safe distance in a manner as would prevent a person at the back from reaching the descending blade.

(3) Power-driven guillotine cutters, except continuous feed trimmers, shall be equipped with -

(a) starting devices which require the simultaneous action of both hands to start the cutting motion and of at least one hand on a control during the complete stroke of the knife; or

(b) An automatic guard which will remove the hands of the operator from the danger zone at every descent of the blade, used in conjunction with one-hand starting devices which require two distinct movements of the device to start the cutting motion, and so designed as to return positively to the non-starting position after each complete cycle of the knife.

(4) Where two or more workers are employed at the same time on the same power-driven guillotine cutter equipped with two-hand control, the device shall be so arranged that each worker shall be required to use both hands simultaneously on the safety trip to start the cutting motion, and at least one hand on a control to complete the cut.

(5) Power-driven guillotine cutters, other than continuous trimmer, shall be provided, in addition to the brake or other stopping mechanism, with an emergency device which will prevent the machine from operating in the event of failure of the brake when the starting mechanism is in the non-starting position.

## 3. Slitting Machines. -

(1) Circular disc-type knives on machines for cutting metal and leather, paper, rubber, textiles or other non-metallic substances shall, if within reach of operators standing on the floor or working level, be provided with guards enclosing the knife edges at all times as near as practicable to the surface of the material, and which may either- (a) Automatically adjust themselves to the thickness of the material; or (b) be fixed or manually adjusted so that the space between the bottom of the guard and the material will not exceed 6 mm (1/4 in.) at any time.

(2) Portions of blades underneath the tables or benches of slitting machines shall be covered by guards.

4. Index cutters and Vertical Paper Slotters. - Index cutters, and other machines for cutting strips from the ends of books, and for similar operations, shall be provided with fixed guards, so arranged that the fingers of the operators cannot come between the blades and the tables.

5. Corner Cutters.- Corner cutters used in the manufacture of paper boxes, shall be equipped with -

(a) suitable guard, fastened to the machines in front of the knives and provided with slots or perforations to afford visibility of the operations; or

(b) other guards equally efficient for the protection of the fingers of the workers.

6. Band Knives. - Band wheels on band knives, and all portions of the blades except working side between the sliding guide and the table on vertical machines, or between the wheel guards on horizontal machines, shall be completely enclosed with hinged guards of sheet metal not less than 1 mm (0.04 in.) in thickness or of other material of equal strength.

**SCHEDULE -L**  
(Hoists and lifts)  
**Prescribed under rule 62**

Class or Description of hoist or lift applies (1)	Requirement which shall not apply (2)
Hoists or lifts mainly used for raising materials for charging blast furnaces or lime kilns.	Sub-section 1(b) in so far as it requires a gate at the bottom landing; sub-section 1(d); sub-section 1(e).
Hoists not connected with mechanical power and which are not used for carrying persons.	Sub-section 1(b) in so far as it requires the hoistway or liftway enclosure to be so constructed as to prevent any person or thing from being trapped between any part of the hoist or lift and any fixed structure or moving part; sub-section 1(e).

**SCHEDULE -M**  
(Maximum weight limit)  
Prescribed under rule 66

Persons		Maximum weight of material, article, tool or appliance	
(a)	Adult male	50	Kg
(b)	Adult female	30	Kg
(c)	Adolescent male	30	Kg
(d)	Adolescent female	20	Kg
(e)	Male child	16	Kg
(f)	Female child	14	Kg

**SCHEDULE -N**

Prescribed under rule 67

1. Breaking, cutting, dressing or carving of bricks, stone, concrete, slag or similar materials by means of a hammer, chisel, pick or similar hand tool, or by means of a portable tool driven by mechanical power, and the dry grinding of surfaces of any such materials by means of a wheel or disc driven by mechanical power, where, in any of the foregoing cases, particles or fragments are liable to be thrown off towards the face of the operator in the course of the process.
2. Dry grinding of surfaces of metal by applying them by hand to a wheel, disc or band driven by mechanical power, and of surfaces of metal by means of a portable tool driven by mechanical power.
3. Dividing into separate parts of metal, bricks, stone, concrete or similar materials by means of a high speed saw driven by mechanical power or by means of an abrasive cutting-off wheel or disc driven by mechanical power.
4. Turning of metals or articles of metal, where particles or fragments are liable to be thrown off towards the face of the operator in the course of the process.
5. Drilling by means of portable tools, where particles or fragments are liable to be thrown off towards the face of the operator in the course of the process.
6. Welding and cutting of metals by means of an electric, Oxy- acetylene or similar process.
7. Hot fettling of steel castings by means of a flux-injected burner or air torch, and de-seaming of metal.
8. Fettling of metal castings involving the removal of metal, including runners, gates and risers, and removal of any other material during the hours or such fettling.
9. Chipping of metal, and chipping, knocking out, cutting out or cutting off of cold rivets, bolts, nuts, lugs, pins, collars or similar articles from any structure or plant, or from part of any structure or plant, by means of a hammer, chisel punch or similar hand tool, or by means of a portable tool driven by mechanical power.

10. Chipping or scuffing of paint, scale, slag, rust or other corrosion from the surface of metal and other hard materials by means of a hand tool or by a portable tool driven by mechanical power.
11. Breaking of scrap metal by means of a hammer or by means of a tool driven by mechanical power.
12. Routing of metal, where particles or fragments are liable to be thrown off towards the face of the operator in the course of the process.
13. Work with drop hammers and power hammers used in either case for the manufacture of forging, and work by any person not working with such hammers, whose work is carried on in such circumstances and in such a position that particles or fragments are liable to be thrown off towards his face during work with drop hammers or power hammers.
14. Work at a furnace where there is risk to the eyes from molten metal.
15. Pouring or skimming of molten metal.
16. Work involving risk to the eyes from hot sand being thrown off.
17. Truing or dressing of an abrasive wheel.
18. Handling in open vessels or manipulation of strong acids or dangerous corrosive liquids or materials, and operation, maintenance or dismantling of plant or any part of plant, being plant or part of plant which contains or has contained such acids, liquids or materials, unless the plant or part of plant has been so prepared (by isolation, reduction of pressure, or otherwise), treated, or designed and constructed as to prevent risk of injury.
19. Any other process wherein there is a risk of injury to eyes from particles or fragments thrown off during the course of the process.

#### **SCHEDULE -O**

Prescribed under rule 67

1. Welding or cutting of metals by means of an electrical, oxy- acetylene or similar process.
2. All work on furnaces where there is risk of exposure to excessive light or infrared radiations.
3. Process such as rolling, casting or forging of metals where there is risk of exposure to excessive light or infrared radiations.
4. Any other process wherein there is a risk of injury to eyes from exposure to excessive light or infrared or ultra-violet radiations.

#### **SCHEDULE P**

Prescribed under Rule 70(14), rule 70(10)(c)

First Aid Fire Fighting Equipments

(1) The different type of fires and first aid fire fighting equipments suitable for use on them are as under:

<u>Class of Fire</u>	<u>Suitable type of Appliances</u>
A. Fires in ordinary combustibles (wood, vegetable fibres, paper & the like)	Chemical Extinguishers of Soda-acid, Gas/expelled water and anti-freeze types, and water buckets.
B. Fires in flammable liquids, paints, grease, solvents and the like	Chemical Extinguishers of foam, Carbon dioxide and dry powder types and sand buckets.
C. Fires in gaseous substances under pressure	Chemical Extinguishers of carbon dioxide and dry powder types
D. Fires in Reactive Chemicals, active metals and the like	Special type of dry powder extinguishers and sand buckets
E. Fires in electrical Equipments	Chemical Extinguishers of carbon dioxide and dry powder type and sand buckets.

(2) One 9 litres water bucket shall be provided for every 100 sq.m. of the floor area or part thereof and one 9 litres water type extinguishers shall be provided to six buckets or part thereof with a minimum of one extinguisher and

two buckets per compartment of the building. Buckets may be dispensed with, provided supply of extinguishers is double that indicated above.

(3) Acceptable replacements for Water buckets and water type extinguishers in occupancies where Class B fires are anticipated are as under:

Acceptable Replacements		Buckets of water	Water type Extinguishers	
	For one bucket		For three buckets	For each 9 ltrs.(or 2 gallons) Extinguishers
Dry sand	1 bucket		3 buckets	-
Carbondioxide Extinguishers	3kg (or 7 lbs.)		9kg. (or 20 lbs) In not less than 2 extinguishers)	9kg. (or 20 lbs)
Dry powder	2kg (or 5 lbs.)		5 kg. (or 11 lbs.) In one or more extinguishers)	5 kg. (or 11 lbs.)
Foam extinguishers	9 lts. (or 2 gallons)		9 lts. (or 2 gallons)	9 lts. (or 2 gallons)

(4) The following provisions shall be complied with where Class E fires are anticipated:

(a) For rooms containing electrical transformers, switchgears, motors and/or other electrical apparatus only, not less than two kg, dry Powder or Carbon Dioxide type extinguishers shall be provided within 15 m. of the apparatus.

(b) Where motors and/or other electrical equipment are installed in rooms other than those containing such equipment only, one 5 kg. dry Powder or Carbon dioxide Extinguisher shall be installed within 15 m. of such equipment in addition to the requirements of mentioned at (2) and (3) above. For this purpose the same extinguisher may be deemed to afford protection to all apparatus within 15 m. thereof.

(c) Where electrical motors are installed on platforms, one 2 kg. dry Powder or Carbon Dioxide type extinguisher shall be provided on or below each platform. In case of a long platform with a number of motors, one extinguisher shall be acceptable as adequate for every 3 motors on the common platform. The above requirements will be in addition to the requirements mentioned at Item (2) & (3) above.

(5) The first aid fire fighting equipments shall be so distributed over the entire floor area that a person has to travel not more than 15 m. to reach the nearest equipment.

(6) Selection of sites for the installation of first aid fire fighting equipments -

(a) While selecting sites for first aid fire fighting equipments, due consideration shall be given to the nature of the risk to be covered. The equipments shall be placed in conspicuous positions and shall be readily accessible for immediate use in all parts of the occupancy. It should always be borne in mind while selecting sites that first aid fire fighting equipments are intended only for use in incipient fires and their values may be negligible if the fire is not extinguished or brought under control in the early stages.

(b) Buckets and extinguishers shall be placed at convenient and easily accessible locations either on hangers or on stands in such a way that their bottom is 750 mm. above the floor level.

(7) The operating instructions of the extinguishers shall not be defaced or obliterated. In case the operating instructions are obliterated or have become illegible due to passage of time fresh transfers of the same shall be obtained from the manufacturers of the equipments and affixed to the extinguishers.

#### **SCHEDULE -Q**

Prescribed under rule 70(11) (b)

Equipment to be provided with Trailer Pump

For light trailer pump of a capacity of 680 litres/minute

1 Armoured suction hose of 9 metres length, with wrenches

1 Metal suction strainer

1 Basket strainer

1 Two-way suction collecting head

1 Suction adaptor

10 Unlined or rubber lined 70 mm. delivery hose of 25 metres length complete with quick-release couplings

1 Dividing breaching-piece

2 Branch-piece with 15 mm nozzles

1 Diffuzer nozzle

- 1 Standpipe with blank cap
- 1 Hydrant key
- 4 Collapsible canvas buckets
- 1 Fire hook (preventor) with cutting edge
- 1 25 mm manila rope of 30 metres length
- 1 Extension ladder of 9 metres length (where necessary)
- 1 Heavy axe
- 1 Spade
- 1 Pick axe
- 1 Crowbar
- 1 Saw
- 1 Hurricane lamp
- 1 Electric torch
- 1 Pair rubber gloves
- For large trailer pump of capacity of 1800 litres/minute
- 1 Armoured suction hose of 9 metres length, with wrenches
- 1 Metal strainer
- 1 Basket Strainer
- 1 Three-way suction collecting-head
- 1 Suction adaptor
- 14 Unlined or rubber lined 70 mm. delivery hose of 25 metres length complete with quick-release couplings
- 1 Dividing breaching-piece
- 1 Collecting breaching-piece
- 4 Branch pipes with one 25 mm, two 20 mm and one diffuser nozzle
- 2 Standpipe with blank caps
- 2 Hydrant keys
- 6 Collapsible canvas buckets
- 1 Coiling hook (preventor) with cutting edge
- 1 50 mm. manila rope of 30 metres length
- 1 Extension ladder of 9 metres length (where necessary)
- 1 Heavy axe                      1 Saw
- 1 Spade                            1 Hurricane lamp
- 1 Pick axe                        1 Electric torch
- 1 Crowbar                        1 Pair rubber gloves

Note:-If it appears to the Chief Inspector of Factories that in any factory the provision of breathing apparatus is necessary he may by order in writing require the occupier to provide suitable breathing apparatus in addition to the equipment for light trailer pump or large trailer pump as the case may be.

**SCHEDULE -R**  
Prescribed under rule 88

Material Safety Data Sheet

**SECTION I-MATERIAL IDENTIFICATION AND USE (Schedule R)**

Material Name/Identifier			
Manufacturer's Name		Supplier's Name	
Street Address		Street Address	
City	State	City	State
Postal Code	Emergency Telephone No.	Postal Code	Emergency Telephone No.
Chemical Name	Chemical Identity		
Trade Name and			
Synonyms		Product Use	

**SECTION II – HAZARDOUS INGREDIENTS OF MATERIAL**

(Schedule R)

Hazardous Ingredients	Approximate Concentration %	C.A.S. or UN Numbers	LD 50 (Specify Species and Route)	LC 50 (Specify Species and Route)

**SECTION III – PHYSICAL DATA FOR MATERIAL**

(Schedule R)

Physical State --Gas -- Liquid -- Solid	Odour and Appearance	Odour Threshold (p.p.m)	Specific Gravity	
Vapour Pressure	Vapour density (Air=1)	Evaporation Rate	Boiling point (°C)	Freezing point (°C)
Solubility in water (20°C)	pH	Density (g/ml)	Coefficient of water / oil distribution	

**SECTION IV – FIRE AND EXPLOSION HAZARD OF MATERIAL**

(Schedule R)

Flammability \_\_\_\_\_ Yes \_\_\_\_\_ No. If yes, under what conditions

Means of Extinction \_\_\_\_\_

Special Procedures

Flash Point (°C) and Method	Upper Explosion Limit (% by Volume)	Lower Explosion Limit (% by Volume)
Anti-ignition Temperature (°C)	TDG Flammability Classification	Hazardous Combustion Products

Explosion Data-Sensitivity  
Chemical Impact

Sensitivity to Static  
Discharge

**SECTION V - REACTIVITY DATA**

(Schedule R)

Chemical Stability \_\_\_\_\_ Yes \_\_\_\_\_ No. If no, under what conditions

Incompatibility to other substances \_\_\_\_\_ Yes \_\_\_\_\_ No. If yes, which ones

Reactivity and under what conditions

Hazardous Decomposition Products

Material  
Name / Identifier



**SECTION VI – TOXICOLOGICAL PROPERTIES OF MATERIAL**

(Schedule R)

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Route of Entry

-----Skin contact	----- Skin Absorption	-----Eye Contact
-----Inhalation Acute	-----Inhalation Chronic	-----Ingestion

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Effects of Acute Exposure to Material

Effects of Chronic Exposure to Material

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	Exposure Limit(s)	Irritancy of Material
Sensitization to Material	Carcinogenicity, Reproductive Effects, Teratogenicity, Mutagenicity	

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Synergistic Materials

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**SECTION VII – PREVENTIVE MEASURES**

(Schedule R)

Personal Protective Equipment

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Gloves (specify)	Respiratory (specify)	Eyes (specify)
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Footwear (specify)	Clothing (specify)	Other (specify)
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Engineering Controls (e.g. ventilation, enclosed process, etc.)  
Please specify

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Leak and Spill Procedures

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Waste Disposal

---

Handling Procedures and Equipment

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Storage Requirements

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Special Shipping Information

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**SECTION VIII – FIRST AID MEASURE**

(Schedule R)

First Aid Measure

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Sources used

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Additional information

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**SECTION IX – PREPARATION DATE OF M.S.D.S.**

(Schedule R)

Prepared by (Group, Department, etc.) (Phone No.) Date

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**NOTES:**

1. CAS or UN Number – Chemical Abstract Service or United Nations (UN) Number.
2. LD 50 – Lethal Dose – 50% (LD50 – Specify species and route).
3. LC 50 – Lethal Concentration – 50% (LC50 – Specify species and route).
4. TDG Flammability – Transport of Dangerous Goods  
Flammability Classification by United Nations.

## SCHEDULE –S

Prescribed under rule 100

### Equipment for Occupational Health Centre in Factories

1. A glazed sink with hot and cold water always
2. A table with a smooth top at least 180 cm x 105 cm.
3. Means for sterilizing instruments
4. A cough
5. Two buckets or containers with close fitting lids
6. A kettle and spirit stove or other suitable means of boiling water
7. One bottle of spiritus ammeniac aromaticus (120 ml.)
8. Two medium size sponges
9. Two 'kidney' trays
10. Four cakes of toilet, preferably antiseptic soap
11. Two glass tumblers and two wine glasses
12. Two clinical thermometers
13. Two tea spoons
14. Two graduated (120 ml) measuring glasses
15. One wash bottle (1000 cc) for washing eyes
16. One bottle (one litre) carbolic lotion 1 to 20.
17. Three chairs
18. One screen
19. One electric hand torch
20. An adequate supply of tetanus toxoid
21. Coramine liquid (60 ml)
22. Tablets – antihistaminic, antispasmodic (25 each)
23. Syringes with needles – 2cc, 5 cc and 10 cc
24. Two needle holders, big and small suturing needles and materials
25. Suturing needles and materials
26. One dissecting forceps
27. One dressing forceps
28. One scalpels
29. One stethoscope
30. Rubber bandage – pressure bandage
31. Oxygen cylinder with necessary attachments
32. One Blood Pressure apparatus
33. One Patellar Hammer
34. One Peak-flow meter for lung function measurement
35. One stomach wash set
36. Any other equipment recommended by the Factory Medical Officer according to specific need relating to manufacturing process
37. In addition –
  - (1) For factories employing 51 to 200 workers –
    1. Four plain wooden splints 900 mm x 100mm x 6mm
    2. Four plain wooden splints 350 mm x 75mm x 6mm
    3. Two plain wooden splints 250 mm x 50mm x 12mm
    4. One pair artery forceps
    5. Injections – morphia, pethidine, atropine, adrenaline, coramine, novocain (2 each)
    6. One surgical scissors
  - (2) For factories employing above 200 workers –
    1. Eight plain wooden splints 900 mm x 100mm x 6mm
    2. Eight plain wooden splints 350 mm x 75mm x 6mm
    3. Four plain wooden splints 250 mm x 50mm x 12mm
    4. Two pairs artery forceps
    5. Injections – morphia, pethidine, atropine, adrenaline, coramine, novocain (2 each)
    6. One surgical scissors

**SCHEDULE -T**

Prescribed under rule 106

Number of workers	Number of taps
Upto 20	1
21 to 35...	2
36 to 50...	3
51 to 150...	4
151 to 200...	5
Exceeding 200 but not exceeding 500	5 plus one tap for every 50 or fraction of 50.
Exceeding 500	11 plus one tap for every 100 or fraction of 100.

**SCHEDULE -U**

Prescribed under rule 107

- Glass Works.
- Engineering workshops.
- Iron and steel works.
- Oil mills.
- Chemical works.
- Automobile workshops.
- Dyeing Works.

**SCHEDULE -V**

Prescribed under rule 129

1. Managers
2. Assistant managers
3. Engineers
4. Foremen
5. Weaving masters and spinning masters in textile mills.
6. Head electricians
- 7.....
- 8.....

**SCHEDULE W**

Prescribed under Rule 132

Section of the Act empowering grant of exemption	Class of factory	Nature of exempted work	Extent of exemption	Remarks
64(2)(a) and 64(3)	All factories	Urgent repairs	Section 61, 52,54,55,56 and 61	(i) No workers shall be employed on such repairs for more than 15 hours on any one day, 39 hours during any three consecutive days, or 66 hours during each period of seven consecutive days commencing from on such repairs.
Employment				(ii) Within 24 hours of the work, notice shall be sent to the Inspector describing the nature of the urgent repairs and the period probably required for their completion
Commencement				iii) Exemption from the provisions of section 54 shall apply only in the case of adult male workers.
64(2)(b) and 64(3)	All factories	(a) Work in the machine.	Section 51, 54,55, 56 and	The limits of work inclusive of overtime shall not exceed those mentioned in

		Smithy or the foundry shops in connection with the mill gearing the electric driving or lighting apparatus, the mechanical or electrical lifts or the steam or water pipes or pumps of a factory.	61	sub-section 4 of section 64
		(b) Work of examining or repairing any machinery or other part of the plant which is necessary for carrying on work in the factory	-do-	-do-
		(c) Work in boiler houses and engine rooms such as lighting fires in order to generate gas preparatory to the commencement of regular work in the factory	-do-	-do-
64(2)(c) and 64(3)	All factories	(a) Work performed by drivers on lighting, ventilating and humidifying apparatus	Sections 51, 54, 55 and 61	-do-
		(b) Work performed by fire pump men	-do-	-do-
64(2)(d) and 64(3)	(1) Oil tank installation	Work performed by workers connected with pumping operations	Section 51, 52,,54, 55, 56 and 61	In the absence of a worker who has failed to report for duty, a shift workers shall be allowed to work the whole or of a subsequent shift provided that:
			(i)	the next shift of the shift worker shall not commence before a period of 16 hours has elapsed:
			(ii)	within 24 hours of the commencement of the subsequent shift, notice shall be sent to the Inspector describing the circumstances under which the worker is required to work in the subsequent shift;

			(iii)	the exemption will be restricted to only male adult; and
			(iv)	the limits of work inclusive of overtime shall not exceed those mentioned in sub-section (4) of section 64
(2)	Public hydro electric supply factories	Operation and maintenance of prime movers and auxiliaries, transformers and switches	Section 52, 52 and 55	-do-
(3)	Public electric supply companies generating electricity from oil in internal combustion	Work of engine drivers and assistants, generators attendants, oiler and greaser, switch boards operators and pumpmen	-do-	-do-
(4)	Electrical transforming factories	Work of operation and maintenance of the transforming plant, switches and synchronous condensers	-do-	-do-
(5)	Distilleries	Work on the extraction of sugar from various bases, fermentation of sugar juice and distillation of fermented wash	-do-	-do-
(6)	Sugar factories	Extraction of the juice from the cane, clarification and boiling of the juice; curing of the massecuite; and bagging.	-do-	-do-
(7)	Chemical factories	Work on sulphur burners, chamber, concentrator and pumps; roasting furnaces, manufacture of hydrochloric and nitric acid, sulphates, sulphides, nitrates, superphosphate and chlorides;	-do-	-do-

		and work on the steam service.		
(8)	Vegetable hydrogenation factories	Work on refining, bleaching, filtering, generation of hydrogen; hydrogenation; deodorizing processes; compression of oxygen and cylinder filling; and work on the electrical power plant	-do-	-do-
(9)	Ice factories	Work on the engine and compressor drivers and assistants and oilers	-do-	-do-
(10)	Oil Mills	All work	Section 54 and 55	-do-
(11)	Flour mills	All work	Section 52 and 55	-do-
(12)	Glass factories	(a)Work in attending to furnace	-do-	-do-
		(b)All work and processes from mixing of batch to removal of the manufactured glassware from the lears	Section 52	-do-
(13)	Paper factories	(a)All work on paper making machinery and supply of power connected therewith	Section 54 and 55	-do-
		(b)Work on choppers, digesters, kneaders, strainers and washers, beaters, paper-making machines, pumping plant reelers, cutters and power plant	Section 52, 54 and 55	-do-
(14)	Rubber tyre	All work on curing process	Section 55	-do-

(15)	Iron and steel	All work on steel furnace	Section 51, 52, 54, 55 and 56	-do-
(16)	All factories	Work on automatic equipment engaged in galvanizing, anodizing and enameling	Section 51, 52, 54, 55, and 56	(1)The limits of work inclusive of overtime shall not exceed those mentioned in sub-section (4) of section 64 (2)The exemption shall be granted only in respect of adult male workers.
64(2)	(1)Newspaper printing factories	Teleprinter service	Sections 51, 54 and 56	-do-
64(2)(i)	All factories	Loading and unloading of railway wagons, lorries or trucks	Section 51, 52, 54, 55 and 56	-do-
64(2)(k)	Any factory or class or description of factories as may be notified by the State Government in the Official Gazette	Work of national importance as may be notified by the State Government in the Official Gazette	Sections 51, 52, 54, 55, 56 and 58	(1)The limit of work inclusive of overtime shall not exceed those mentioned in sub-section (4) of section 64

**Explanations:-**

1. The following shall be considered to be urgent repairs :

(a) repairs to any part of the machinery, plant or structure of a factory which are of such a nature that delay in their execution would involve danger to human life or safety or the stoppage of manufacturing process;

(b) breakdown repairs to the motive power, transmission or other essential plant of other factories, collieries, railways, dockyards, harbours, tramways, motor transport, gas, electrical generating and transmission, pumping or similar essential or public utility services carried out in general engineering works and foundries and which are necessary to enable such concerns to maintain their main manufacturing processes, production or services during normal working hours;

(c) repairs to deep-sea ships, and repairs to commercial air-craft done in a factory which are essential to enable such ships or air-craft to leave port at proper time or continue their normal operations in a sea-worthy or air-worthy condition, as the case may be; and

(d)repairs in connection with a change of motive power, for example, from steam to electricity or vice versa, when such work cannot possibly be done without stoppage of the normal manufacturing process.

2. Periodical cleaning is not included in the terms “examining” or “repairing”.

**SCHEDULE -X**

Prescribed under rules 144

The following classes of dangerous occurrences, whether or not they are attended by personal injury or disablement:-

1. Bursting of a plant used for containing or supplying steam under pressure greater than atmospheric pressure.
2. Collapse or failure of a crane, derrick, which, hoist or other appliances used in raising or lowering persons or goods, or any part thereof, or the overturning of a crane.
3. Explosion, fire, bursting out, leakage or escape of any molten metal, or hot liquid or gas causing bodily injury to any person or damage to any room or place in which persons are employed, or fire in rooms of cotton pressing factories when a cotton opener is in use.

4. Explosion of a receiver or container used for the storage at pressure greater than atmospheric pressure of any gas or gases (including air) or any liquid or solid resulting from the compression of gas.
5. Collapse or subsidence of any floor, gallery, roof, bridge, tunnel, chimney, wall, building or any other structure.

### SCHEDULE -Y

Prescribed under rule 151

**1. Definitions.-** for the purpose of this schedule-

- (a) “mg/m<sup>3</sup>” means milligrams of a substance per cubic metre of air;
- (b) “mppem” means million particles of a substance per cubic metre of air;
- (c) “ppm” means parts of vapour or gas per million parts of air by volume at 25 degrees centigrade and 760 mm of mercury pressure;
- (d) “Time weighted average concentration” means the average concentration of a substance in the air at any work location in a factory computed from evaluation of adequate number of air samples taken at that location, spread over the entire shift on any day, after giving weightage to the duration for which each such sample is collected and the concentration prevailing at the time of taking the sample.

$$\text{Time weighted average concentration} = \frac{C_1T_1 + C_2T_2 + \dots + C_nT_n}{T_1 + T_2 + \dots + T_n}$$

Where C<sub>1</sub> represents the concentration of the substance for duration T<sub>1</sub> (in hours);  
 C<sub>2</sub> represents the concentration of the substance for duration T<sub>2</sub> (in hours); and  
 C<sub>n</sub> represents the concentration of the substance for duration T<sub>n</sub> (in hours).

- (e) “Work location” means a location in a factory at which a worker works or may be required to work at any time during any shift on any day.

**2. Limits of concentration of substances at work location.-** (1) The time weighted average concentration of any substance listed in table 1 or 2 of the schedule, at any work location in a factory during any shift on any day shall not exceed the limit of the permissible time weighted average concentration specified in respect of that substance:

Provided that in the case of a substance mentioned in Table 1 in respect of which a limit in terms of short term maximum concentration is indicated, the concentration of such a substance may exceed the permissible limit of the time weighted average concentration for the substance for short periods not exceeding 15 minutes at a time, subject to the condition that-

- (a) such periods during which the concentration exceeds the prescribed time weighted average concentration are restricted to not more than 4 per shift;
  - (b) the time interval between any two such periods of higher exposure shall not be less than 60 minutes; and
  - (c) at no time the concentration of the substance in the air shall exceed the limit of short term maximum concentration.
- (2) In the case of any substance given in Table 3, the concentration of the substance at any work location in a factory at any time during any day shall not exceed the limit of exposure for that substance specified in the table
- (3) In the cases where the word “skin” has been indicated against certain substance mentioned in Tables 1 and 3, appropriate measures shall be taken to prevent absorption through cutaneous routes particularly skin, mucous membranes, and eyes as the limits specified in these Tables are for conditions where the exposure is only through respiratory tract.
- (4) (a) In case, the air at any work location contains a mixture of such substances mentioned in Table 1,2 or 3, which have similar toxic properties, the time weighted concentration of each of these substances during the shift should be such that when these time weighted concentration divided by the respective permissible time weighted average concentration specified in the above mentioned tables, and the fractions obtained are added together, the total shall not exceed unity.

i.e.  $\frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n}$  should not exceed unity

Where C<sub>1</sub>, C<sub>2</sub>, ..... C<sub>n</sub> are the time weighted concentration of toxic substances 1,2,....and respectively, determined after measurement at work location; and L<sub>1</sub>,L<sub>2</sub> .....L<sub>n</sub> are the permissible time weighted average concentration of the toxic substances 1,2,....and n respectively.

- (b) In case the air at any work location contains a mixture of substances, mentioned in Table 1, 2, 3 and these do not have similar toxic properties, then the time weighted concentration of each of these substances shall not



exceed the permissible time weighted average concentration specified in the above mentioned tables, for that particular substance.

(c) The requirement in clauses (a) and (b) shall be in addition to the requirements in paragraphs 2 (1) and 2(2).

### 3. Sampling and evaluation procedures.-

(1) Notwithstanding provisions in any other paragraphs, the sampling and evaluation procedures to be adopted for checking compliance with the provisions in the schedule shall be as per standard procedures in vogue from time to time.

(2) Notwithstanding the provisions in paragraph 5, the following conditions regarding the sampling and evaluation procedures relevant to checking compliance with the provisions in the schedule are specified.

(a) For determination of the number of particles per cubic metre in item 1 (a)(i)(1) in Table 2, samples are to be collected by standard or midjet impinger and the counts made by light-field technique.

(b) The percentage of quartz in the 3 formulae given in item 1(a) (i) of Table 2 is to be determined from air borne samples.

(c) For determination of number of fibres as specified in item 2(a) of Table 2, the membrane filter method at 430 x magnification (4mm objective) with phase contrast illumination should be used.

(d) Both for determination of concentration and percentage of quartz for use of the formula given in item 1(a)(i)(2) of Table 2, the fraction passing through a size-selector with the following characteristics should only be considered.

<u>Aerodynamic diameter</u> <u>(unit density sphere)</u>	<u>Percentage allowed</u> <u>by size-selector</u>
2.0	90
2.5	75
3.5	50
5.0	25
10.0	0

4. Power to require assessment of concentration of substances.- (1) An Inspector may, by an order in writing, direct the occupier or manager of a factory to get before any specified date, the assessment of the time weighted average concentration at any work location of any of the substances mentioned in Table 1, 2 or 3 carried out.

(2) The results of such assessment as well as the method followed for air sampling and analysis for such assessment shall be sent to the Inspector within 3 days from the date of completion of such assessment and also a record of the same kept readily available for inspection by an Inspector.

5. Exemption.- If in respect of any factory or a part of a factory, the Chief Inspector is satisfied that, by virtue of the pattern of working time of the workers at different work locations or an account of other circumstances, no worker is exposed, in the air at the work locations, to a substance or substances specified in Tables 1, 2 or 3 to such an extent as is likely to be injurious to his health, he (the Chief Inspector) may by an order in writing, exempt the factory or a part of the factory from the requirements in paragraph 2, subject to such conditions, if any, as he may specify therein.

TABLE 1

Substances	<u>Permissible limits of exposure</u>			
	Time-weighted average concentration		Short-term maximum concentration	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Carbonyl chloride (Phosgene)	0.1	0.4	-	-
Chlordane-skin	-	0.5	-	2
Chlorobenzene (mono chloro- benzene)	75	350	-	-
Chlorine	1	3	3	9
bis-Chloromethyl ether	0.001	-	-	-
Chromic acid andchromates (as Cr.)	-	0.05	-	-

Chromium, Sel-Chromic,				
Chromous salts (as Cr)	-	0.5	-	-
Copper fume	-	0.2	-	-
Cotton dust, raw	-	0.2	-	0.6
Cresol, all isomers-skin	5	22	-	-
Cyanides, (as CN)-skin	-	5	-	-
Cyanogen	10	20	-	-
DDT (Dichlorodiphenyl-trichlore-ethane)	-	1	-	3
Demeton-skin	0.01	0.1	0.03	0.3
Diazion-skin	-	0.1	-	0.3
Dibutyl phthalate	-	5	-	10
Dichlorves (DDVP)-skin	0.1	1	0.3	3
Dieldrin-skin	-	0.25	-	0.75
Dinitrobenzene (all isomers)				
skin	0.15	1	0.5	3
Dinitrotoluene-skin	-	1.5	-	5
Diphenyl	0.2	1.5	0.6	4
Endosulfan (Thiodan)-skin	-	0.1	-	0.3
Endrin-skin	-	0.1	-	0.3
Ethyl acetate	400	1000	-	-
Ethyl alcohol	1000	1900	-	-
Ethyl amine	10	18	-	-
Flourides (as F)	-	2.5	-	-
Flourine	1	2	2	4
Hydrogen Cyanide-skin	10	11	15	16
Hydrogen sulfide	10	15	15	27
Iron oxide fume (Fe2O3 as Fe)	-	5	-	10
Isoamyl acetate	100	525	125	655
Isoamyl alcohol	100	360	125	450
Isobutylalcohol	50	150	75	225
Lead, inorg, fumes and dusts (as Pb)	-	0.15	-	0.45
Lindane-skin	-	0.5	-	1.5
Mala thion-skin	-	10	-	-
Manganese fume (as Mn)	-	1	-	3
Mercury (as Hg)	-	0.05	-	0.15
Mercury (alkyl compounds)-skin (as Hg)	0.001	0.01	0.003	0.03

Substances	<u>Permissible limits of exposure</u>			
	Time-weighted average concentration		Short-term maximum concentration	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Methyl alcohol (methanol) skin	200	260	250	310
Methyl cellosolve-skin				
(2-methoxy ethanol)	25	80	35	120
Methyl isobutyl ketone-skin	100	410	125	510
Naphthalene	10	50	15	75
Nickel carbonyl (as Ni)	0.05	0.35	-	-
Nitric acid	2	5	4	10
Nitric oxide	25	30	35	45
Nitrobenzene-skin	1	5	2	10
Oil mist-mineral	-	5	-	10
Parathion-skin	-	0.1	-	0.3
Phenel-skin	5	19	10	38
Phorate (Thimet)-skin	-	0.05	-	0.2
Phosgene (Carbonyl chloride)	0.1	0.4	-	-
Phosphine	0.3	0.4	1	1
Phosphorous (yellow)	-	0.1	-	0.3
Phosphorous pentachloride	-	1	-	3
Phosphorous trichloride	0.5	3	-	-

Picric acid-skin	-	0.1	-	0.3
Pyridine	5	15	10	30
Silane (silicon tetrahydride)	0.5	0.7	1	1.5
Styrene, monomer (phenyl-ethylene)	100	420	125	525
Sulphur dioxide	5	13	-	-
Sulphuric acid	-	1	-	-
Toluene (toluol)-skin	100	375	150	560
o-Toludine	5	22	10	44
Trichloroethylene	100	535	150	800
Vinyl chloride	5	10	-	-
Welding fumes (NOC)	-	5	-	-
Xylene (o-m-isomers)-skin	100	435	150	655

TABLE 2

Substance	Permissible time weighted average concentration
<b>1. Silica</b>	
(a) Crystalline	
(i) Quartz	1060
mppcm	
(1) In terms of dust count :-	% Quartz + 10
(2) In terms of respirable dust	10 ----- mg/m <sup>3</sup> % respirable quartz + 2
(3) In terms of total dust :	30 ----- mg/m <sup>3</sup> % quartz + 3
(ii) Cristobalite	Half the limits given against quartz
(iii) Tridymite	Half the limits given against quartz
(iv) Silica fused	Same limit as for quartz
(v) Tripoli	Same limit as in formula in item 2 given against quartz
(b) Amorphous	705 mppcm
2. Silicate having less than 1% free silica by weight	
(a) Asbestos (fibres longer than 5 microns)	2 fibres/cubic centimetre
(b) Mica	705 mppcm
(c) Mineral Wool fibre	10 mg/m <sup>3</sup>
(d) Porlite	1060 mppcm
(e) Portland cement	1060 mppcm
(f) Soap stone	705 mppcm
(g) Talc (nonobostiform)	705 mppcm
(h) Talc (fibrous)	Same limit as for asbestos
(i) Tromolite	Same limit as for asbestos
3. Coal dust	
(3) For airborne dust having less than 5 % silicon dioxide by weight	: 2mg/m <sup>3</sup>
(2) For airborne dust having over 5% silicon dioxide	: Same limit as prescribed by formula in item (2) against quartz.

TABLE 3

Substance	Permissible limit of exposure	
	ppm	mg/m <sup>3</sup>
Acetic anhydride	5	20
O-Dichlorobenzene	50	300
Formaldehyde	2	3
Hydrogen Chloride	5	7
Manganese & compounds (as Mn)	-	5
Nitrogen dioxide	5	9
Nitroglycerin-skin	0.2	2
Potassium hydroxide	-	2
Sodium hydroxide	-	2
2,4,6 - Trinitrotoluene (TNT)	-	0.5



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