

Chapter IX

SPECIAL PROVISION

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Rules prescribed under Section 87

Rule 160. Dangerous operation

- 1) The following operations when carried on in any factory are declared to be dangerous operations under Section 87
 - 1) Manufacture of aerated water and processes incidental thereto.
 - 2) 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.
 - 3) Manufacture and repair of electric accumulators.
 - 4) Glass manufacture.
 - 5) Grinding or glazing of metals.

- 6) Manufacture and treatment of lead and certain compounds of lead.
- 7) Generation of gas from dangerous petroleum as defined in clause (b) of section 2 of the Petroleum Act, 1934.
- 8) Cleaning or smoothing of articles by a jet of sand, metal shot or grit or other abrasive propelled by a blast of compressed air or steam.
- 9) Liming and tanning of raw hides and skins and processes incidental thereto.
- 10) Manufacture of chromic acid or manufacture or recovery of the bicromate of sodium, potassium or ammonium.
- 11) Manufacture or manipulation of nitro or amino compounds.
- 12) Handling and manipulation of corrosive substances.
- 13) Manufacture of bangles and other articles from cinematograph film and toxic and inflammable solvents.
- 14) Process involving manufacture use or evolution of carbon disulphate and hydrogen sulphide.
- 15) Manufacture and manipulation of dangerous pesticides.
- 16) Compression of oxygen and hydrogen produced by electrolytic.
- 17) Manufacture and manipulation of asbestos.
- 18) Manufacture and manipulation of manganese and its compounds.
- 19) Carbon-di-sulphide plants.
- 20) Benzene.
- 21) Process of extracting oils, wax and fats from vegetable and animal sources in Solvent Extraction Plant.
- 22) Manufacture or manipulation of Carcinogenic Dye Intermediates.
- 23) Highly Flammable liquids and Flammable compressed Gases
- 24) Operations Involving High Noise levels.
- 25) Chemical Involving High Noise Levels.
- 26) Manipulation of Stone or any other Material containing free Silica.
- 27) Fire Works factories and Match Factories.
- 28) Composting, Printing, Binding and Processes and/or Operations Incidental thereto.
- 29) Processing of Cashew nut
- 30) Printing process and type foundries and certain lead processes carried therein.
- 31) Manufacture of Pottery.
- 32) Operation in Foundries.
- 2) The provision specified in the Schedules annexed hereto shall apply to any class or description of factories wherein dangerous operations specified in each Schedule are carried.
- 3) "First Employment" means employment for the first time in a hazardous process or operation so notified under Section 87, or reemployment therein after cessation of employment in such process or operation for a period exceeding 3 (three) calendar months.
- 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 of Rs. 25/- per examination of each worker every time he is examined.

- b) The fees prescribed in sub-rule (4) (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 examination shall be paid under head of account "0230 Labour & Employments – 104 - fees realised under the Factories Act" and submit original treasury challan to the office of the respective Inspector of factories.
- 5) Notwithstanding the provision specified in the schedule annexed to this Rule, the Inspector may by issue of orders 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.

Schedule I

Manufacture of aerated water and processes incidental thereto

- 1) Fencing of machines – All machines for filling bottles or siphons shall be so constructed, placed or fenced as to prevent, as far as may be practicable, a fragment of a bursting bottle or siphon from striking any person employed in the factory.
- 2) Face guards and gauntlet -
 - 1) The occupier shall provide and maintain in good condition for the use of all person engaged in filling bottles or siphon –
 - 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
 - i) 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, and
 - ii) where a machine is so constructed that only one arm on the bottle at work upon it is exposed to danger, a gauntlet need not be provided for the arm which is not exposed to danger.
 - 3) The occupier shall provide and maintain in good condition for the use of all persons engaged in corking, crowning, and screwing, wiring, foiling, capsuling, sighting or labelling bottles or siphon -
 - a) suitable face-guards to protect the face, neck and throat, and
 - b) suitable gauntlets for both arms to protect the arms and at least half of the palm and the space between the thumb and forefinger.

- 4) Wearing of face guards and gauntlets – All persons engaged in any of the processes specified in paragraph 2 of this schedule shall, at work in such process, 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 electrolytes containing acids, bases or salts of metals such as chromium, nickel, cadmium, zinc, copper, silver, gold etc.

- 1) Definitions: - For the purpose of this schedule –
 - a) “Electrolytic process” means the electrolytic planting or oxidation of metal article by the use of an electrolyte containing acids, bases or salts of metal such as chromium, nickel, cadmium, zinc, copper, silver, gold etc.
 - b) “Bath” means any vessel used for an electrolytic chromium process or for any subsequent process,
 - c) “Employed” means any process involving contact with liquid from a bath.
 - d) “Suspension” means suspension from employment in any process involving contract with liquid from any bath by written certificates in the Health Register, signed by the certifying surgeon, who shall have power of suspension as regards all persons employed in any such process.
- 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 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 woman, adolescent or child shall be employed or permitted to work at a bath.
- 4) Floor of work rooms: - The floor of every room 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 clothing: -
 - 1) The occupier of the factory shall provide and maintain in good and clean condition the following articles of protective clothing 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 clothing shall be worn by the person concerned: -
 - a) water-proof aprons and bibs, and
 - b) for persons actually working at bath, loose-fitting rubber gloves and rubber boots or other water-proof footwear and chemical goggles.
 - 2) The occupier shall provide and maintain for the use of all persons employed suitable accommodation for the storage and adequate arrangements for the drying of the protective clothing.
- 6) Medical requisites: - The occupier shall provide and maintain a sufficient supply of suitable ointment and impermeable water-proof plaster in a separate box readily

accessible to the workers and used solely for the purpose of keeping the ointments and plaster.

7) Medical Examination: -

- 1) Every person employed in electrolytic process, shall be examined by a certifying surgeon within 30 days of his first employment in the said process and if found fit, shall be granted by the certifying surgeon a certificate of fitness in [Form 28](#). 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 micro globulin 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 process 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 28](#). 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 including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in [Form 29](#).
- 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 for employment in the electrolytic process 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 the 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 rehabilitate.
- 7) No person who has been found unfit to work as said sub-paragraphs (6) shall be re-employed or permitted to work in the said process unless the Certifying Surgeon, after further examination, again certifies him fit for employment in those processes.
- 8) Chief Inspector of Factories is of the opinion that conditions of work in the said process are unsatisfactory, he may, by order in writing, require the manager of the factory to have the person employed in the said process medically examined by a certifying surgeon at more frequent intervals.

- 8) 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

Electrolyting process

- 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) Weekly examination: -
 - a) The occupier of every factory shall appoint a qualified medical practitioner, whose appointment shall be subject to confirmation by the Chief Inspector.
 - b) No person shall be employed in electrolytic process unless he has been examined and found fit for employment in the said process by the qualified medical practitioner. Such examination shall include inspection of hands, forearms and nose and will be carried out at intervals, of not more than one week. The results of such examination shall be maintained in a Health Register in [Form 29](#). The register shall be kept by the manager and shall contain the names of all the persons employed in the said process and the certificate of fitness in respect of each person issued by the certifying surgeon and the certificates shall be attached thereto.
 - c) If at any time, the registered medical practitioner is of opinion that nay person is no longer fit for employment in the electrolytic process, he shall make a record of his findings in the health register and intimate the manager in writing that the said person is unfit for work in the said process.
 - d) A person so found unfit by the registered medical practitioner shall be sent by the manager to the certifying surgeon with report from the registered medical practitioner. The certifying Surgeon, after examination may suspend the said person from working in the said process. No person, after suspension shall be employed without written sanction from the certifying surgeon nor his name entered in or the certificate attached to the health register.
- 9) Water facilities:
 - 1) There shall 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 through with a smooth impervious surface filled with a waste pipe, and of sufficient length to allow at least 60 cms for every 5 persons employed at any one time, and having a constant supply of water from taps or jets above the trough at interval of not more than 60 cms., or
 - ii) at least one wash basin for every five such persons employed at 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-paragraphs (1), an approved type of 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.

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, 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.
 - c) “Suspension” means suspension from employment in any lead process by writing certificates in the Health Register, [From 29](#) signed by the Certifying Surgeon, who shall have power of suspension as regards all persons employed in any such process.
- 3) Prohibition relating to women and young persons: - No women or young person shall be employed or permitted to work in any lead or pasting is carried on.
- 4) Separation of certain processes: - Each of the following process shall be carried on in such a manner and under such conditions as to secure effectual separation from one another and other process: -
 - a) Manipulation of raw oxide of lead.
 - b) Pasting;
 - c) Drying of pasted plates;
 - d) For with lead burning (“tacking”) necessary carried on in connection therewith;
 - e) Melting down or pasted plates;
 - f) The grid casting shop.

- 5) Air Space: - In every room in which a lead process is carried on, there shall be at least 15 cubic metres of air for each person employed therein, and in computing this air space no height over 3.5 metres 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 centre of the working position of any plaster and that of the plaster working nearest to him shall not be less than 150 centimetres.
- 8) Floor of work-rooms: -
 - 1) The floor of every room in which a lead process is carried on shall be—
 - a) of cement or similar material so as to be smooth and impervious to water;
 - b) maintain in sound condition;
 - c) kept free from material, plant, or other obstruction 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 –
 - d) 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 cleaned 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;
 - c) thoroughly washed daily by means of a 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;
 - b) be kept free from all materials or plant not required for a produced in, the process carried on thereat;
and all such work-benches other than those in grid casting shops shall –
 - c) be cleaned daily either after being a 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;
 - g) be kept constantly moist while pasting is being carried on; and every work-bench used for trimming, brushing, filing or any other abrading or cutting or pasting containing water.
 - h) be fitted with a top having opening or grill which shall allow any clippings, filling, or dust produced to fall into a collecting trough containing water.

- 10) Exhaust draught: - The following processes shall not be carried on without the use of efficient exhaust draught: -
- a) Melting of lead or materials lead;
 - b) Manipulation of raw oxide of lead, unless done in an enclosed apparatus so as to prevent the escape of dust into the work-room;
 - c) Pasting;
 - d) Trimming, brushing, filing or any other abrading or cutting of pasted plates giving rise to dust;
 - e) Lead burning other than -
 - i) “tacking” in the formation room;
 - ii) chemical burning for the making of lead linings for cell cases necessarily carried on in such a manner that the application of efficient exhaust is impracticable.

Such exhaust draught shall be effected 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 from 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 pt. Such receptacle shall be kept covered while in the work room, except when dross is being deposited therein.
- 13) Container for lead waste: - A suitable receptacle shall be provided in every work-room in which old plates and waste material which may give rise to dust shall be deposited.
- 14) Racks and shelves in drying room: - The racks or shelves provided in any drying room shall not be more than 240 centimetres from the floor not more than 60 centimetres in width; provided that as regards racks or selves set or drawn from both sides, the total width shall not exceed 12 centimetres.

Such racks or selves shall be cleaned only after being thoroughly damped unless an efficient suction cleaning apparatus is used for this purpose.

- 15) Medical examination: -
- a) Every person employed in a lead process shall be examined by the Certifying Surgeon within seven days preceding or following the date of his first employment in such process and thereafter shall be examined by the Certifying Surgeon once in every calendar month, or at such other intervals as may be specified in writing by the Chief Inspector, on a day of which the notice shall be given to all concerned.
“First employment” means first employment in a lead process in the factory or workshop and also re-employment therein in a lead process following any cessation of employment in such process for a period exceeding three calendar months.
 - b) A Health Register in [Form 29](#) containing the names of all persons employed in a lead process shall be kept.
 - c) No person after suspension shall be employed in a lead process without written sanction from the Certifying Surgeon entered in or attached to the Health Register.

15-A. Medical Facilities: -

- 1) The occupier of the factory shall appoint at least a part-time qualified medical practitioner, possessing MBBS degree and having a post-graduate Diploma in Industrial Health or possessing MBBS degree and having five years experience in industry as occupational health physician. The medical practitioner so appointed shall be required to put in minimum four hours attendance on every working day in the ambulance room for carrying out the duties specified in the following sub-paragraph (2).

Provided that, in cases of factories employing less than 500 workers per day, the Chief Inspector of factories may allow attendance for shorter duration after taking into consideration all the relevant facts of each case.

- 2) The medical practitioner, so appointed, shall perform the following duties that is to say –
 - a) to maintain health Register in [Form 29](#).
 - b) to undertake medical supervision of persons engaged on dangerous operations specified in Rule 165 of these rules;
 - c) to look after health, education and rehabilitation of sick, injured or affected workers.
 - d) to carry out inspection of work-rooms where dangerous operation are carried out and to advise the management in respect of the measures to be adopted for protection of workers involved therein.
- 3) For the purpose of medical supervision by the medical practitioner so appointed, the occupier shall provide for the former's exclusive use at the factory premises a room which shall be properly cleaned, adequately lighted, ventilated and furnished with a screen, a table and office stationery, chairs and other facilities and instruments including X-raying arrangement for schedules IV, X, XVII for such examinations and such other equipments as may be prescribed by the Chief Inspector of Factories from time to time.

- 16) Protective clothing: - Protective clothing shall be provided and maintained in good repair for all persons employed in –

- a) manipulation of raw oxide of lead;
- b) pasting;
- c) the formation room;

and such clothing shall be worn by the persons concerned. The protective clothing shall consist of a water-proof apron and manipulation of raw oxide of lead or in pasting head covering. The head coverings shall be washed daily.

- 17) Mess-room: - 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 mess-room, which shall be furnished with (a) sufficient tables and benches, and (b) adequate means for warming food,
- 18) Cloak-room: - There shall be provided and maintained for the use of all persons employed in a lead process: -
 - a) a cloak-room for clothing put off during work hours with adequate arrangement, for drying the clothing if wet. Such accommodation shall be separate from any mess-room;
 - b) separate and suitable arrangements for the storage of protective clothing provided under paragraph 16.

- 19) Washing facilities: - There shall be provided and maintained in a cleanly state and in good repair for the use of persons employed in a lead process –
- a) a wash-place under cover, with either –
 - i) 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) a sufficient supply of clean towels made of suitable material 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 workers; and
 - iii) a sufficient supply of soap or other suitable cleansing material and of nailbrushes.
 - b) 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.
- 20) Time to be allowed for washing: - Before each meal and before the end of the day's work at least 10 minutes, in addition to the regular meal time off 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 rule shall not apply.
- 21) 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.
- 22) Foods, drinks etc. prohibited in workrooms: - No food, drink, pan and supari or tobacco shall be consumed or brought by any worker into any work-room on.
- 23) Storage of lead oxides: - All bags containing or having contained oxide of lead shall be kept in a closed room used only for this purpose.
- 24) Re-use of paper or cloth restricted: -
- a) Paper once used for backing or drying pasted plates shall not be used again in the factory.
 - b) Cloth once used for baking or drying pasted plates shall not be stored or handled unless it is moist so as not to give off dust.

Schedule IV

Glass Manufactures

- 1) Exemption: - If the Chief Inspector is satisfied in respect of any factory or any class or 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.
- 2) Definitions: - 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 of soluble lead compound exceeding when calculated as lead monoxide, five percent of the dry weight of the portion taken for analysis.

The method of treatment shall be as follows: -

A weighed quality of the material which has been dried at 100°C 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.

- c) "Suspension" means suspension from employment in any process specified in paragraph 3 by written certificate in the Health Register in [Form 7](#) signed by the Certifying Surgeon who shall have power of suspension as regards all persons employed in any such process.
- 3) Exhaust draught: - The following processes shall not be carried on except under an efficient exhaust draught or under such other conditions as may be approved by the Chief Inspector: -
 - a) The mixing of raw materials to form a "bath".
 - b) The dry grinding, glazing and polishing of glass or any article of glass;
 - c) All processes in which hydrofluoric acid fumes or ammoniacal vapours are given off;
 - d) All processes in the making of furnace moulds or "pots" including the grinding or crushing of used "pots";
 - e) All processes involving the use of a dry lead compound.
- 4) 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 3 or at any place where such operations are carried on.
- 5) 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: -

The floors shall be –

- a) of cement or similar materials so as to be smooth and impervious to water.
- b) maintained in sound conditions; and
- c) cleaned daily after being thoroughly sprayed with water at a time when no other work is being carried on in the room

The work-benches shall: -

- a) have a smooth surface and be maintained in sound conditions; and

- b) be cleaned daily either being thoroughly damped or by means of a suction cleaning apparatus at a time when no other work is being carried on thereat
- 6) 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 rooms;
 - b) The floor shall be covered with gutta-percha and be tight and shall slope gently down to a covered drain;
 - c) The work-places shall be so enclosed in projecting holes that opening required for bringing in the objects to be created shall be as small as practicable; and
 - d) The efficient exhaust draught shall be so contrived that the gases are exhausted downwards.
- 7) Storage and transport of hydrofluoric acid: - Hydrofluoric acid shall not be stored or transported except in cylinders or receptacles made of lead or gutta-percha.
- 8) Blow-pipes: - Suitable facilities shall be readily available for sterilizing the blowpipes used by the glass-blowers and such blow-pipes shall be sterilized at the beginning of the operation of blowing, each day.
- 9) Food, drinks, etc., prohibited in work-room: - No food, drink, pan and supari or tobacco shall be brought into or consumed by any worker in any room or work place wherein any process specified in paragraph 3 is carried on.
- 10) 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 3 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.
- 11. 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 3 –
 - 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 interval 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

a sufficient supply of clean towels made of suitable materials renewed duly with a sufficient supply of soap or other suitable cleaning material and of nail brushes;

and

a sufficient number of stand pipes with taps – the number and location of such stand pipes shall be to the satisfaction of the Chief Inspector.

- 12) Medical examination: -

- a) Every person employed in any process specified in paragraph 3 shall be examined by the Certifying Surgeon, within seven days preceeding or following the date of his first employment in such process and thereafter shall be examined by the Certifying Surgeon once in every calendar month or at such other intervals as may be specified in writing by the Chief Inspector on a day of which due notice shall be given to all concerned.
- b) A Health Register in [Form 29](#) containing the names of all persons employed in any process specified in paragraph 3 shall be kept.
- c) No person after suspension shall be employed in any process specified in paragraph 3 without written sanction from the Certifying Surgeon entered in or attached to the Health Register.

13. Medical facilities: -

- 1) The occupier of the factory shall appoint at least a part time qualified medical practitioner, possessing MBBS degree and having post-graduate diploma in Industrial Health or possessing MBBS degree and having five years experience in industry as occupational health physician. The medical practitioner so appointed shall be required to put in minimum four hours attendance on every working day in the ambulance room for carrying out the duties specified in the following sub-paragraph (2)

Provided that, in cases of factories employing less than 500 workers per day, the Chief Inspector of Factories may allow attendance for shorter duration taking into consideration all the relevant facts of each case.

- 2) The medical practitioner so appointed, shall perform the following duties that is to say: -
 - a) to maintain Health Register in [Form 29](#).
 - b) to undertake medical supervision of persons engaged on dangerous operations are carried out and to advice the management in respect of the measures to be adopted for protection of health of the workers involved therein.
 - c) to look after health , education and rehabilitation of sick, injured or affected workers;
 - d) to carry out inspection of work-rooms where dangerous operations are carried out and to advise the management in respect of the measures to be adopted for protection of health of the workers involved therein.
- 3) For the purpose of medical supervision by the medical practitioner so appointed, the occupier shall provide for the former's exclusive use at the factory premises a room which shall be properly cleaned, adequately lightened, ventilated and furnished with a screen, a table with office stationary, chairs and other facilities and instrument including X-ray arrangements also for Schedule X and XVII for such examinations and such other equipments as may be prescribed by the Chief Inspector from time to time.

Schedule V

Grinding or Glazing of materials and processes incidental thereto

- 1. Definitions: - For the purpose of this schedule: -
 - a) "Grindstone" means a grindstone composed of natural or manufactured stand stone 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 blended emery or similar abrasive.
- c) "Grinding" means the abrasion, by aid of mechanical power, of metal, by means of grindstone or abrasive wheel.
- d) "Glazing" means the abrading, polishing or finishing by aid or 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 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 revolving grindstone by the application of a rod, bar or strip of metal to such surface.
- 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.

2) 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.
- 3) 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.

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 appliances, i.e., the opinion, as effectual for 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 be at any time perform the actual process of grinding, or glazing upon a grindstone, abrasive wheel or glazing appliances.

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

- 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 & Rodding: Hacking & Rodding shall not be done unless during the process either (a) and adequate supply of water is laid on at the upper surface of the grindstone or (b) adequate appliances for the interception of dust are provided in accordance with the requirements of paragraph 3.
- 7) Examination of Dust Equipment:
 - a) All equipment for the extraction or suppression of dust shall at-least once in every six months be examined and tested by a competent person, and any defect disclosed by such examination and test shall be rectified as soon as practicable.
 - b) A register containing particulars of such examination and tests shall be kept in a **Form** approved by the Chief Inspector.
- 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; 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 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 for such employment by Certifying Surgeon.
 - 2) Every worker employed in the said processes shall 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 & Certificates of Fitness in **Form 28**. 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 29**.
 - 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 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 lead Compounds of Lead

1) Examination: Where the chief Inspector is satisfied that all or any of the provision 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 provision, subject to such conditions as he may specify therein.

2) Definition: - For the purpose of this schedule: -

- a) "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, quantity of soluble lead compound exceeding when calculated as lead monoxide, five percent of the dry weight of the portion taken for analysis, in the case of paints and similar products and other mixtures containing oils 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 weighted quantity of the material which has been dried at 100°C 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% 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.

- b) "Efficient exhaust draught" means localized ventilation affected by heat or mechanical means, for the removal of gas, vapour, dust or fumes so as to prevent them (as far as practicable under the atmosphere conditions usually prevailing) from the 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, fumes or dust originate.
- 3) Application: - This schedule shall apply to all factories of parts of factories in which any of the following operations are carried on: -
 - a) Work at a furnace where the reduction or treatment of zinc or lead ones is carried on.

- b) The manipulation, treatment or reduction of ashes containing lead the desilverising of lead or the melting of scrap lead or zinc.
 - c) The manufacture of solder or alloys containing more than ten per cent of lead.
 - d) The manufacture of any oxide, carbonate, sulphate, chromate, acetate, nitrate or silicate of lead.
 - e) Handling or mixing of lead-tetraethyl.
 - f) Any other operation involving the use of a lead compound.
 - g) The cleaning of work-rooms where any of the operations aforesaid and carried on.
- 4) Prohibited 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 3.
- 5) Requirements to be observed: - No person shall be employed or permitted to work in any process involving the use of 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 prohibitions of paragraphs 6 to 14 are complied with.
- 6) Exhaust draught: - Where dust, fume, gas or vapour is produced in the process, provisions shall be made removing them by means of an efficient exhaust draught so contrived as to operate on the dust, fume, gas or vapour as closely as possible to the point of origin.
- 7) Certificate of fitness: - A person medically examined under paragraph B and found fit for employment shall be granted by a Certifying Surgeon a certificate of fitness in Form 28 and such certificate shall be in the custody of the manager of the factory. The certificate shall be kept readily available for inspection by any inspector and the person granted such a certificate shall carry with him, while at work, a token giving reference to such certificate.
- 8) Medical examination: -
 - 1) The person so employed shall be medically examined by a Certifying Surgeon within fourteen days of his first employment in such process and thereafter shall be examined by the Certifying Surgeon at intervals of not more than three months, and a record of such examinations shall be entered by the Certifying Surgeon in the special certificate of fitness granted under paragraph 7.
 - 2) If at any time the Certifying Surgeon is of opinion that any person is no longer fit for employment on the grounds that continuance therein should involve special danger to health he shall cancel the special certificate of fitness of that person.
 - 3) No person whose special certificate of fitness has been cancelled shall be employed unless the Certifying Surgeon, after re-examination, again certifies him to be fit for employment.
- 8) A. Medical facilities: -
 - 1) The occupier of the factory shall appoint at least a part-time qualified medical practitioner possessing MBBS degree and having post-graduate Diploma in Industrial Health or possessing MBBS degree and having five years experience in industry as occupational health physician. The medical practitioner, so appointed, shall be required to put in minimum four hours

attendance on every working day in the ambulance room for carrying out the duties specified in the following sub-paragraph (2).

Provided that in cases of factories employing less than 500 workers per day, the Chief Inspector of Factories, may allow attendance for shorter duration after taking into consideration all the relevant facts of each case.

- 2) The medical practitioner so appointed shall perform the following duties, that is to say: -
 - a) to maintain Health Register.
 - b) to undertake medical supervision of persons engaged on dangerous operations specified in these rules.
 - c) to look after health, education and rehabilitation of sick, injured or affected workers.
 - d) to carry out inspection of work-rooms where dangerous operations are carried out and to advise the management of the measures to be adopted for protection of health of the workers involved therein.
 - e) For the purpose of medical supervision by the medical practitioner so appointed, the occupier shall provide for the former's exclusive use at the factory premises a room which shall be properly cleaned, adequately lighted, ventilated and furnished with a screen, a table with office stationery, chairs and other facilities and instruments including X-ray arrangement for Schedules IV, X, XVII for such examination and such other equipments as may be prescribed by the Chief Inspector of Factories from time to time.
- 9) Food drinks, etc, prohibited in work-rooms: - No food, drink, pan and supari or tobacco shall be brought into or consumed by any worker in any work-room in which the process is carried on and no person shall remain in such room during intervals for meals or rest.
- 10) Protective clothing: - Suitable protective overalls and head coverings shall be provided, maintained and kept clean by the factory occupier and such overalls and head coverings shall be worn by the persons employed.
- 11) Cleanliness of work-room, 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.
- 12) Washing facilities: -
 - 1) The occupier shall provide and maintain for the use of all persons employed suitable washing facilities consisting of –
 - a) a trough with a smooth impervious surface fitted with a waste pipe without plug and of sufficient length to allow at least two feet for every ten persons employed at any one time, and having a constant supply of clean water from tap or jet above the trough at intervals of not more than two feet; or
 - b) 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 cleaning material and clean towels.
 - 2) The facilities so provided shall be placed under the charge of a responsible person and be kept clean;
- 13) Mess-room or canteen: - The occupier shall provide and maintain for the use of the persons employed suitable and adequate arrangements for taking their meals. The arrangement shall consist of the use of a room separate from any work-room

which shall be furnished with sufficient table and benches, and unless canteen serving hot meals is provided, adequate means for warming 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.

- 14) Clock-Room:- 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.

Schedule VII

Generation of gas from Dangerous Petroleum as defined in the Petroleum Act, 1934.

- 1) Prohibition relating to women and young persons: No women 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 as defined in clause (b) of section 2 of the Petroleum Act, 1934, is carried on.
- 2) Flame traps: The plant for generation of gas from dangerous petroleum as defined in clause (b) of section 2 of the Petroleum Act, 1934 and associated piping and fitting 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 as defined in clause (b) of section 2 of the Petroleum Act., 1934 erected after the coming into force of the provisions specified in the Schedule, shall be erected outside the factory building proper in a separate well ventilated building (hereinafter referred to as the “generating building”). In the case of such plant 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 (herein after 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.

Provided that where the State Government is satisfied in respect of any factory that the plant for generation of gas from dangerous petroleum as defined in clause (b) of section 2 of the petroleum Act, 1934, is on account of the special precautions adopted or contrivances used for such plant, not likely to expose any persons employed in such factory to any serious risk of bodily injury, the State Government may, by notification on the Official Gazette, exempt such factory wholly or partially from the provisions of this clause for such period and on such conditions as it may specify.

- 4) Fire Extinguisher: An efficient means of extinguishing petrol fires shall be maintained in a easily accessible position near the plant for generating of gas from dangerous petroleum as defined in the Petroleum Act, 1934.
- 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 etc.: No person shall smoke or carry matches, fire or naked light or other means of producing a naked light or spark in the generating room or building or in the vicinity thereof and a warning notice in the language understood by the majority of the workers shall be pasted in the factory

- prohibiting smoking and the carrying of matches fire or naked light or other means of producing, naked light or spark in such room building.
- 8) Access to Petrol or Container: No unauthorised person shall be of flame-proof construction and all electric conductors shall either be enclosed in metal conduits or be lead-sheathed.
 - 9) Electric Fittings: All electric fitting shall be of flame-proof construction and all electric conductors shall either be enclosed in metal conduits or be lead-sheathed.
 - 10) Construction: All doors in the generating room of building shall be constructed to open outwards or to slide and no doors shall be locked or obstructed or fastened in such manner that it can not be easily and immediately opened from the inside while gas is being generated and any persons 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 inflammable vapour.

Schedule VIII

Cleaning or smoothening, roughening etc of articles by a jet sand, metal shot or grit or other abrasive propelled by a blast of Compressed Air or steam blasting regulations.

- 1) Definitions: "Blasting" means cleaning, smoothening, roughening, or removing of any part of the surface of any article by the use of an abrasive as a jet of sand, metal shot, or grit or other material, propelled by a blast or compressed air or steam.
 - 1) "Blasting Enclosure" means a chamber, barrel, cabinet or any other enclosure designed for the performance of blasting therein.
 - 2) "Blasting Chamber" means a blasting enclosure in which any person may enter at any time in connection with work or otherwise.
 - 3) "Cleaning of Castings" where done as an incidental or supplemental process in connection with the makings of metal casting, 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 where freeing is done but does not include the freeing of casting from scale formed during annealing or heat 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 be brought into operation after two years from the date of commencement of these regulations.

- 3) Precautions in connection with blasting operations:-
 - 1) Blasting to be done in blasting enclosure – 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 plants and appliances situated therein, shall be performed in a blasting enclosure. Every door, apparatus and joint of blasting enclosure shall be kept closed and airtight while blasting is being done therein.

- 2) Maintenance of blasting enclosure: - Blasting enclosure shall always be maintained in good condition and effective measures shall be taken to prevent dust escaping from such enclosures, and from any blasting apparatus and used for blasting until it has been so separated.
- 3) Provision of separating apparatus: 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.

Separating apparatus shall be provided with exhaust draught arrangement to extract and remove the dust by special methods and in such manner so that it shall not escape into air of any rooms in which person are employed.

Provided that this clause shall not apply, except in the case blasting chambers, to blasting enclosure constructed or installed before the coming into force of this Schedule, if the Chief Inspector is of the opinion that it is nor reasonably practicable to provide such separating apparatus.

4) Inspection and examination: -

- 1) Every blasting enclosure and/ or chamber shall be specially inspected for detecting leakages 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 three months.
- 2) Particulars of the result of every such inspection, examination and 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 manager or other appropriate person and without prejudice to the foregoing requirements of this schedule, shall be removed without avoidable delay.
- 3) Every blasting chamber, separating apparatus, and ventilation plant shall be thoroughly inspected at an interval of 6 months for detecting any defect in their efficient operations, and the defects so noticed shall be rectified forthwith.

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 his use while 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 unless it has been thoroughly disinfected.

- 3) Each protective helmet when in use shall be supplied with air at a rate of not less than six cubic feet per minute. The air supplied shall be cool and free from fumes or mist of mineral oil.
- 4) Suitable gauntlets, overalls, dust-proof goggles and boots shall be provided for the use of all persons while performing blasting or assisting blasting, and every such person shall, while so engaged, wear gauntlets and overalls 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 separating apparatus or of any apparatus or ventilation plant connecting therewith of the surrounding thereof or upon any other work in connection with any blasting apparatus or with any blasting enclosure or with any apparatus or ventilating plant connected therewith so that he is exposed to the risk in inhaling dust which has arisen from blasting, all practicable measures shall be taken to prevent such inhalation. All the workers exposed to dust shall be provided with protective helmets with fresh air supply and overalls to prevent inhalation of dust.
 - 2) In connection with any cleaning operation referred to in regulation 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 for such cleaning operations.
- 7) Storage accommodations for protective wear: - Adequate and suitable storage accommodation for the helmets, gauntlets and overalls required to be provided under regulation 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 members, gauntlets, overalls and other protective devices or clothing provided and worn for the purpose of this Schedule shall be kept in good condition and shall be cleaned on every week-day in which they are used. Where dust arising from the cleaning of such protective clothing or devices is likely to be inhaled all measures shall be taken to prevent 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) Prohibition relating to employment of women and young persons: -
 - 1) No woman or young 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 maintenance or repair work at such apparatus, enclosure or plant.
 - 2) No women or young person under 18 years of age shall be employed to work regularly within 20 feet of any blasting enclosure unless the enclosure is in a room and he or she is outside the room where he or she is effectively separated from any dust coming from the enclosure.
- 11) Medical Examination:
 - 1) Every person 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 shall be medically examined by the Medical Inspector of Factories/ Certifying Surgeon within 30 days of his first employment, the record of which shall be entered in **Form 29** and if found fit for employment in the said process, he shall be granted by the Medical Inspector of Factories or Certifying Surgeon , a certificate of fitness in **Form 28**.

- 2) After the first examination, the persons so examined shall be examined by the Certifying Surgeon at intervals of twelve months and a records of such examination shall be entered by the Certifying Surgeon in **Form 29**.
 - 3) If at any time the Medical Inspector of Factories/ Certifying Surgeon is of the opinion that the person employed in the said process shall be examined radiologically by a qualified radiologist, he may direct the occupier to arrange for such examination at his cost and then to submit standard size chest X-Ray plate of the worker to the Medical Inspector of Factories/ Certifying Surgeon.
 - 4) If at any time Certifying Surgeon/ Medical Inspector of Factories is of the opinion that any person is no longer fit for employment on the grounds that continuance therein would involve special danger to health, he shall cancel the special certificate of fitness in **Form 28** of that person and record in **Form 29**.
 - 5) No person whose special certificate of fitness in **Form 28** has been cancelled, shall be employed or permitted to work unless the Certifying Surgeon after re-examination, again certifies him to be fit for employment in the operations.
 - 6) The register of the special certificates in **Form-28** granted by the Certifying Surgeon and the record made in **Form No 29** by him shall be in the custody of the manager of the factory and shall be kept readily available for inspection by an Inspector.
- 12) Medical facilities & records: - 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;
 - 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.
- 13) Power to exempt or relax: -
- 1) If the Chief Inspector is satisfied that in any factory or any class of factories the use of sand or other substance containing free silica as an abrasive in blasting is necessary for a particular manufacture of process (other than the process incidental or supplemental to making of metal castings) and that the manufacture of 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

suspended either temporarily or permanently, or can be relaxed without endangering the health of the persons employed or that application of any of 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 or factories from such provisions of this Schedule, to such extent and subject to such conditions and for such period as may be specified in the said order.

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

13. Power to exempt or relax: -

- 1) If the Chief Inspector is satisfied that in any factory or any class of factories 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 or this schedule can be suspended either temporarily or permanently, or can be relaxed without endangered the health of the persons employed or that application of any of 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 the State Government by an order in writing exempt the said factory or class or factories from such provisions of this Schedule, to such 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 paragraph (1) a copy of the order shall be displayed on a notice-board at a prominent place at the main entrance or entrance to the factory and also at the place where the blasting is carried on.

Schedule IX

Liming and tanning of the raw hides and skins and processes incidental thereto

1) Cautionary notices: -

- 1) Cautionary notice as to anthrax in the form specified by the Chief Inspector shall be affixed in prominent positions in the factory where they may 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 notices specified in paragraphs 1, 2, and 4 and if chrome solution are used in the factory, the contents of the notice specified in paragraph 3.
- 2) Protective Clothing: The occupier shall provide and maintain in good conditions the following articles of protective clothing: -
 - a) Water proof foot-wear, leg coverings, aprons and gloves for persons employed in process involving contact with chrome solutions including preparation of such solutions.
 - b) gloves, boots and chemical safety goggles for persons employed in lime-yard, and
 - c) protective foot-wear, aprons and gloves for persons employed in processes involving the handling of hides or skins, other than in processes specified in clauses (a) and (b).

Provided that:

 - i) the gloves, aprons, leg coverings or boots may be of rubber or leather, but the gloves and boots to be provided to persons fleshing by hand or employed in processes in which there is no risk of contact with lime.
 - ii) 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, Mess room and cloak room: The occupier shall provide and maintain 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 washed pipe without plug and of sufficient length to allow at least 60 cm for every 10 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 cm or
 - b) at least wash basin for every 10 such persons employed at any one time, fitted with a waste pipe and plug and having a constant supply of water together with in either case, a sufficient supply of nail brushes, soap or other suitable cleansing material and clean towels.
 - c) a suitable mess room, adequate for the number remaining on the premises during the meal intervals, which shall be furnished with (1) sufficient tables and benches and (2) adequate means for warming food and for boiling water.

The mess room shall (1) be separated from any room or shed in which hides or skins are stored, treated or manipulated, (2) be separated from the cloak room and (3) be placed under the charge of a responsible person.

 - d) suitable accommodation for clothing put off during working hours and separate accommodation for protective clothing and adequate arrangement 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 responsible person.
- 4) Food, drink, etc. prohibited in work-rooms – No food, drink, pan and supari or tobacco shall be brought into or consumed by any worker in any work-room or shed in which hides or skins are stored, treated or manipulated.
- 5) First-aid arrangement – The occupier shall –

- a) arrange for an inspection of the hands of all persons coming into contact solutions to be made twice a week by reasonable persons.
- b) provide and maintain a sufficient supply of supply of suitable ointment and impermeable water proof plaster in a box readily accessible to the worker and used solely for the purpose of keeping the ointment and plaster.

Schedule X

Manufacture of chromic acid or manufacture or recovery of the bichromate of sodium potassium or ammonium

1. Definitions: - For the purpose of this Schedule –
 - a) “Chrome Process” means the manufacture of chromic acid or bichromate of sodium or potassium or ammonium or the manipulation, movement or other treatment of these substances in connection with their manufacture;
 - b) “Efficient exhaust draught” means localised ventilations effected by mechanical or other means for the removal of gas, vapour, dust or fumes, so as to prevent 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 to the point where such gas, vapour, fumes or dust originate;
 - c) “Suspension” means suspension from employment in any of the chrome processes specified by written certificate in the Health Register in Form 29 signed by the Certifying Surgeon who shall have power of suspension as regards all persons employed in any such process.
2. Prohibition relating to women and young persons: - No woman or young person shall be employed or permitted to work on any chrome process.
3. Efficient exhaust draught: - The following chrome processes shall not be carried on without the use of an efficient exhaust draught, namely: -
 - a) grinding;
 - b) sieving;
 - c) batch mixing;
 - d) concentration;
4. Separation of certain process: - The following chrome processes, name: -
 - a) grinding of raw materials and
 - b) sieving of raw materials.

shall be carried on in such manner and under such conditions as to secure effectual separation from any other processes.
5. Washing facilities: -
 1. Where acidification, sulphate settling or washing concentration crystallisation, centrifugation or packing is carried out, there shall be provided close to each worker’s station: -
 - a) wash places installed for washing hands and feet frequently in running water, and
 - b) a container holding at least 500 millilitres of 10 percent solution of sodium bisulphate or any other suitable reducing agent.
 2. There shall also be provided and maintained in a cleanly state and good repair washing accommodation under cover with a sufficient supply of soap and towels on the scale indicated below: -

At least one tap or stand pipe for every 10 employees and the tap or pipe shall be spaced not less than 120 centimetre apart.

Note: - In computing the total number of tape required for the purposes of this rule, the taps or stand pipes as required under clause 5(1) (a) shall be included.

6. 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 meals time, shall be allowed for washing to each person employed in a chronic process.
7. Flooring: - The floor of every work-room shall be –
 - a) of cement or similar other material so as to be smooth and impervious to water and provided with suitable gradient and drainage;
 - b) maintained in sound condition and cleaned daily;
8. Medical facilities: -
 1. The occupier of the factory shall appoint at least a part-time qualified medical practitioner, possessing MBBS degree and having post-graduate Diploma in Industrial Health of processing MBBS degree and having five years experience in industry as occupational health physician. The medical practitioner, so appointed, shall be examine and treat all workers, for chrome ulcerations and occupational diseases, on the premises at least at thrice a week. The medical practitioner so appointed, shall be required to put in minimum four hours attendance on every working day in the ambulance-room for carrying out the duties specified in the following sub paragraph (2).

Provided that, in the case of factories employing less than 500 workers per day, the chief Inspector of Factories may allow attendance for shorter duration, after taking into consideration all the relevant facts of each case.
 2. The medical practitioner so appointed shall perform in addition to the duties specified in sub-paragraph (1) the following duties that is to say: -
 - a. to maintain Health Register in Form 29.
 - b. to undertake medical supervision of persons engaged on dangerous operations specified in rule 165 of these rules.
 - c. to look after health, education and rehabilitation of sick, injured or affected worker;
 - d. to carry out inspection of work-rooms where dangerous operations are carried out and to advise the management of the measures to be adopted for protection of health of the workers involved therein.
 3. The occupier shall in addition appoint a person trained in First Aid who shall inspect daily the hands and feet of all persons employed and shall keep a record of such inspection may register maintained for the purpose in a Form approved by the Chief Inspector of factories;
 4. The occupier shall also provide and maintain a sufficient supply of suitable antidotes, ointment and impermeable water-proof plaster in a separate box readily accessible to the workers and used solely for the purpose of keeping the antidotes, ointment and plaster.
9. Protective equipment: -
 1. The occupier shall provide and maintain for the use pf the persons employed: -

- a) in grinding, sieving, or mixing raw materials, sufficient and suitable respirators (issued separately for each individual) the filtering materials of which shall be renewed daily;
 - b) in roasting process, suitable footwear;
 - c) in acidification, settling, concentration, crystallisation, centrifugation packing, suitable aprons and protective coverings for hands and feet.
- 2. Arrangements shall be made by the occupier for the examination and cleaning of all the protective equipment at the close of each day's work and for the renewal thereof when necessary.
- 10. Use of protective equipment: - Every person employed in a chrome process shall make use of the protective equipment provided under paragraph 9 above.
- 11. Cloak room: - There shall be provided and maintained in a clean and in good repair for the use of all persons employed in any chrome process: -
 - a) a cloak-room for street clothing put off during working hours, including adequate arrangements for drying such clothing, when wet; such accommodation shall be separate from any mess-room;
 - b) separate and suitable arrangements for the storage of protective clothing provided under paragraph 9.
- 12. Mess-room: -
 - 1. There shall be provided and maintained for the use of all persons remaining within the premises during the meal intervals a suitable mess-room providing accommodation of at least one square metre per head and furnished with -
 - i) a sufficient number of tables and chairs or benches;
 - ii) arrangements for washing utensils;
 - iii) adequate means for washing food.
 - 2. The mess-room shall be placed under the charge of a responsible person and shall be kept clean
- 13. Food, drinks, etc, prohibited in workrooms: - No food, drink, pan, supari or tobacco shall be brought or carried on and no person shall remain in any such room during intervals for meals or rest.
- 14. Medical examination: -
 - 1. Every person employed in a chrome process, shall be examined by the Certifying Surgeon once in every calendar month or at such other intervals as may be specified in writing by the Chief Inspector on a day of which due notice shall be given to all concerned and such examination shall take place on the factory premises.
 - 2. A Health Register in Form 29 containing the names of all persons employed in a chrome process shall be kept.
 - 3. No person after suspension shall be employed in chrome process without a written sanction from the Certifying Surgeon entered in the Health Register.
- 15. Fencing of vessels: - Every fixed vessel, whether pot, pan, vat or other structure, containing any dangerous materials, and not so covered as to eliminate all reasonable risk of accidental immersion of any portion of the body of a person employed shall be fenced as follows: -

- a) Each such vessel shall, unless its edge is at least one metre above the adjoining ground or platform, be securely fenced to a height of at least 90 centimetres above such adjoining ground or platform.
 - b) No plank or gang-way shall be placed across or inside any such vessel unless such plank or gang-way is: -
 - i) at least 45 centimetres wide, and
 - ii) securely fenced on both sides, either by upper and lower rails, to a height of 90 centimetres or by other equally efficient means;
 - c) If any two such vessels are near each other and the space between them clear of any surrounding brick-work or other work, is either -
 - i) less than 45 centimetres in width, or
 - ii) is 45 or more centimetres in width, but is not accurately fenced on both sides to a height of at least 90 centimetres secure barrier shall be placed so as to prevent any passage between them.
16. Cautionary notice: - A cautionary notice in the form specified by the Chief Inspector 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.
17. Exemption: -If in respect of any factory, the Chief Inspector is satisfied that owing to the exceptional circumstances or the in frequency of the process, or for any other reason, 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 certificate in writing exempt such factory from all or any of the provisions indicated in such certificate on each conditions as he may specify therein, such certificate may at any time be revoked by the Chief Inspector, without assigning any reasons.

Schedule XI

Manufacture or manipulation of Nitro or Amino compounds

1. Application: - This Schedule shall apply in respect of all factories or any part thereof in which process of manufacturing of a nitro or amino compound (therein after referred to as the said manufacturing process) is carried on;

Provided that clause paragraphs 25 and 26 shall only apply to a process involving manufacture or manipulation of compound in Appendix B (hereinafter referred to as the said manufacturing process B).

Part I

2. Definitions: -

- a) For the purpose of this Schedule a nitro or amino compound means a nitrated or aminated compound of aromatic hydrocarbons mentioned in Appendix 'A' or 'B' attached thereto.
- b) "Approved" means approved by the Chief Inspector.
- c) "First Employment" means first employment in the said manufacturing process and also re-employment in such manufacturing process following any cessation of employment for continuous period exceeding three calendar months.
- d) "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 or 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, fumes or dust originates.

- e) Manipulation shall include mixing, blending, filling, emptying, grinding, sieving, drying, packing, sweeping, handling, using or chemical processing of a nitro amino compound.
 - f) "Air Line respiration" means a helmet or face piece with necessary connections by means of which a person using it in a poisonous or irritant atmosphere breathe ordinary air or any other suitable apparatus approved in writing by the Chief Inspector.
- 3) Cautionary Placard: - Cautionary placard in the form specified in Appendix 'C' attached to this Schedule and printed in the language of the majority of the workers employed shall be affixed in prominent places frequented by them in the factory where the placards can be easily and conveniently read by the workers; and arrangement shall be made by the occupier to instruct periodically all workers employed in the said manufacturing process regarding the precautions contained in the cautionary placard.
- 3.A) Instructions as regards risk: -Every worker on his first employment shall be fully instructed about the properties of the chemicals he has to handle and the dangers involved in his work. He shall also be instructed about the measures required to be taken to deal with any emergency arising in the said manufacturing process.
4. 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 manufacturing process is carried on or in which a nitro or amino compound is stored.
5. Air Space: - In every room in which the said manufacturing process is carried on there shall be at least 15 Cubic metre of air space excluding any space occupied by machinery equipment or any other article, for each person employed therein and in computing this air space no height over 4.25 metres shall be taken into account.
6. Efficient exhaust draught: - Unless the said manufacturing process is completely enclosed so as not to give rise to dust or fume it shall not be carried on without the use of an efficient exhaust draught when a nitro or amino compound -
- a) is introduced into a tank, hopper, machine or container or filled into cartridge; or
 - b) is ground, crushed, mixed, sieved or blended.
7. Floor of workrooms: - The floor of every work-room in which the said manufacturing process is 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 sound condition, (c) sloping and provided with gutters and (d) thoroughly washed daily by means of hose-pipe and drain water shall be led into a sewer through a closed channel.
8. Work-benches: - Work-benches on which a nitro or amino compound is manipulated shall (a) have a smooth impervious surface (of stainless steel) and (b) shall be washed daily with hose-pipe or cleaned by means of a suction cleaning apparatus at a time when no other work is being carried on thereat.
9. Waste: -

- 1) A suitable receptacle made of non-absorbable material with a tightly fitting cover, shall be provided and used for depositing waste, like cloth, paper or other materials soiled with a nitro or amino compound.
 - 2) All such contaminated waste material shall be destroyed by burning at least once a week.
10. Empty containers: - Empty containers used for holding compound included under Appendix "A" shall be thoroughly cleaned of their contents and treated with an inactivating agent before being discarded.
- Empty non-metallic container used for holding compounds included under Appendix 'B' shall be burnt. Residual content of the metallic container shall be burnt out.
11. Decontamination of pit tank etc.: -
- a) Before a worker enters a tank, pit, kettle or any other confined space which contained a nitro or amino compound it shall be thoroughly washed and decontaminated.
 - b) No part of the plant which has contained a nitro or amino compound shall be repaired or opened for repairs unless it has been emptied of such compound, thoroughly washed and decontaminated.
 - c) Records of such treatment shall be maintained in a Register approved by the Chief Inspector and the register shall be made available for inspection when required by an inspector.
12. Manual handling: - A nitro or amino compound shall not be required or allowed to be mixed, filled, emptied or handled except by means of a scoop with a handle which shall be thoroughly cleaned daily.
13. Protective wear: - The occupier shall provide, maintain clean and in good repair protective clothing and other equipment as specified in the table below: -

Process	Protective clothing and other equipment
For manipulation of compounds mentioned in Appendices 'A' and 'B'	<ol style="list-style-type: none"> a) Long pants and shirts or overall with long-sleeves and head covering. The shirt of overalls shall cover the neck completely. b) Rubber gloves, rubber gum boots, rubber aprons and air line respirator.
For manipulation of compounds mentioned in Appendix 'B'	<ol style="list-style-type: none"> a) White clean clothing mentioned in (a) above in addition to white clean shirts singlet and protective equipment as in (b) above. b) White long-sleeved apron.

14. Medical Facilities: -

- 1) The occupier of the factory shall appoint at least a part-time qualified medical practitioner, possessing MBBS degree and having post-graduate Diploma in Industrial Health or possessing MBBS degree and having five years experience in industry as occupational health physician. The medical practitioner, so appointed, shall be required to put in minimum four hours attendance on every working day in the ambulance

room for carrying out the duties specified in the following sub-paragraph (2).

Provided that, in cases of factories employing less than 500 workers per day, the Chief Inspector of Factories may allow attendance for shorter duration, after taking into consideration all the relevant facts of each case.

- 2) The medical practitioner so appointed shall perform the following duties, that is to say: -
 - a) to maintain Health Register in Forms 29.
 - b) to undertake medical supervision of persons engaged engaged on dangerous operations specified in rule 163 of these rules;
 - c) to took after health education and rehabilitation of sick, injured or affected workers;
 - d) to carry out inspection of work-rooms where dangerous operations are carried out and to advise the management of the measures to be adopted for protection of health of the workers involved therein.
- 3) For the purpose of medical supervision by the medical practitioner so appointed the occupier shall provide for his exclusive use a room in the factory premises which shall be properly cleaned, adequately lighted, ventilated, and furnished with a screen, a table with office stationary, chairs and other facilities and instruments including X-Ray arrangements for Schedules IV, X and XVII, for such examination and such other equipments as may be prescribed by the Chief Inspector of Factories from time to time.

15. Medical examination: -

1. a) No person shall be employed in the said manufacturing process unless he has been examined by using appropriate tests, and found fit for the said process by the appointed doctor. Results of such examination shall be entered in a register approved by the Chief Inspector. The register shall contain the names of workers employed in the said manufacturing processes 'A' and 'B' separately.
- b) The person examined in compliance with sub-paragraph (1) (a) shall be re-examined by the appointed doctor at intervals of not more than three months or at such interval as may be directed in writing by the Chief Inspector, and records of such examination shall be entered in the register provided under the said sub-paragraph.
- c) If at any time, the appointed doctor is of opinion that any person is no longer fit for employment in the said manufacturing process on the ground that continuance thereof would involve special danger to health he shall make a record of his findings in the said register and intimate the manager in writing that the said person is unfit to work in the said manufacturing process.
- d) A person so found unfit by the appointed doctor shall be sent by the manager to the Certifying Surgeon with a report from the appointed doctor. The Certifying Surgeon after examination may suspend the said person from work in the said manufacturing process.
2. a) A person employed in the said manufacturing process shall be medically examined by a Certifying Surgeon within thirty days of his first employment in such process and if found fit for employment in the said process he shall be granted by the Certifying Surgeon a certificate if

fitness in Form No. 28. The person granted such a certificate shall carry with him, while at work, a token giving reference to such certificate.

- b) After the first examination the person so examined shall be examined by the Certifying Surgeon at intervals of not more than twelve months and a record of such examination shall be entered by the Certifying Surgeon in the special certificate of fitness in Form No. 28.
 - c) If any time the Certifying Surgeon is of the opinion that any person is no longer fit for employment on the ground that continuance therein would involve special danger to health he shall cancel the special certificate of fitness in Form No. 28 of that person.
 - d) No person whose special certificate of fitness in Form No. 28 has been cancelled shall be employed or permitted to work unless the Certifying Surgeon after re-examination, again certifies him to be fit for employment in the said process.
3. The register of results of examination maintained by appointed doctor referred to in sub-paragraph (1) (a) and the special certificates in Form No. _____ granted by the Certifying Surgeon be in the custody of the manager of the factory and shall be kept readily available for inspection by an Inspector.
4. No person other than the person granted a certificate of fitness in Form 28 by the Certifying Surgeon and carrying a token referred to in Sub-paragraph (2) (a) above shall be allowed to work in any work-room in which the said manufacturing process is carried on.

16. Washing and bathing facilities: -

- 1) The following washing and bathing facilities shall be provided and maintained in clean state and in good repair for the use of all persons employed in the said manufacturing process: -
 - a) A wash place under cover with clean towels, soap and nail brushes and with at least one stand pipe for every five such persons having constant supply of water.
 - b) 50 percent of the stand pipes provided under item (1) above shall be located in bathroom 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 within a radius of 15 metres from the area housing the said manufacturing process.
 - d) Clean towels shall be provided individually to each worker if so ordered by an Inspector.
 - e) In addition to taps mentioned under item (a), one stand pipe in which warm water is made available shall be provided on each floor.
- 2) Arrangements shall be made to wash factory uniforms/ clothing compulsory every day.

17. Washing and bathing: -

- a) All workers employed in the said manufacturing process shall carefully wash their hands and face before partaking of food or leaving the factory.
- b) Bath register: - Workers employed in the said manufacturing process shall take a bath daily at the factory premises and enter their names in the bath register in token of having done so.

18. Food, drinks etc. prohibited in work-room: - No worker shall consume food, drink, pan, supari or tobacco or shall smoke in any work-room in which the said manufacturing process is carried on and no worker shall remain in any such room during intervals for meal or rest.
19. Cloakroom: - There shall be provided and maintained in clean state and in good repair for the use of the persons employed in the said manufacturing process (a) a cloak room with lockers having two compartments one for street clothes and the other for factory clothes, (b) a place, separate from locker room and from the mess-room, for the storage of protective equipment provided under paragraph 13. The accommodation provided shall be under the care of a responsible person and shall be kept clean.
20. Mess-room: - There shall be provided and maintained for the use of all persons employed in the factory and remaining on the premises during the meal intervals a mess-room which shall be furnished with (a) tables and benches and (b) means for warming food.

The mess-room shall be placed under the charge of a responsible person and shall be kept clean.
21. 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 intervals shall be allowed for washing to each person who has been employed in the manufacturing process.
22. Drying stoves: -
 - 1) Every drying stove shall be efficiently ventilated to the outside air in such manner that hot air from the stove shall not be drawn into any work-room.
 - 2) No person shall enter stove to remove the contents until a free current of air has been passed through it by mechanical means.
23. Non-sparking tools: - Non sparking tools shall be provided for the purpose of cleaning or repairing machinery or operating any process where vapours of betanaphthylamine are evolved.
24. Testing of atmosphere, etc: - Amines in the atmosphere of the work-room where the manufacturing process is carried on shall be estimated once every week and records of results of such estimations shall be made available when required by an Inspector.

Part II

25. Separation of processes: - The said manufacturing process 'B' shall be carried on in rooms which shall not communicate with any other room except through a passage open entirely to outside atmosphere.
26. Limitation of exposure: -
 - 1) No worker under the age of 40 years shall be engaged in the factory for the said manufacturing process 'B' for the first time after the date on which these rules come into force.
 - 2) Before the end of the days at least one hour shall be allowed for bathing to each person, who is employed in the said manufacturing process 'B' including the time allowed under paragraph 19.
27. Exemption: - If in respect of any factory the Chief Inspector is satisfied that (owing to the exceptional circumstances or infrequency of the process or for any other reason) all or any of the provisions of this Schedule are not necessary for the protection of persons employed in the factory, he may by certificate in writing exempt such factory from all or any of such provisions subject to such conditions

as he may specify therein. Such certificates may at any time be revoked by the Chief Inspector.

Appendix “A” (See paragraphs 2, 10, 13 and 15)

The benzenes, toluenes, xylenes, having undergone nitration once or several times (nitrobenzene and trinitro benzene and its homologues) and their chlorinated compounds, naphthalenes, having undergone nitration once or several times, aniline and its homologues (toluidine, xylydine, cumidine), anisidine, phenetidine, and their chlorinated, nitrated and alkylated compounds (dimethylanilin, toluydendiamine, phenylhydrazine, toluyldiazine).

Appendix ‘C’ (See paragraph 3) Cautionary placard

Advice to workers: -

1. Nitro and amino compounds or aromatic hydrocarbons are dangerous. In this factory you have to handle them frequently.
2. All items of protective wear provided should be made use of to safeguard your health.
3. Maintain scrupulous cleanliness at all times. Before meal wash hands and feet. A bath before leaving the factory is essential, taking care to wash the head well.
4. If any chemical falls on your body, wash it off immediately with soap and water. Change clothing at once, if (soiled) with a cyanotic nitro or amino compound. Contact the appointed doctor immediately.
5. Do not handle any nitro or amino compound with bare hands. Use a long-handled scoop.
6. Avoid alcoholic drinks as these increase risk of poisoning.
7. In case of illness contact the Factory Manager and the appointed doctor.
8. Do not chew, eat, drink or smoke or smoke in the work-room or with soiled hands. Keep food and drink away from the work-place.
9. If you work with betanaphthylamine or benzidine or its salts, alphanaphthylamine or (dianisidine).
 - a) remember that serious effects will follow after a number of years if great care is not taken to observe absolute cleanliness of body clothes, machinery and tools.
 - b) at meal time, wash face and hands twice with soap and water to remove all chemicals, wear a long sleeved clean apron while eating;
 - c) before leaving the factory take a bath using soap and water twice; after this put on your home clothes.

Schedule XII

Handling and manipulation of corrosive substances.

1. **Definition:** - For the purposes of this Schedule: -
 - a) “corrosive substance” includes sulphuric acid, nitric acid, hydrochloric acid, hydrofluoric acid, carbonic acid, phosphoric acid, liquid chlorine, liquid bromine, ammonia or mixtures thereof or any other substance which the State Government may, by notification in the Official Gazette, specify to corrosive substance.
 - b) “corrosive operation” means an operation of manufacturing, storing, handling, processing, packing or using any corrosive substance in factory;
- 2) **Flooring:** -The floor of every work-room of a factory to which this Schedule applies, shall be made of impervious, corrosion and fire resistant material and

shall be so constructed as to prevent collection of any corrosive substances. The surface or such flooring shall be smooth and cleaned as often as necessary and maintained in a sound condition.

3) Protective equipment: -

- a) The occupier shall provide maintain in a good order and keep in a clean condition 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 suitable respirators.
- b) The protective equipment provided shall be used by every person engaged in doing 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 water at a height of 2 meters secured from a pipe of 25 mms. diameter fitted with a quick acting valve, or safety tank having dimensions not less than 200cms in length 129cms. in breadth and 60cms. in depth full of clean water placed at the floor level or such dimension as are approved by the Chief Inspector of Factories, so that in case of injury to the worker by any corrosive substances, the injured part can be thoroughly flooded with water.

5. Cautionary notice: - A cautionary notice in the following form printed in the language which the majority of the workers employed in the factory understand shall be affixed prominently close to the place where any of the corrosive operations 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 affixed: -

Cautionary Notice

Danger

Corrosive substances cause severe burns and vapours thereof may be extremely hazardous.

Use protective wear.

In case of contact, immediately flood the part affected with plenty of water for at least 15 minutes.

Get medical attention quickly.

6. Transport:-

- a) Corrosive substances shall not be filled, moved or carried except in containers, and when they are to be transported, the containers shall be included in crates of sound construction and of sufficient strength.
- b) Containers having a capacity of 10 or more litres 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 waistline unless a suitable rubber wheeled truck is used for the purpose.
- c) Containers for corrosive substances shall be clearly labelled as such.

7. Devices for handling corrosive substances: -

- a) Suitable tilting or lifting device shall be used for emptying jars or carboys and other containers of corrosive substances.
- b) Corrosive substances shall not be handled by bare hands but by means of a suitable scoop.

8. Opening of valves: - Valves fitted to containers holding a corrosive substance which do not work freely shall not be forced open. They shall be opened by a worker suitably trained for the purpose.
 8. A) Prevention of splashing of corrosive substance leaking: - All flange joints on line s carrying corrosive substance under pressure shall be provided with guards to prevent splashing of corrosive substance leaking through the joints due to gasket failures on workers working nearby.
9. Cleaning tanks, stills, etc: -
 - a) In cleaning out or removing residues from stills or other large chambers used for holding corrosive substances, wooden implements shall be used to prevent production of arseniuretted hydrogen (Arsine)
 - b) Whenever it is necessary for any worker to enter confined spaces, like chambers or tanks which were used to stock corrosive substances, while for the purpose of cleaning or other maintenance shall be taken to ensure the worker's safety.
 - c) 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: -
 - a) Corrosive substances shall not be stored in the same room with other chemicals which are likely to violently react with them or give rise to poisonous fumes or gases after an accidental mixing, e.g. turpentine, carbides, metallic powders, combustible materials and cyanide salts.
 - b) Pumping or filling overhead tanks, receptacles, vats and other containers shall be so arranged that there is no possibility of any corrosive substance overflowing and causing injury to any person.
 - c) Every container having a storage capacity of twenty litres or more pipe lines, valves and fitting used for storing or carrying corrosive substances shall be examined thoroughly every year for finding out any defect and the defects shall be removed forthwith. A register shall be maintained of every such examination made and it shall be produced before the Inspector, whenever required.
11. Fire extinguishers: - An adequate number of suitable types of fire extinguishers or other fire-fighting equipments, depending on the nature of the chemicals stored in any place in a factory, shall be placed near each such place and such fire-extinguishers or other fire-fighting equipments shall be regularly tested and refilled. Clear instructions as to how the extinguishers or other equipments should be used, printed in the language which the majority of the workers employed in such factory understand, shall be affixed near each extinguisher or other equipment. Sufficient number of workers shall be trained in fire-fighting practices.
12. Exemption: - If in respect of any factory on an 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 in writing all or any of the provisions of this Schedule are not to 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 the provisions indicated in such certificate on such conditions as he may specify therein. Such certificate may at any time be revoked by the Chief Inspector.

Schedule XIII

Manufacturing of bangles and other articles from cinematograph film and toxic inflammable solvents

1. Definition: - For the purpose of this Schedule: -
 - a) toxic and inflammable solvents mean: -
 - i) solvents like acetone, tetrachlorethane, alcohol, denatured spirit, phenol, amylacetate, butyle acetate, diacetone, alcohol and such other substances which in the opinion of the Chief Inspector are toxic and inflammable;
 - ii) “bangle polish” and “bangle mixture” and such other solvents by whatever trade name they are known, used in the manufacture of bangles and other articles from cellulose films;
 - b) “suspension” means suspension from employment in any process in which toxic and inflammable solvents are used, by written certificates in the Health Register signed by the Certifying Surgeon, who shall have the power of suspension as regards all persons employed in any such process;
 - c) “approval” means approved by the Chief Inspector.
 - d) “first employment” means first employment in any process referred to in this Schedule and also re-employment in such manufacturing process following any cessation of employment for a continuous period of three calendar months.
2. Application: - This Schedule shall apply in respect of all factories or any part thereof in which the process of manufacture of bangles and other articles from cinematograph film or from toxic and said manufacturing process) is carried on.
3. Prohibition relating to employment of women and young persons: - No women or young persons shall be employed or permitted to work out or in any room in which toxic or inflammable substances or both are stored or treated.
4. Medical examination: -
 - 1) No person shall be employed in any of the said manufacturing processes unless he has been examined by the Certifying Surgeon within seven days preceding his first employment and certified fit for such employment.
 - 2) No person shall be employed in any of the said manufacturing processes unless he is re-examined by the Certifying Surgeon at least once during each calendar month or at such intervals as may be specified in writing by the Chief Inspector.
 - 3) The Certifying Surgeon shall examine persons employed in any of the said manufacturing process by giving due notice to all concerned.
 - 4) No person after suspension shall be employed without written sanction from the Certifying surgeon entered in or attached to the Health Register.
 - 5) No person after suspension shall be employed without written sanction from the Certifying surgeon entered in or attached to the Health Register.
5. Protective clothing: - Protective clothing shall be provided and maintained in good repair for all workers employed in the factory and such clothing shall be worn by the workers concerned. The protective clothing shall consist of a suitable apron and if so required by the Chief Inspector a head covering provided in that behalf. The head coverings so provided shall be washed daily.
6. Ventilation: - Every workroom in which cinematograph film or toxic and inflammable solvents or both are handled or manipulated or used shall be

provided with inlets and outlets of adequate size so as to secure and maintain efficient ventilation in all parts of the room during working hours.

Provident that the preparation of “cylinders” from cinematograph film and toxic and inflammable solvents, cutting of such cylinders into bangles and heat treatment of the bangles shall be carried out in an open space under cover, unless specially exempted by the Chief Inspector.

7. Drying of cinematograph film: -

- 1) Drying of cinematograph film shall not be except under such conditions as will prevent the cinematograph film from coming into contact or proximity with any source of heat or heated surface in such a manner as would render the cinematograph film liable to be ignited or decomposed.
- 2) Loose unwound cinematograph film shall be enclosed during drying in such a manner that a person in a room will be protected as far as practicable from an outburst of flame.
- 3) The temperature in any part of drying enclosure for loose unwound cinematograph film other than a safety acetate film shall not at any time exceed 110°F. A thermometer shall be kept available in every room in which such drying is done.
- 4) Boiling of raw film either alone or in conjunction with other chemicals or heating of bangles and other articles made of film shall be carried out in an open space.
- 5) A sufficient number of buckets filled with water shall be provided near the places where bangles are subjected to heat treatment.

8. Storage of raw materials: -

- i) Each roll or package of cinematograph film used in any of the said manufacturing process, shall except when required to be exposed for the purposes of the work carried on, be kept in a separate box, properly closed and constructed of metal or other approved metal.
- ii) Without prejudice to the Cinematograph Film Rules, 1948, municipal rules and other rules in force, all cinematograph films not being actually used or manipulated shall be kept in a room or chamber or similar enclosure approved by the Chief Inspector. Toxic and inflammable solvents stock shall be stored in approved place or containers

9. Disposal of waste films: -

- i) All waste and scrap of cinematograph film shall be collected at frequent intervals during each day and be placed in strong metal receptacles fitted with self-closing lids and clearly marked with words, “Film Waste”.
- ii) No material liable to ignite spontaneously nor anything likely to ignite or decompose cinematograph film shall be placed in the receptacle.
- iii) At the end of each day’s work waste and scrap films shall be either transferred to a store-room or removed from the premises.
- iv) Waste films and shavings shall be destroyed by burning in an open place under controlled conditions. They shall not be allowed to be thrown or scattered in or about the premises of the factory.

10. Prohibition of smoking: -

- i) No person shall be allowed to smoke in any room in which cinematography film is manipulated, stored or used.

- ii) No open fire or light or any smoking materials or matches nor anything likely to ignite or decompose cinematograph film shall or toxic inflammable solvents or both are stored, manipulated or used.

Provided that Chief Inspector may permit the use of coal sigree in the heat treatment of bangles subject to such conditions as he may specify in writing.

11. Caution with regard to electrical installation: - All electrical installations and fittings shall be of flame-proof type.
12. Floor of work-rooms: - The floor of every work-room in which any of the said manufacturing process are carried on shall be: -
 - a) of cement or similar material so as to be smooth and impervious to water.
 - b) maintained in sound condition;
 - c) kept free from materials, plant or other obstruction not required for, or produced in, the purpose carried on in the room.
 - d) cleaned daily after being thoroughly sprayed with water at a time when no other work is being carried on in the room.
13. Time to be allowed for washing: - Before 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 washing to each person who has been employed in any of the said manufacturing process.
14. Washing facilities: - There shall be provided and maintained in a cleanly state and in good repair for the use of all persons, 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 one time and having a constant supply of water from taps or jets above the trough at intervals of not more than 60cm. 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; and
 - iii) a sufficient supply of clean towels made of suitable material which shall be renewed daily, which supply if so required by the Inspector, shall include a separate marked towel for each such worker; and
 - iv) a sufficient supply of soap or other suitable cleansing material and of nail brushes.
15. Facilities for bathing: - The Chief Inspector may require any factory occupier to provide sufficient bath accommodation for all persons engaged in all or in any of the said manufacturing processes and also sufficient supply of soap and clean towels.
16. Cloak-room: - If the Chief Inspector so requires, there shall be provided and maintained for use of persons employed in any of the said manufacturing process: -
 - a) a cloak room for clothing put off during working hours with adequate arrangement for drying the clothing, if wet;
 - b) separate and suitable arrangements for the storage of protective clothing provided under paragraph 5.

17. Food, drinks, etc. prohibited in work-rooms: - No food, drink, pan and supari or tobacco shall be consumed or brought by any worker into any work-room in which any of the said manufacturing process is carried on.
18. Mess-room: - If the Chief Inspector so requires, there shall be provided and maintained for the use of all persons employed in the factory and remaining of the premises during the meal intervals, a suitable mess-room which shall be furnished with: -
 - a) sufficient tables and benches;
 - b) adequate means for warming food.The mess shall be placed under the charge of a responsible person and shall be kept clean.
19. Fire-fighting appliances: -
 - 1) Adequate mean of extinguishing fires having regard to the amount of celluloid present in the room at any one time shall be kept constantly provided for each work-room and store-room.
 - 2) The fire-fighting appliances shall be maintained in good condition and kept in a position which is easily accessible.
20. Means of escape in case of fire: - Adequate means of escape in case of fire shall be provided in every room in which cinematograph film is manipulated, used or stored and the means of escape shall not be deemed adequate unless -
 - a) at least two separate exists are provided from every such room and two safe ways of escape from the building are available for all persons employed in the factory, and
 - b) all doors and windows provided in connection with the means of escape are constructed to open outwards readily.
21. Cautionary notices: -
 - i) Cautionary notices explaining the dangers to which workers are exposed due to any of the said manufacturing processes being carried on shall be affixed in prominent positions in the factory where they may be easily and conveniently read by the persons employed. The said notice shall be printed in the languages understood by the majority of workers employed in the factory.
 - ii) If any person employed in the factory is illiterate effective steps shall be taken to explain carefully to such illiterate persons the contents of the notices.
22. Exemption: - If in respect of any factory the chief Inspector is satisfied that owing to exceptional circumstances or infrequency of the process or for any other reason, all or any of the provisions of this schedule are not necessary for the protection of the persons this employed in the factory, he may by a certificate in writing exempt such factory from all or any of the provisions on such conditions as he may specify therein. Such certificate may at any time be revoked by the Chief Inspector without assigning any reasons.

Schedule XIV

Processes involving manufacture, use or evolution or carbon disulphide and hydrogen sulphide

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

- a) i) “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 ordinary air;
 - ii) any other suitable apparatus approved in writing by the Chief Inspector.
 - b) “churn” means the vessel in which the prepared cellulose pulp is treated with carbon disulphide;
 - c) “dumping” means the drawing off molten sulphur from the sulphur posts in the process of manufacture of carbon disulphide;
 - d) “efficient exhaust draught” means localised ventilation effected by mechanical means for the removal of gas or vapour, so as to prevent it as far as practicable from escaping into the air of any occupied room. No draught shall be deemed to be efficient if it fails to remove smoke generated at the point where such gas or vapour originates;
 - e) “fume process” means any process in which carbon disulphide or hydrogen sulphide is produced, used or given off.
 - f) “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.
 - g) “suspension” means suspension from employment in any fume process by written certificate in the health register in Form 29 signed by the Certifying Surgeon, who shall have power of suspension as regards all persons employed in any such process.
2. Prohibition relating to employment women and young persons: - No women or young person shall be employed or permitted to work in any fume process or in any room in which any process is carried on.
3. Efficient exhaust draught and supply of fresh air: -
- 1) No churn shall be opened unless it has been previously subjected to an efficient exhaust draught so that when the churn is opened the concentration of carbon disulphide in the working room does not exceed 20 parts per million and no worker shall be allowed to introduce his head inside the churn or enter it unless the concentration of carbon disulphide fumes inside the churn is 20 parts per million or less, and unless the exhaust draught arrangement is continued so as to reduce the concentration of carbon disulphide to 20 parts per million or less so long as the worker or his head is inside the churn.
 - 2) Hydrogen sulphide or carbon disulphide evolved in any room where any fume process is carried on shall be removed by an efficient exhaust draught.
 - 3) When the ventilation apparatus normally required in connection with the process referred to in clause (2) is ineffective or is stopped for any purpose whatever work in the said room which is not he carried on and the worker shall be made to leave the leave the room as soon as possible but any case not later than 15 minutes after such an occurrence.
- Provided that any person wearing a breathing apparatus may be allowed to remain in the said work-room.

Explanation: - The Chief Inspector may determine what constitutes normal ventilation apparatus in any given case on the representation duly made by the manager.

- 4) In a room where any process is carried on so that irritant or offensive fumes are emitted there shall be provided suitably placed inlets of sufficient area for the supply of fresh air to the room.
4. Air analysis: -
 - 1) Air analysis for the measurement of concentration of carbon disulphide or hydrogen sulphide shall be carried out every eight hours or at such intervals as may be directed by the Chief Inspector at places where fume process is carried on and the result of such analysis shall be recorded in a register specially maintained for the purpose.
 - 2) If the concentration of either carbon disulphide or hydrogen sulphide exceeds 20 parts per million, the manager shall report the concentration reached and the duration of such concentration to the Chief Inspector. The report shall state the reason for such increase.
 - 3) On receipt of such information, the Chief Inspector may direct the manager to take such measures as he may specify in that behalf and it shall be the duty of the manager to comply with such directions.
5. Electric fitting in carbon disulphide fume process-room except the spinning room:
 - All electric fittings in a room in which a fume process evolving carbon disulphide is carried on, 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.
6. Washing facilities: - The occupier shall provide and maintain in a clean state and in good repair, for the use of all persons employed in fume process, 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-pipe being spaced not less than 120 centimetres apart with a sufficient supply of soap and clean towels.
7. Protective equipment: -
 - 1) The occupier shall provide, maintain in good repair and keep in clean condition protective clothing and other equipment as specified in the table below: -

Table

Process	Protective clothing and other equipment
i) Dumping	Overalls face-shields, gloves and footwear all made of suitable material.
ii) Spinning	Suitable aprons and gloves.
iii) Process involving or likely to involve contact with viscose solution.	Suitable gloves and footwear.
iv) Any other process	Protective clothing and equipment as may be directed by the Chief Inspector by an order writing.

- 2) The occupier shall make arrangements for the examination and cleaning of the protective equipment at the close of each day's work and for the repair or replacement thereof when necessary.
8. Use of protective equipment: - Every person shall use the protective equipment provided to him under paragraph 7.

9. Storage of protective equipment: - A suitable room, rooms or lockers shall be provided exclusively for the storage of all the protective equipment supplied to employee and no such equipment shall be stored at any place other than the room, rooms or lockers so provided.
10. Mess-room: -
 - 1) There shall be provided and maintained for the use of all the persons remaining within the premises during the meal intervals, a suitable mess-room providing accommodation of at least 10,000 square centimetres per head furnished with -
 - a) a sufficient number of tables and chairs or benches with back rests.
 - b) an arrangement for washing hands and utensils, and
 - c) adequate means for warming food.
 - 2) The mess-room shall be kept under the charge of a responsible person and shall be kept clean.
11. Prohibition to smoking etc. in carbon disulphide fume process room: - 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 producing carbon disulphide is caused and notice in the language understood by the majority of the workers shall be posted in the factory prohibiting smoking and carrying of matches, fire or naked light or other means of producing light or spark into such room.
12. 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.
13. Medical examination: -
 - 1) Every person employed in a fume process shall be examined by the Factory Medical Officer once in every six months and by the Certifying Surgeon once in every 12 months or at such other intervals as may be specified in writing by the Chief Inspector on a date or dates of which due notice shall be given to all such persons and such examination shall take place on the factory premises.
 - 2) Every person employed in a fume process shall present himself at the appointed time for such examination.
 - 3) A health Register containing the names of all the persons employed in a fume process shall be kept in **Form 29**.
 - 4) No person, after suspension, shall be employed in a fume process without the written sanction of the Certifying Surgeon entered in the Health Register.
- 13 A. Medical Facilities: -
 - 1) The occupier of the factory shall appoint at least a part-time qualified medical practitioner possessing MBBS degree and having post graduate diploma in Industrial Health or possessing MBBS degree and having five years experience in industry in industry as occupational health Physician. The medical Practitioner so appointed shall be required to put in minimum four hours attendance on every working day in the ambulance-room for carrying out the duties specified in the following sub-paragraph (2).

Provided that, in case of factories employing less than 500 workers per day the Chief Inspector of Factories may allow attendance for shorter duration after taking into consideration all the relevant facts of each case.

- 2) The medical supervision of persons engaged on dangerous operations specified in rule 165 of these rules.
 - a) to maintain Health Register in **Form 29**.
 - b) to undertake medical supervision of persons engaged on dangerous operations specified in rule 165 of these rules.
 - c) to look after health, education and rehabilitation of sick, injured or affected workers.
 - d) to carry out inspection of work-rooms where dangerous operations are carried out and to advise the management of the measures to be adopted for protection of health of the workers involved therein.
 - 3) For the purpose of medical supervision by the medical practitioner so appointed, the occupier shall provide for his exclusive use a room in the factory premises which shall be properly cleaned, adequately lightened, ventilated and furnished with a screen, a table with office stationery, chairs and other facilities and instruments including X-Ray arrangements for Schedules IV, X and XVII, for such examinations and such other equipments as may be prescribed by the Chief Inspector of factories from time to time.
14. Breathing apparatus and measures: -
- 1) There shall be provided in every factory where fume process is carried on, sufficient supply of : -
 - a) a breathing apparatus.
 - b) oxygen and suitable means of its administration, and
 - c) life belts.
 - 2 (i) The breathing apparatus and other appliances shall: -
 - a) be maintain in good condition and kept in an ambulance room or in some other place so as to be readily available, and
 - b) be thoroughly inspected once every month by a competent person, appointed in writing by the occupier.
 - ii) A record of the condition of the breathing apparatus and other appliances shall be entered in a book provided for that purpose which shall be produced when required by an inspector.
 - 3) Sufficient number of workers shall be trained and given a periodic refresher course in the use of breathing apparatus and respirators and artificial respiration so that at least 2 such trained persons would be available in each fume process room during all the working hours of the factory.
 - 4) Respirators shall be kept properly labelled in clean dry, light-proof cabinets and if liable to be affected by fumes, shall be protected by suitable containers. Respirators shall be dried after use and shall be periodically disinfected.
15. Cautionary placard and instructions: - Cautionary placards in the form specified by the Chief Inspector and printed in the language of the majority of the workers 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 fume process regarding the health hazards connected with their duties and the best preventive measures and method to protect themselves.

16. Exemption: - If in respect of any factory, department or departments, 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 in such department or departments, he may, by certificate in writing, exempt such department or departments for 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 XV

Manufacture and manipulation of dangerous pesticides

1. Definition: - For the purpose of this Schedule: -
 - a) “pesticides” means agents used for the purpose of destroying or arresting the growth or increase of harmful organisms;
 - b) “dangerous pesticides” means insecticides as defined in section 3(e) of the Insecticides Act, 1968 (46 of 1968) or any other substance declared as dangerous pesticides by the Chief Inspector of Factories in writing;
 - c) “Suspension” means suspension from employment, in any process in which dangerous pesticides is used by written Certificate in the Health Register of **Form 29** signed by the Certifying Surgeon, who shall be competent to suspend all persons employed in such process.
 - d) “first employment” means first employment in any manufacturing process referred to in this Schedule and also re-employment in, such manufacturing process following any cessation of employment for a continuous period exceeding three calendar month;
 - e) “efficient exhaust draught” means localised ventilation effected by 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;
 - f) “manipulation” includes mixing, blending, filling, emptying packing, handling or using of a dangerous pesticide.
2. Application: - This schedule shall apply in respect of all factories or any part thereof in which the process of manufacture or manipulation of a dangerous pesticide (hereinafter referred to as the said manufacturing process) is carried on.
3. Cautionary placard: - A cautionary placard in the form specified in Appendix attached to this Schedule and printed in the language of the majority of the workers employed, shall be affixed in prominent place frequently by them in the factory where the placards can be easily and conveniently read by the workers and arrangements shall be made by the occupier to instruct periodically all workers employed in the said manufacturing process regarding the health hazards connected with it and methods to protect themselves.
4. 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 manufacturing process is carried on or in any room in which a dangerous pesticides is stored.
5. Air space: - In every room in which the said manufacturing process is carried on, there shall be atleast 15 cubic metres of air space, excluding any space occupied by machinery equipment or any other articles, for any person employed therein,

and in computing this air space, no height over 3.5 metres shall not be taken into account.

6. Prohibition of the said manufacturing process without efficient exhaust draught: -
The said manufacturing process shall not be carried on without the use of efficient exhaust draught when: -
 - a) a container holding a dangerous pesticide is emptied, or
 - b) a dangerous pesticide is introduced into container, tank, hopper or machine of filled in small-sized packings, or
 - c) a power or a liquid is prepared from a dangerous pesticide, or
 - d) a dangerous pesticide is blended, unless the process is completely enclosed.
7. Floor of work-room: - The floor or every work-room in which the said manufacturing 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.
 - c) sloping and providing with gutters for adequate drainage, and
 - d) thoroughly washed daily by means of hose-pipe.
8. Work-benches: - The work-benches at which a dangerous pesticides manipulated shall: -
 - a) have smooth surface and be of non-absorbent material, preferably of stainless steel, and
 - b) be cleaned daily.
9. Waste: -
 - a) A suitable receptacle with tightly-fitting cover shall be provided and used for depositing waste like cloth, paper or other materials soiled with a dangerous pesticide.
 - b) All such contaminated waste shall be destroyed by burning at least once a week.
10. Empty containers used for dangerous pesticides: - Such containers shall be destroyed or thoroughly cleaned of their contents and treated with an inactivating agent before discarded.
11. Manual handing: - A dangerous pesticide shall not be required or allowed to be manipulated by hand except by means of long-handled scoop.
12. Protective clothing: -
 - 1) Protective clothing shall be provided and maintained in good repair for all workers and such clothing shall be worn by the workers concerned. The protective clothing shall consist of: -
 - a) long pants and shirts or overalls with long sleeves and head coverings.
 - b) rubber gloves, gum boots, rubber aprons, chemical safety goggles and respirators.
Where the pesticide contains oil, the rubber gloves, boots and apron shall be of synthetic-rubber.
 - 2) Where the worker has to handle a dangerous pesticide: -
 - a) containing phosphorous or nicotine, the protective clothing shall be daily both inside and outside, and if the protective clothing

mentioned in clause (a) of sub-paragraph (1) is soiled with such pesticides it shall be changed immediately, and

- b) not containing phosphorus or nicotine, the protective clothing mentioned in clause (a) of sub-paragraph (1) shall be washed frequently.

13. Medical examination: -

- 1) a) No person shall be employed in the said manufacturing process unless he has been examined by the Certifying Surgeon within seven days preceding his first employment and certified fit for such employment.
- b) No person shall be employed in the said manufacturing process unless he is re-examined by the Certifying Surgeon at least once in every three calendar months.
- c) The Certifying Surgeon shall examine persons employed in the said manufacturing process by giving due notice to all concerned.
- d) A Health Register in **Form 29** containing the names of all workers employed in the said manufacturing process shall be kept.
- e) No person after suspension shall be employed without written sanction from the Certifying Surgeon entered in or attached to the Health Register.
- 2) The Chief Inspector may order any suitable clinical test or tests to be carried out in respect of the workers employed in any factory where the said manufacturing process is carried on at such intervals as he deems fit.

14. Medical facilities: -

- 1) The occupier of the factory shall appoint atleast a part time qualified medical practitioner, possessing MBBS degree and having a diploma in Industrial Health or possessing MBBS degree and having five years experience in industry as occupational health physician. The medical practitioner so appointed shall examine and, if necessary, treat on the premises of the factory all workers who handle dangerous pesticides for effects of excessive absorption at least once a week. The occupier shall make necessary arrangements to ensure quick availability of the medical practitioner so appointed or any other qualified medical practitioner in emergency cases. The medical practitioner, so appointed, shall be required to put in minimum four hours attendance on every working day in the ambulance room for carrying out the duties specified in the following sub-paragraph (2).

Provided that, in cases of factories employing less than 500 workers per day, the Chief Inspector of Factory may allow attendance for shorter duration after taking into consideration all the relevant facts of each case.

- 2) The medical practitioners so appointed, shall perform, in addition to the duties specified in sub-paragraph (1) the following duties, that is to say: -
 - a) to maintain Health Register in **Form 29**.
 - b) to undertake medical supervision of persons engaged in dangerous operations specified in rule 165 of these rules,
 - c) to look after health, education and rehabilitation of sick, injured or affected workers;
 - d) to carry out inspection of work-room where dangerous operations are carried out and the advise the management of the measures to be adopted for protection of health of the worker involved therein.

15. 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 rest interval shall be allowed for washing in each person who has been employed in the said manufacturing process.

16. Washing and bathing facilities: -

- 1) There shall be provided and maintained in cleanly state and in good repair for the use of all persons employed, adequate washing and bathing places having a constant supply 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 stand-pipes placed at intervals of not less than one metre;
- 3) Not less than one half of the total number of washing place shall be provided with bath-rooms;
- 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.

17. Food, drinks, etc., prohibited in work-room: - No food, drinks, pan, supari or tobacco shall be consumed or brought by any worker into any work room in which the said manufacturing process is carried on.

18. Cloak Room: - There shall be provided and maintained for the use of persons employed in the said manufacturing process: -

- a) a cloak-room for clothing put off during working hours with adequate arrangements for drying clothing, if wet;
- b) separate and suitable arrangements for the storage of protective clothing provided under paragraph 12.

19. Mess-room: - There shall be provided and maintained for the use of all persons, employed in the factory and remaining on the premises during the rest intervals, a suitable mess-room which shall be furnished with: -

- a) sufficient tables and benches and
- b) adequate means for warming food.

The mess-room shall be placed under the charge of a responsible person and shall be kept clean.

20. Exemption: - If it respect of any factory the Chief Inspector is satisfied that owing to the exceptional circumstances or infrequency of the process or for any other reasons all or any of the provisions of this Schedule are not necessary to the protection of the persons 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 therefore.

21. Manipulation not to be undertaken :- Manipulation of a pesticide other than those mentioned in clause (b) of this Schedule shall not be undertaken in any factory unless a certificate regarding its dangerous nature or otherwise is obtained from the Chief Inspector.

List of dangerous Pesticides.

Parthion

Chlordane

Diazinon	Endrine.
Hexaethyl tetraphosphate.	Aldrin
Tetraethyl pyrophosphate	Dieldrin
Tetraethyl ditripyrophosphate	Texaphene
Demeton (systex)	Dinitro-o-cresol
Schradan (OMPR)	Arsenical Compounds
Para-Oxon (E.600)	Cryolite
Methyl Parathion.	Pentachlorophenol
Dimeffox	Carbojuran
Sulphotepp	Methyl bromide
EPN,	Cyanides
Nicotine or its compound.	
Mercury compounds	

APPENDIX X

Cautionary placard

1. Pesticides are generally poisonous substances.
2. Therefore in rooms where these are handled -
 - a) do not chew, eat, drink or smoke; keep food or drink away from pesticides;
 - b) use the protective wear supplied e.g. gloves, aprons, clothes, boots, etc.
3. Before meals or when any part of the body has come in contact with the pesticides, wash with soap and water.
4. Before leaving the factory, take a bath and change your clothing.
5. Do not use any container that has contained a pesticide as a pot for food or drink.
6. Do not handle any pesticide with bare hands; use a handled scoop.
7. Avoid spilling of any pesticide on body, floor or table.
8. Maintain scrupulous cleanliness of body and clothing and of your surroundings.
9. In case of sickness like nausea, vomiting or giddiness, inform the manager who will make necessary arrangement for treatment.

SCHEDULE XVI

Compression of Oxygen and Hydrogen Produced by Electrolytic Process or by Steam iron process.

1. Definition: For the purpose of this schedule "Compression of Oxygen and Hydrogen" means any process by which oxygen or hydrogen is manufactured or evolved by electrolytic process or by steam iron process.
2. Application: This schedule applies in respect of factories or any part thereof in which the process of compression of oxygen and hydrogen is carried on.
3. Situation of electrolyser plant room etc: The room in which electrolyser plant is installed shall be separate from the plant for storing and compressing oxygen and hydrogen. The room in which electric generator and the distribution panel are installed shall not communicate with any other room in which any process is carried on.
4. Testing the purity of oxygen and hydrogen:
 - 1) The purity of oxygen and hydrogen shall be tested by a competent person at least once in every shift, at the following points:

- i) in the electrolyser room,
- ii) at the gas holder inlet, and
- iii) at the suction end of the compression,

Provided that where the electrolyser plant is fitted with automatic recorder of purity of oxygen and hydrogen with alarm lights, the purity of the gases may be tested likewise at the suction end of the compressor only.

- 2) The purity figures obtained as a result of the test shall be entered and signed by the person carrying out such test in a register, to be kept for the purpose.
5. Compression of oxygen and hydrogen prohibited in certain circumstances: Where the purity of oxygen and hydrogen as tested under paragraph 4 is found to be less than 98%, the oxygen or hydrogen shall not be subjected to the process of compression.
6. Provision of negative pressure switch: In addition to the limit switch, to switch off the compressor motor, to make it impossible to empty the gas holder to the point causing vacuum inside the gas holder, a sensitive negative pressure switch shall be provided in or adjacent to the suction main for hydrogen compressor, to switch off the compressor motor in the event of the gas holder being emptied to the extent as to cause vacuum.
7. Warning Signal: The bell of any holder shall not be permitted to go within 30 cm of its lowest position when empty and a visual and an audible warning signal shall be fitted to the gas holder to indicate that this limit is reached.
8. Purity of Raw Material: The water and caustic soda used for making lye shall be chemically pure within the pharmaceutical limits.
9. Construction of Electrical Connections: Electrical Connection 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. An automatic device shall be provided to cut off power in the event of reversal polarity owing to wrong connection either at the switch board or at the electric generator terminals.
10. Maintenance of Gas Pipe, Gas Holder and Compressed Gas Storage Vessels:
 - i) Oxygen and Hydrogen gas pipes shall be painted with distinguishing colours. In the event of leakage at the joints of the hydrogen gas pipe, holder or a storage vessel or in the event of any breakdown, the pipe and storage system after repairs and reconnections carried out as per paragraph 13 of this schedule and in accordance with the requirements of Rule 86 shall be purged of all air and gasses using a suitable inert gas, before drawing in hydrogen gas.
 - ii) Before drawing in hydrogen gas in any new or existing system not in use every pipe, gas holder, compressed gas vessels in the system shall be purged of all air and gases using a suitable inert gas.
11. Electrical Wiring and Other sources of Ignition: Wherever hydrogen gas is generated, compressed, transferred or stored all electrical wiring, apparatus and other installations shall be of flame proof construction. All sources of ignition shall be prevented from being present in the above areas. A warning notice shall be exhibited to that effect at prominent place in the above areas.
12. Removal of Explosive Substances: 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 it is rendered safe for such operation. After the completion of such operation no explosive substance shall be allowed to enter that part until the metal has cooled sufficiently to prevent risk of explosion.

13. Restriction of Operation, Repair etc. No work of operation, 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 to the electrolyser unless it is certified by any competent person under whose direct supervision, erection or repairs are carried out to be in a safe condition and the terminals have been checked for the polarity as required by these Rules.
14. Examination of the Paint. : Every part of the electrolyser plant and the gas holders and compressor shall be inspected, checked and overhauled in accordance with a regular schedule maintained by the manager complying with the instruction of the competent persons mentioned in paragraph 13. Every defect noticed shall be rectified forthwith.

Schedule XVII

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 process 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 of appliance for the collection of asbestos dust; and
 - j) any other processes in which asbestos dust is given off into the work if environment.
2. Definition: - For the purpose of this schedule: -
 - a) “asbestos” means any fibrous silicate mineral and any admixture containing actionolite, amosite, anthophyllite, thrysotile, 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 inwriting 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 process 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 applied 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 process 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 and
 - 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 of asbestos by hand;
 - e) work place 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, 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 ventilation 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 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 system: -
 - 1) All ventilation 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 repairs or alteration (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 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: - All loose asbestos shall while not in use be kept in suitable closed receptacles which prevent the escape of asbestos dust there from such asbestos shall not be distributed within a factory except in such receptacles or in a totally enclosed system of conveyance.
8. Asbestos sacks: -
 - 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 3.
9. Maintenance of floors and workplaces: -
 - 1) In every room in which any of the requirements of this scheme 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, be carried out by means of vacuum cleaning equipment so designed and constructed and so used that asbestos dust neither escape 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 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 surface 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 persons employed.
 - a) in chambers containing loose asbestos;
 - b) in cleaning, dust settling or filtering chambers of apparatus;
 - c) in cleaning the cylinders, including the doffer cylinders, or other parts of a carding machine by means of hand-strickles;
 - d) in filling, beating, or levelling in the manufacture or repair of insulating mattress, and
 - e) in any other operation or circumstance 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 when not in used 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 persons 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 use of that equipment.
11. Separate accommodation for personal clothing: - A separate accommodation shall be provided in conveniently accessible position for all persons employed in operations to which this schedule applies for storing of personal clothing. This should be separated from the accommodation provided under sub-paragraph (2) to prevent contamination of personal clothing.
12. Washing and bathing facilities: -
 - 1) There shall be provided and maintained in 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 workers employed in the factory covered by this schedule, remaining on the premises during the rest intervals, a suitable messroom which shall be furnished with;
 - a) sufficient tables and benches with back rest, and
 - b) adequate means of warming food.
 - 2) The messroom 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 Notice: -
 - 1) Cautionary notices shall be displayed at the approaches and along per metre 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 notice 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 atleast in every shift and the record of the results so obtained shall be entered in a specially maintained for the purpose.
18. Medical examination: -
- a) No worker shall be employed in any factory on any of the processes specified in clause 1, unless he has been medically examined by the Medical Inspector of Factories/ certifying Surgeon and has been declared fit and granted a certificate of fitness in **Form 28**.
 - b) Every worker employed on any of the aforesaid processes on the date on which the Schedule comes into force shall be radiologically examined by the qualified radiologist at the cost of the occupier and the standard size-X-ray plate shall be submitted to the Medical Inspector of Factories/ Certifying Surgeon for medical examination within three months of the said date.
 - c) Every worker employed on any of the aforesaid processes shall be medically examined by the Medical Inspector of Factories/ Certifying Surgeon at intervals of twelve months after the first medical examination conducted under sub-clauses (a) and (b). If at any time the Medical Inspector of Factories/ Certifying Surgeon is of the opinion that the person employed in the said process shall be examined radiologically by a qualified radiologist, he may direct the occupier to arrange for such examination at his cost and then to submit the standard size chest-X-ray. Plate of the worker to the Medical Inspector of Factories/ Certifying Surgeon.
 - d) A worker already in employment and declared unfit by the Medical Inspector of Factories/ Certifying Surgeon shall not be allowed to work on any of the processes specified in clause (1), unless he has been examined again along with standard size chest X-ray plate from a qualified radiologist at the cost of the occupier and has been certified to be fit to work on the said processes again.
 - e) A worker declared to be unfit to work on any of the aforesaid processes, a may be employed on such other work on process as may be considered safe and as may be advised by the Medical Inspector of Factories/ Certifying Surgeon;
 - f) The Medical Inspector of Factories/ Certifying Surgeon may direct that a worker may be X-rayed or he may be subjected to further examination by a specialist or to any other examination clinical, pathological or otherwise or that he should undergo a specified treatment, and it shall be the responsibility of the employer (occupier and manager) to arrange for the specified examined and/ or treatment and to bear all expenses thereof or in connected therein.
 - g) The Certifying Surgeon shall after each examination grant a certificate in **Form 28**.

- h) The manager shall maintain all the certificates in a proper register or file and shall produce all the certificates before an Inspector whenever demanded.
 - i) The manager shall maintain the detail of every Medical Examination in **Form 29** and the register shall be produced before an Inspector whenever demanded. The register shall be maintained upto a minimum period of 40 years from the beginning of the employment whichever is later.
19. Medical facilities: -
- 1) The occupier of the factory shall appoint at least a part-time qualified medical practitioner, possessing MBBS degree and having post-graduate diploma in Industrial Health or possessing MBBS degree and having five years experience in Industry as occupational health physician. The medical practitioner so appointed shall be required to put in minimum four hours attendance on every working day in the ambulance room for carrying out the duties specified in the following sub-paragraph (2).
Provided that, in cases of factories employing less than 500 workers per day, the Chief Inspector of Factories may allow attendance for shorter duration after taking into consideration all the relevant facts of each case.
 - 2) The medical practitioner so appointed shall perform the following duties that is to say;
 - a) to maintain Health Register, in **Form 29**.
 - b) to undertake medical supervision of persons employed in the factory.
 - c) to look after health, education and rehabilitation of sick, injured or affected workers;
 - d) to carry out inspection of work-rooms where dangerous operations are carried out and to advise the management of the measures to be adopted for protection of health of the workers involved therein.
 - 3) For the purpose of medical supervision by the medical practitioner so appointed the occupier shall be provided for his exclusive use a room in the factory premises which shall be properly cleaned, adequately lighted, ventilated and furnished with a screen, a table with office stationery, chairs and other facilities and instruments including X-ray arrangement for such examinations and such other equipments as may be prescribed by the Chief Inspector from time to time.
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 reasons 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 XVIII

Manufacture or Manipulation of Manganese and its Compound

- 1. Definition: For the purpose of this schedule: -
 - a) “Manganese Process” means processing, manufacture or manipulation of manganese or any compound of manganese or any ore or any mixture containing manganese.

- b) "First Employment" means first employment in any manganese process and includes also re-employment in any manganese process following any cessation of employment for a continuous period exceeding 3 calendar months.
 - c) "Manipulation" means mixing, blending, filling, emptying, grinding, sieving, drying, packing, sweeping or otherwise handling of manganese or a compound of manganese, or an ore mixture containing manganese.
 - d) "Efficient Exhaust Draught" means localised ventilation effected by mechanical means for the removal of dust or fume or mist 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 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.
2. Application: - The schedule shall apply to every factory in which or in an part of which any manganese process is carried on.
 3. 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.
 4. Isolation of 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 process so that other plants and processes and other parts of the factory and persons employed on other work or process may not be affected by the same.
 5. Exhaust draught: - No process in which any dust, vapour or mist containing manganese is generated shall be carried out except under an efficient exhaust draught which shall be applied as near to the point of generation as practicable.
 6. Medical facilities:
 - 1) The occupier of the factory shall appoint a qualified Medical Practitioner whose appointment shall be subject to confirmation by the Chief Inspector. The qualified Medical Practitioner so appointed shall be called Appointed Doctor (Appointed Doctor shall be required to put in minimum four hours attendance on every working day in the ambulance room for carrying out the duties specified in the following sub-paragraphs (3) (4) and (5).
 Provided that, in the case of factories employing less than 500 workers per day, the Chief Inspector of Factories may allow attendance for shorter duration after taking into consideration all the relevant facts of each case.
 - 2) The occupier shall provide for the purpose of Medical Examination a room at the factory premises for exclusive use by appointed doctor. The rooms so provided shall be properly clean, (with writing materials), chairs and facilities shall instruments for examination and investigation. Such facilities shall be subject to approval by the Medical Inspector of Factories.
 - 3) The appointed doctor shall carry out pre-employment examination of every persons intended to be employed in manganese process. All workers employed in manganese process shall be examined by the appointed doctor at an interval not exceeding three months and records of such examination shall be maintained in **Form** approved by the Chief Inspector shall be made available to any Inspector on demand.

- 4) The occupier and the appointed doctor of the factory shall notify forthwith any case or suspected case of poisoning by manganese to the Chief Inspector and Medical Inspector.
- 5) In addition to the duties specified in sub paragraph 3 & 4, the appointed doctor shall perform the following duties, that is to say: -
 - a) to maintain Health Register in [Form 29](#).
 - b) to undertake medical supervision of persons engaged in dangerous operations specified in Rule 165 of these Rules;
 - c) to look after health, education and rehabilitation of sick, injured and affected workers;
 - d) to carry out inspection of work rooms where dangerous operations are carried out and to advise the management of the measures to be adopted for protection of health of the workers involved therein.

7. Medical Examination:

- 1) Every person employed in a manganese process shall be medically examined by Medical Inspector of Factories and/ or Certifying Surgeon within 14 days of his first employment and thereafter at intervals of not more than six months.
- 2) If a person medically examined is found fit for employment on manganese process, the Medical Inspector/ Certifying Surgeon shall grant a certificate of fitness in [Form 28](#) which shall be kept in the custody of the Manager of the Factory. The certificate shall be readily produced by the manager whenever required by an Inspector and the person granted such a certificate shall be provided with a token made of metal with the number of the certificate inscribed thereon and said person shall always carry said token on the person while at work.
- 3) If a person found unfit for work in any manganese process the Medical Inspector of Factories/ Certifying Surgeon shall grant a certificate to that effect and such person shall not be allowed to work in any manganese process.
- 4) If the Medical Inspector/ Certifying Surgeon finds that any worker who had been granted a certificate of fitness at a previous medical examination is no longer fit to be employed on any manganese process, he may revoke the previous certificate and no person whose certificate of fitness has been revoked shall be allowed to work on any manganese process. The medical Inspector/ Certifying Surgeon may require such person to be produced before him for fresh medical examination after such period as he may specify in writing on the revoked certificate and in the Health Register in [Form 29](#).
- 5) If the Medical Inspector/ Certifying Surgeon is of the opinion that person had become permanently unfit for employment on any manganese process he shall make an entry to that effect in the certificate and in the Health Register and no such person shall be allowed to work in any manganese process.
- 6) If the Medical Inspector/ Certifying Surgeon is of the opinion that any special expert examination or test is necessary for a proper diagnosis in a doubtful case, he may direct the manager and/ or the Occupier to get the worker examined by such expert, or to get such tests carried out as may be specified by him and the Manager of the Occupier as the case may be shall comply with the direction given within a specified time and produce the report of examination or test as the case may be before the Medical Inspector/ Certifying Surgeon.

- 7) If the Medical Inspector/ Certifying Surgeon is of the opinion that any person is not fit for employment in any manganese process but is fit to be employed on any other work he may advise the Manager or the Occupier to employ the said person on such other job as may be safe for him. The Medical Inspector/ Certifying Surgeon may advise the worker to undergo such treatment as he may consider necessary.
- 8) If any person has any doubt regarding the diagnosis or decision of the Medical Inspector/ Certifying Surgeon, he may make an appeal to the Chief Inspector of Factories/ and the Chief Inspector may refer the case to the Medical Inspector or to a Medical Committee constituted by him for this purpose of which the Medical Inspector shall be a member. The decision of the Medical Inspector of the Committee as the case may be shall be final in the matter.
8. Personal Protective Equipment: -
 - 1) The Occupier of the factory shall provide and maintain in good and clean condition suitable overalls and 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 suitable respiratory protective equipment for use by workers 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 of personal protective equipments.
9. Prohibition relating to women and young persons: - No women or young persons shall be employed or permitted to work in any manganese process.
10. Food, drinks prohibited in work-room: - No food, drinks, pan and supari or tobacco shall be allowed to be brought into or consumed by any worker in any work-room in which any manganese process is carried on.
11. Mess room: - There shall be provided and maintained for the use of 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 responsible person and shall be kept clean.
12. Washing and bathing facilities: - The following washing and bathing facilities shall be provided and maintained in clean state and in good repair for the use of all persons employed in manganese process: -
 - a) A wash place under cover with clean towels, soap and nail brushes and with at least one stand pipe for every ten such persons having constant supply of water.
 - b) 50 percent of the stand pipes provided under item(s) above may be located in bathroom where water shall be made available during the working hours of the factory and for one hour thereafter.
 - c) Clean towels to be provided individually to each worker and supply hot water of so ordered by an inspector.
 - d) In addition to taps mentioned under item(a) one stand pipe in which warm water is made available to the provided on each floor.
13. Cloak-room: - If the Chief Inspector so requires, there shall be provided and maintained for the use of persons employed in manganese process a cloak room

for clothing put off during working hours with adequate arrangement for drying the clothing.

14. Cautionary placard and instructions: - Cautionary notices in the following form and printed in the language of the majority of the workers 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 best preventive measures and methods to protect themselves. The Notice shall always be maintained in a legible condition: -

Cautionary Notice

Manganese and Manganese Compounds

1. Dust, fumes and mists of manganese and compounds are toxic when inhaled or 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 equipments provided.
6. When required to work in situations where dust, fumes or mists are likely to be inhaled, use respiratory protective equipment provided for the purpose.
7. If you get severe headaches, prolonged sleeplessness or abnormal sensations on the body, report to the Manager who would make arrangement for your examination and treatment.

Schedule XIX

Carbon di-Sulphide Plants

1. Application : This schedule shall apply to all electric furnaces in which carbon di-sulphide is generated and all other plants where carbon di-sulphide after generation, is condensed, refined and stored.
This rules are in addition to and not in derogation of any of the provisions of the Act and Rules made there under.
2. Construction, Installation and Operation:
 - a) the buildings in which electric furnaces are installed and carbon di-sulphide 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 lay out shall be such that only a minimum number of workers are exposed to the risk of any fire or explosion at one time.
 - b) Every electric furnace and every plant in which carbon di-sulphide is condensed, and 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 and shall be so designed that carbon di-sulphide liquid and gas are in closed system during their normal working.
 - c) The electric furnace supports shall be firmly and adequately grouted in concrete or by other effective means.
 - d) Every electric furnace shall be installed and operated according to manufacturer's instructions and these instructions shall be clearly imparted to the personnel in charge of construction and operation.
 - e) The instructions regarding observances of correct furnace temperature, sulphur doze, admissible current/power consumption and periodical checking of charcoal level shall be strictly complied with.

3. Electrodes:
 - a) Where upper ring electrode(s), made of steel are used in the electric furnace, they shall be seamless tube construction and shall have arrangements for being connected to cooling water system through a siphon built in the electrodes or through a positive pressure water pump.
 - b) The arrangements for cooling water referred to in clause (a) 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:- It shall be ensured that the electrodes are kept covered with charcoal bed when the furnace is in operation.
5. Charcoal separator:- An effective arrangement shall be provided to prevent entry of pieces of charcoal into the condensers and piping.
6. Rupture discs and safety seal:-
 - a) 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.
 - b) A safety water seal shall be provided and tapped from a point between the off take pipe from the electric furnace and sulphur separator.
7. Pyrometers and Manometers:
 - a) Each electric furnace shall be fitted with adequate number of pyrometers to indicate temperature as near to the correct figures as practicable, at various points in the furnace. The dials for reading the temperatures shall be located in the control room.
 - b) Monometer or any other suitable device shall be provided for indicating pressure-
 - i) in the off take pipe before and after the sulphur separator, and
 - ii) in primary and secondary condensers.
8. Prevention of Back flow of Gas:
 - i) All piping carrying carbon di sulphide shall be fitted with check valves, water seals or some other effective devices at suitable position so as to prevent gas from flowing back into any electric furnaces in the event is shutdown.
 - ii) Overhead storage tank(s) of adequate capacity shall be provided to ensure supply of cooling water by direct gravity feed to the condensers in case of emergency such as power shutdown etc. At least for the duration during which it would be possible to initiate and complete procedures for the shutdown of the furnace.
9. Inspection and maintenance of electric furnace:
 - a) Every electric furnace shall be inspected internally by a competent person;
 - i) before being placed in service after installation,
 - ii) before being placed in service after reconstruction or repair, and
 - iii) periodically every time the furnaces are opened for cleaning or dashing
or for replacing electrodes.
 - b) When electric furnace is shutdown for cleaning or deashing:
 - i) the brick lining shall be checked for continuity and any part found defective removed.

- ii) after removal of any part of the lining, referred to in (a) the conditions of the shell shall be closely inspected; and
 - iii) any places forming shell 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 log book:
 - i) Manometer readings at the points specified in 7(b)(i) and (ii).
 - ii) Gas temperature indicated by pyrometers and all other vital points near the sulphur separator and primary and secondary condensers.
 - iii) Water temperature and flow of water through the siphon in the electrodes, provided that where there is a system for positively ensuring more than the minimum requirement of water flow through siphon system and where an arrangement is also available for an instantaneous cut off of power where ever there is low flow of water, the provisions of the sub clause may not apply,
 - iv) Primary and secondary voltages, current and energy consumed.
- 11. Electrical apparatus, wiring and fittings:- All buildings in which carbon di-sulphide is refined or stored shall be provided with electrical apparatus, wiring and fittings which shall afford adequate protection from the 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 di-sulphide is refined or stored, and a notice in the language understood by a majority of the workers shall be pasted 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 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 as to afford easy passage.
- 14. Warning in case of fire:- There shall be adequate arrangement for giving warnings in case of fire or explosion which shall operate on electricity and in case of failure of electricity by some mechanical means.
- 15. Fire-fighting equipment:-
 - a) Adequate number of suitable fire extinguisher or other fire-fighting equipment shall be kept in constant readiness for dealing with risks, involving and depending on the amount and nature of materials stored.
 - b) 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:-
 - a) Open or semi-enclosed spaces for storage of bulk sulphur shall be sited with due regard to danger 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.
 - b) 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.

- c) The bulk sulphur in the enclosures shall be handled in such a manner as to minimize the formation of dust clouds and no flame, smoking or matches or other sources of ignition shall be employed during its handling.
 - d) 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:-
 - a) All electric furnaces and all plants in which carbon di-sulphide is concerned, refined or stored shall be under adequate supervision at all times while the furnaces and plant are in operation.
 - b) Workers in-charge of operation and maintenance of electric-furnaces and the plants shall possess qualifications at least equivalent to High School Leaving Certificate Examination and shall also be adequately trained.
- 19. Washing facilities:- 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 Inspector.
All the workers employed in the sulphur storage, handling and melting operations shall be provided with a nail brush.
- 20. Personal protective equipment:-
 - a) Suitable goggles and protective clothing consisting of overalls without pockets, gloves and foot-wear shall be provided for the use of operatives:-
 - i) when operation valves or cocks controlling fluids etc.
 - ii) drawing off of molten sulphur from sulphur pots, and
 - iii) handling charcoal or sulphur.
 - b) Suitable respiratory protective equipment shall be provided and stored in the appropriate place for use during abnormal conditions or in an emergency.
 - c) An arrangement shall be made for the proper and efficient cleaning of all such protective equipment.
- 21. Cloak-room:- There shall be provided and maintained for the use of all persons employed in the processes a suitable cloak room for clothing put off during work hours and a suitable place separate from the cloak room 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. Unauthorized persons:- Only maintenance and repair personnel, persons directly connected with the plant operation and those accompanied by authorized persons shall be admitted into the plant.

Schedule XX

Benzene

- 1. This schedule is made to provide protection against hazards of poisoning from benzene and 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 working atmosphere.
 - d) "Efficient exhaust draught" means localised ventilation 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 work room. No draught shall be deemed to be efficient if it fails to remove smoke generated at the point where such gases, vapour, fumes or dusts originate.
3. Prohibition and substitution
- a) Benzene or substances containing benzene shall not be used as a solvent or diluents 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 is considered equally safe as if it were carried out in an enclosed system.
Use of benzene and substances containing benzene is prohibited in the following processes, namely;
 - i) manufacture of varnishes, paints and thinners;
 - ii) cleaning and degreasing operations.
 - b) Where suitable substitutes are available, they shall be used instead of benzene or substances containing benzene. This provision, however, shall not apply to the processes specified in Appendix A.
 - c) The Chief Inspector may, subject to confirmation by the State Government, permit exemptions from the percentage laid down in clause 2(a) and also from the provisions of sub-clause(b) temporarily under conditions and within limits of time to be determined after consultation with the employers and workers concerned.
4. Protection against inhalation:-
- a) The process involving the use of benzene or substances containing benzene shall as far as practicable be carried out in an enclosed system.
 - b) 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 work room so that the concentration of benzene in the air does not exceed 25 parts per million by volume or 80mg/m³.
 - c) 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 25 parts per million by volume or 80 mg/m³ the Manager shall forthwith report the concentration to the Chief Inspector stating the reasons for such increase.
 - d) 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 clause (b) shall be provided with the suitable respirators or face masks. The duration of such exposure shall be limited as far as possible.
5. Measure against skin contact:-
- a) Workers who are likely to come in contact with liquid benzene or substances containing benzene shall be provided with suitable gloves, aprons, boots and where necessary vapour tight chemical goggles, made of materials not affected by benzene or its vapours.

- b) The protective wear referred to in sub-clause a) shall be maintained in good condition and inspected regularly.
6. Prohibition relating to employment of women and young persons:-
No women 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 shall also display information on benzene content, warning about toxicity and warning about in flammability of the chemical.
8. Improper use of Benzene:-
a) The use of benzene or substance containing benzene by workers for cleaning their hands or their work clothing shall be prohibited.
b) Workers shall be instructed on the possible dangers arising from such misuse.
9. Prohibition of consuming food, etc. in work-room:- No workers shall be allowed to store or consume food or drink in the work room in which benzene or substances containing benzene are manufactured, handled or used. Smoking and chewing tobacco or pan shall be prohibited in such work-room.
10. Instructions as regards risk:- 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 an emergency.
11. Cautionary notices:- Cautionary notices in the form specified in Appendix B and presented in the language easily read and understood by the majority of the workers shall be displayed in prominent places in the workrooms where benzene are manufactured, handled or used.
12. Washing and bathing facilities:-
i) The following washing facilities and bathing facilities shall be provided and maintained in cleanly state and in good repair for the use of all persons employed in operations which involves manufacture, handling or use of Benzene or substances containing Benzene:-
a) A wash-place under cover with clean towels, soap and nail brushes and with at least one stand pipe for every ten persons having constant supply of water.
b) 50 per cent of the stand pipes provided under item (a) above to be located in bathroom. Water shall be made available during the working hours of the factory and for one hour thereafter.
c) Clean towels to be provided individually to each worker and supply of hot water if so ordered by an Inspector.
d) In addition to taps mentioned under item(a) one stand pipe in which warm water is made available to be provided on each floor.
ii) Cloak room:- A cloak room with lockers for each worker, having two compartments one for street-clothing and one for work clothing, shall be provided.
iii) Mess room:- A mess room furnished with tables and benches with means for warming food shall be provided and where a canteen or other proper arrangements exist for the workers to take their meals, the requirements of mess room may be dispensed with.
13. Medical examination:-
a) Every worker who is to be employed in processes involving use of benzene or substances containing benzene, shall undergo-

- i) a thorough pre-employment medical examination including a blood test for fitness for employment by a Medical Inspector/Certifying Surgeon.
- ii) periodical medical examination including blood test and other biological tests at intervals of every 6 months by the factory medical officer with the assistance of a laboratory.
- b) Certificates of pre-employment medical examination and periodical medical examination including test, shall be entered in a health Register in [Form 29](#) and Medical Inspector of Factories/Certifying Surgeon may grant Certificate in [Form 28](#) which shall be produced on demand by an Inspector.
- c) If the factory medical officer on examination at any time is of the opinion that any worker has developed signs or symptoms of benzene exposure, he shall make a record of his findings in the said register and inform the Manager in writing.
On receipt of the information from the factory medical officer, the Manager of the factory shall send the worker so found exposed, to the Medical Inspector/Certifying Surgeon who shall after satisfying himself with the findings of the factory medical officer and conducting necessary examinations, issue orders of temporary shifting of the worker or suspension of the worker in the process.
- d) The medical examination shall be arranged by the occupier or manager of the factory and the worker so examined shall not bear any expenses for it.

13A. Medical facilities:-

- 1) The occupier or the factory shall appoint at least a part-time qualified medical practitioner, possessing MBBS degree and having a diploma in Industrial Health or possessing MBBS degree and having five years experience in industry as occupational health physician. The medical practitioner so appointed shall be required to put in minimum four hours attendance on every working day in the ambulance-room for carrying out the duties specified in the following sub-paragraph (2).
Provided that, in the cases factories employing less than 500 workers per day, the Chief Inspector of Factories may allow attendance for shorter duration after taking into consideration all the relevant facts of each case.
- 2) In addition to the duties specified in sub-paragraph(1) the medical practitioner so appointed shall perform the following duties, that is to say:-
 - a) to maintain Health Register in [Form 29](#).
 - b) to undertake medical supervision of persons engaged in dangerous operations specified in rule 165 of these rules.
 - c) to look after health, education ad-rehabilitation of sick, injured or affected workers.
 - d) to carry out inspection of work-rooms where dangerous operations are carried out and to advice the management of the measures to be adopted for protection of health of the workers involved therein.

- 14. Exemption:- If in respect of any factory, the Chief Inspector is satisfied that owing to exceptional circumstances or infrequency of the process or for any other reason all or any of the provisions of this schedule are not necessary for the protection of employees, the State Government or subject to control of State Government the Chief Inspector may by a certificate in writing exempt such factory, from all or any of the provisions on such conditions as he may specify therein. Such certificate may at any time be revoked by Chief Inspector after recording his reason therefore.

APPENDIX A

(Clause 3(b))

1. Production of benzene.
2. Process where benzene is used for chemical synthesis.
3. Motor spirits (used as fuel).

APPENDIX B

(Clause 11)

- a) The hazards. :-
 - i) Benzene and substances containing benzene are harmful.
 - ii) Prolonged or repeated breathing of benzene vapours may result in act of chronic poisoning.
 - iii) Benzene can also be absorbed through skin which may cause skin and other diseases.
- b) The preventive measures to be taken:-
 - i) Avoid breathing of benzene vapours.
 - ii) Avoid prolonged or repeated contact of benzene with the skin.
 - iii) Remove benzene soaked or wet clothing promptly.
 - iv) If any time you are exposed to high concentration of benzene vapours and exhibit the sign and symptoms such as dizziness, difficulty in breathing, excessive excitation and losing of consciousness, immediately inform your factory Manager.
 - v) Keep all the containers of benzene closed.
 - vi) Handle, use and process benzene and substances containing benzene carefully in order to prevent their spillage on floor.
 - vii) Maintain good house keeping.
- c) The protective equipment to be used:-
 - i) Use respiratory protective equipment in places where benzene vapours are present in high concentration.
 - ii) In emergency use self-generating oxygen mask or oxygen or air cylinder masks.
 - iii) Wear hand gloves, aprons, goggles and gum-boots to avoid contact of benzene with your skin and body parts.
- d) The first aid measures to be taken in case of acute benzene poisoning:-
 - i) Remove the clothing immediately if it is wetted with benzene.
 - ii) If liquid benzene enters eyes, flush thoroughly for at least 15 minutes, with clean running water and immediately secure medical attention.
 - iii) In case of unusual exposure to benzene vapour call a physician immediately. Until he arrives, do the following:-

If the exposed person is conscious:-

- a) Move him to fresh air in open.
- b) Lay down without a pillow and keep him quiet and warm.

If the exposed person is unconscious:-

- a) Lay him down preferably on the left side with the head low.
- b) Remove any false teeth, chewing gum, tobacco or other foreign objects which may be in his mouth.
- c) Provide him artificial respiration in case difficulty is being experienced in breathing.
- d) In case of shallow breathing or cyanosis (blueness skin, lips, ear, 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 trained person only.

Schedule XXI

Process of extracting oils, wax and fats from vegetable and animal sources in Solvent Extraction Plants

1. Application:- This Schedule shall apply to factories in which the process of extraction of oil, wax and fats from oil-cakes, oil-seeds or any other material from vegetable and animal source is carried out in Solvent Extraction Plants.
2. Definition:- In this Schedule, unless the context otherwise requires,-
 - a) 'Competent person' means a person who-
 - i) is at least a member or associate member of the Mechanical or Chemical Engineering Branch of the Institute of Engineers(India), or
 - ii) is a member or associate member of the Indian Institute of Chemical Engineers, or
 - iii) is a graduate of a recognized University in Chemical Engineering, and
 - iv) possess a minimum ten years experience of design or construction of flammable process plants specially the Solvent Extraction Plants.
Provided that the State Government or Chief Inspector subject to control of the State Government, may accept any other person as a Competent Person, if it or he is satisfied regarding suitability of qualifications and experience of that person.
 - b) 'plant' means the Solvent Extraction Plants;
 - c) 'Preparatory Process' means the operations involving the equipment used for the preparation of the material for solvent extraction,
 - d) 'Solvent' means an inflammable liquid such as pentane, hexane, heptane, mineral turpentine and the like.
 - e) 'Solvent Extraction Plant' means any plant in which ;the process of extraction of oil, wax or fats from oil-cakes, oil seeds or any other material from vegetable and animal sources, by the use of solvents is carried on and includes the plant for recovery of the solvent.
3. Location and Lay-out:-
 - 1) No plant shall be permitted within a distance of 30 metres from any residential locality or site for public utility.
 - 2) The plant shall not be put into commission unless it is certified by a Competent Person that the plant, machinery and its other equipment are designed, fabricated and erected according to the best known practices pertaining to the process and the said certificate is submitted to the Chief Inspector, at least one month before the commissioning of the plant.
 - 3) A 1.5 metres high continuous wire fencing shall be provided around the plant, upto a minimum distance of 15 metres from the plants.
 - 4) Boilers Houses and other buildings where open flame processes are carried on shall be located at least 30 metres away from the plant.
 - 5) If godowns and buildings where preparatory processes are carried on are located at a distance of less than 30 metres from the plant, these shall be located at least 15 metres away from the plant, and 1.5 metres high continuous barrier wall of non-combustible materials shall be erected at a distance of not less than 15 metres from the plant

so that it extends to at least 30 metres of vapour travel around its ends from the plant to the possible source of ignition.

Provided that, the existing units may be exempted from any of the provisions of this paragraph on such conditions as the State Government may deem fit.

4. Electrical Installations:-
 - 1) All electrical meters, wirings and other electrical equipments installed or housed in the plant shall be of flame-proof constructions.
 - 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 equipments not required to be energized 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.
5. Prohibition relating to smoking:- Smoking or carrying any source of ignition shall be strictly prohibited within a distance of 30 metres from the plant. For this purpose 'NO SMOKING' signs shall be permanently displayed in the area of the plant.
6. Precautions against friction:-
 - 1) All the hand-tools required to be used in the plant shall be of non-sparking type.
 - 2) No machinery or equipment of the plant shall be belt driven.
Provided that, the plants existing prior to the date of commencement of these rules may continue with belt drives if the belts are of anti-static type and, in the opinion of a Competent Person, a proper earthing arrangement is made.
 - 3) No person shall be allowed to enter and work in the plant if he is wearing clothes made of nylon or such other fibres which can generate static electrical charge, or if he is wearing footwear which is likely to cause sparks by friction.
7. Fire-fighting apparatus:-
 - 1) Adequate number of portable fire extinguishers suitable for use against flammable liquid shall be provided in the plant.
 - 2) An automatic water spray sprinkler system on a wet-pipe or open head defuse system with sufficient supply of storage water shall be provided over the plant area throughout the building in which the plant is housed.
 - 3) This requirement shall be in addition to the requirements under any other provisions of the Tripura Factories Rules, 1997 regarding fire fighting apparatus and water supply.
8. Precautions against power failure:- Provisions shall be made any other provisions of steam in the event of power failure and also for emergency over-head water supply for feeding water by gravity to condensers for atleast half an hour which shall come into the play automatically with the power failure.
9. Magnetic Separators:- Oil cake shall be fed to the extractor by conveyor through a hopper, and magnetic separator shall be provided to remove any pieces of iron during its transfer.
10. Venting:-
 - 1) Tanks containing solvents shall be projected with emergency venting to relieve excessive internal pressure in the event of fire.
 - 2) All emergency relief vents shall terminate atleast 6 metres above the ground and be so located that vapours will be directed away from the plant.

11. Waste Water:- process waste water shall be passed through flash evaporator to remove any solvent before it is discharged into a sump which shall be located within the fenced area but shall not be closer than eight metres to such fence.
12. Ventilation:- The shed for the plant shall have adequate natural ventilation and if it is housed in building having ventilation which in the opinion of the Inspector, is inadequate, atleast six air changes per hour shall be ensured by mechanical means.
13. House Keeping: -
 - 1) Solvent shall not be stored in an area covered by the plant except in quantities not exceeding 5 litres, which shall be stored in suitable safety cans.
 - 2) Waste materials such as oily rag, other waste and absorbents used to wipe off solvents, oil and grease in the plant shall be deposited in suitable containers and removed from the premises at least once a day.
 - 3) Premises where the Solvent Extraction process is carried on and the outer area within 15 meters from it shall be kept free from any combustible materials and any spills or oils or solvent shall be cleared up immediately.
14. Examination and repairs:-
 - 1) a) The plant shall be examined by the competent person to determine any weakness or corrosion and wear, once in every twelve months. The Competent Person shall then furnish a report of such examination to the Inspector, with his recommendations as to whether the plant is in safe condition to work and the measures, if any, which in his opinion are necessary to be taken and the time by which such measures shall be taken, so as to ensure that the plant and equipment can be used without any danger to the workers in the factory.
 - b) If any defects which are causing or likely to cause imminent danger to the life or safety of the workers working on such plant are found by the Competent Person, the Competent Person shall immediately submit a report to that effect to the Inspector and chief Inspector of Factories, standing therein the measures which, in his opinion, are necessary to ensure safety to the workers. When the necessary repairs are carried out, a copy of certificate by Competent Person that the plant has been repaired to his satisfaction shall be forwarded to the Inspector.
 - 2) The plant shall be purged with inert gas or steam before opening for cleaning or repairs and before introducing solvent after repairs.
15. Operating Personnel:-
 - 1) The plant shall be under an overall supervision of a qualified person who shall atleast be a graduate of a statutory University of Chemical Engineering or Technology with specialized knowledge of oils and fats with minimum 5 years experience in Solvent or Flammable.
 - 2) The plant machinery or equipment shall be in the charge of operators who have been trained and made thoroughly conversant to operate the plant so certified by the qualified person referred to Clause(1).
16. Employment of young persons:- No women or young persons shall be employed in the plant.
17. Vapour Detection:- A flame-proof and portable combustible gas indicator or any other type of gas indicator as the Chief Inspector of Factories, may, subject to the control of the State Government, approve as safe and suitable for the purpose, shall be provided and maintained in good working order. A schedule of routine

- sampling of atmosphere at various location as approved by the Competent Person shall be drawn out and entered in a register maintained for the purpose.
18. Additional provisions for batch-extractors:- The following further provisions shall apply to cater type extractor, namely:-
- a) When the Solvent is removed from batch extractors by vacuum, vacuum gauges shall be provided and tests shall be carried out to ensure that minimum vacuum of 650 mm (26") mercury is obtained and maintained steadily for a minimum period of 30 minutes before the extractor is allowed to be opened for discharge of cake or for persons to enter.
 - b) When, on opening the doors of a batch extractor, the extracted meal cannot be dislodged from the extractor freely, the doors shall be closed and the material reheated till the meal dislodges freely from the extractor.
 - c) Where solvent is removed by steam heating, the presence of the Solvent shall be tested at the vent provided on the top of the vessel before opening the vessel.
 - d) A log-book of operations with the following particulars shall be maintained and made available on demand to the Inspector:-
 - i) Vacuum gauge reading for each charge.
 - ii) testing of continuity of electrical bonding and earthing system.
 - iii) loss of solvent every 24 hours or loss per tonne of raw materials used.
19. Exemption :- If, in respect of any plant, the Chief Inspector is satisfied that owing to exception circumstances or for any other reasons, all or any of the provisions of this Schedule are not necessary for the protection of the persons employed in the plant, he may by a certificate in writing exempt such factories from all or any of the provisions on such conditions as he may specify therein. Such certificates may at any time be revoked by the Chief Inspector without assigning any reasons.

Schedule XXII

Manufacture or Manipulation of Carcinogenic Dye Intermediates.

1. Application:- This Schedule shall apply in respect of all factories or any part thereof where processes in which the prohibited substances and controlled substances mentioned in paragraphs 3 and 4 respectively, are used, handled, manufactured, formed or dried, and the processes incidental thereto in the course of which these substances are formed, are carried on. The processes indicated in this paragraph shall hereinafter be referred to as "the said processes" and such a reference shall mean any or all the processes described in this paragraph.
2. Definitions:- For the purpose of this Schedule unless the context otherwise requires:-
 - a) "Controlled Substances" means chemical substances mentioned in paragraph 4 of this Schedule.
 - b) "Efficient Exhaust Draught" means localized 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 fails to remove smoke generated at the point where such gas, vapour, fume or dust originate.
 - c) "First Employment" means first employment in the said processes and also reemployment in such processes following any cessation of employment for a continuous period exceeding three calendar months;
 - d) "Prohibited Substances" means chemical substances mentioned in paragraph 3 of the 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 per cent;
 - a) Beta-naphthylamine and its salts.
 - b) Benzidine and its salts.
 - c) 4-amino diphenyl 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 namely :-
 - a) Alpha naphthylamine or alphanaphthylamine containing not more than one percent of betanaphthylamine either as 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.
 - f) Magneta.
5. Prohibition of employment:- No person shall be employed in the said process in any factory in which any prohibited substance is formed, manufactured, processes, handled or used except as exempted by the Chief Inspector as stipulated in paragraph 26.
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 those 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 labeled to indicate the contents.
7. Efficient exhaust draught:- Unless the manufacturing process is completely enclosed so as not to give off dust or fume it shall be carried on without the use of an efficient exhaust draught when any controlled substance, :-
 - a) is introduced into a tank hopper machine or container or filled into cartridge; or
 - b) is ground, crushed, mixed, sieved or blended.
8. 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.
 - 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.
 - c) Airlines 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 state of repair.
9. Prohibition relating to employment of women and young persons:-
No women or young persons shall be employed or permitted to work in any room in which the said processes are carried on.
10. Floors of work room:- The floor of every work room in which the said processes are carried on shall be:-
 - a) smooth and impervious to water without using asphalt or tar in the composition of the floor.
 - b) maintained in a good state of 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.
11. Disposal of empty container:-
 - 1) Empty containers used for holding or storing controlled substances shall be thoroughly cleaned of their contents and treated with an inactivating agent before being discarded.
 - 2) Empty non-metallic containers used for holding controlled substances shall be burnt.
12. 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.
13. 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 and 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.
14. Cautionary placards:- Cautionary placards in the form specified in the Appendix 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 easily and conveniently read. Arrangements shall be made by the manager to instruct periodically all such workers regarding the precautions contained in the cautionary placards.
15. Medical Examinations:-
 - 1) Every worker employed in the said processes shall be examined by a Medical Inspector of Factories or a Certifying Surgeon within 14 days of his first employment. Such examination shall include tests which the Medical Inspector of Factories or Certifying Surgeon may consider appropriate and shall include exfoliative cytology of the urine. No worker shall be allowed to work after 14 days of his first employment in the factory unless certified fit for such employment by the Medical Inspector of Factories or Certifying Surgeon.

- 2) Every worker employed in the said processes shall be reexamined by a Medical Inspector or Certifying Surgeon at least once in every six calendar months. Such examination shall include tests which the Medical Inspector or Certifying Surgeon may consider appropriate but shall include exfoliative cytology of the urine.
- 3) A person medically examined under sub-paragraph (1) shall be granted by the Medical Inspector or Certifying Surgeon a certificate of fitness in [Form 28](#). Record of each re-examination carried out under sub-paragraph (2) shall be entered in the certificate. The certificates shall be kept in the custody of the manager of the factory.
- 4) The record of each examination carried out as referred to in sub-paragraph (1) and (2) including the nature and the results of the tests shall be entered by the Medical Inspector or Certifying Surgeon in the health register in [Form 29](#).
- 5) The certificates of fitness and the health register shall be kept readily available for inspection by an Inspector.
- 6) If at any time the Medical Inspector or Certifying Surgeon is of the opinion that a person is no longer fit for employment in the said processes or in any other work on the ground that continuance therein would involve damage to his health, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in these documents shall also include the period for which he considers that the said person is unfit for work in the said processes or in any other work, as the case may be.
- 7) No person who has been found unfit to work as said in sub-paragraph(6) shall be re-employed or permitted to work unless the Medical Inspector of Factories or Certifying Surgeon after further examination, again certifies him to be fit for employment.
- 8) No worker shall be required to pay the charges or fees for the medical examination, re-examination or tests required to be done under this paragraph. Such charges or fees shall be paid by the occupier of the factory.

16. Medical facilities:-

- 1) The occupier of the factory shall appoint a qualified medical practitioner whose appointment shall be subject to confirmation by the Chief Inspector. The qualified medical practitioner so appointed shall be known as the appointed doctor.
- 2) The occupier shall provide:-
 - a) for the purpose of medical examination which the appointed doctor wishes to conduct at the factory premises for his exclusive use, a room which shall be properly cleaned, adequately ventilated, lighted and furnished with a screen, a table (with writing material), chairs and facilities and instruments for such examination, and
 - b) Oxygen gas cylinder with qualified personnel for its administration.
- 3) A record of medical examination and appropriate tests carried out by appointed doctor shall be maintained in a form approved by the Chief Inspector.
- 4) No person shall be employed in the said process unless he has been examined by using appropriate tests and found fit for the said process by the appointed doctor.

- 5) Persons examined in compliance with sub-paragraph(4) shall be re-examined by the appointed doctor at intervals of not more than 3 months or at such other intervals as may be directed in writing by the Chief Inspector and records of such examination shall be entered in the register provided under sub-paragraph(3).
 - 6) If at any time, the appointed doctor is of opinion that any person is no longer fit for employment in the said process on the ground that continuance thereof would involve special danger to health, he shall make a record of his findings in the said register and intimate the manager in writing that the said person is unfit to work in the said process.
 - 7) A person so found unfit by the appointed doctor shall be sent by the manager to the Medical Inspector of Factories or the Certifying surgeon with a report from the appointed doctor. The Medical Inspector of Factories or Certifying Surgeon after examination may suspend the said person from work in the said process.
 - 8) No workers shall be required to pay the charges or fees for the medical examination, re-examination or tests required to be done under this paragraph. Such charges or fees shall be paid by the occupier of the factory.
17. 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 expoliative cytology of urine by the Medical Inspector of Factories or Certifying Surgeon or the appointed doctor as provided for under these rules.
18. Washing and bathing facilities:- i) The following washing and bathing shall be provided and maintained in a clean state and in good repair for the use of all workers employed in the said processes, namely:-
- a) A wash place under cover having constant supply of water and provided with clean towels, soap and nail brush and with at least one stand pipe for every five such workers.
 - b) 50 per cent 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 but the same shall not be at a distance longer than 15 meters. Before the end of each shift one hour shall be allowed for bathing for each worker who is employed in the said processes and at least 10 minutes shall be allowed for washing before each meal in addition to the regular time allowed for meals.
 - d) Clean towels shall be provided individually to each worker.
 - 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 every day.
19. Food, drinks, etc. prohibited in work-room:- No worker shall consume food, drink, pan, supari or tobacco or shall smoke on any premises in which the said processes are carried on and no worker shall remain in any such room during intervals of meals or rest.

20. Cloak room:- 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 cloak room 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 equipments provided under paragraph 7. The accommodation so provided shall be under the care of a responsible person and shall be kept clean.
21. Mess room:- 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. Mess shall be placed under the charge of a responsible person and shall be kept clean.
22. Drying oven or stoves:
- 1) Every drying stove shall be efficiently ventilated to the out side air in such manner that hot air from the stove shall not be drawn into any work-room.
 - 2) No person shall enter stove to remove the contents until a free current of air has been passed through it by mechanical means.
23. 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.
24. Separation of processes: - The said process shall be carried on in a room or room which shall not directly communicate with any other room or rooms not having the said process except through a passage open entirely to outside atmosphere.
25. Testing of atmosphere etc.:- The prohibited substances in the atmosphere of the work-room where the manufacturing process is carried on shall be estimated once in every week and records of results of such estimation shall be made available when required by the Inspector.
26. Exemptions: -
- 1) The Chief Inspector may by a certificate in writing (which he may at his discretion revoke at any time) and subject to such conditions, if any, at 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 quantities no greater then that required for the purposes 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, if he is satisfied 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 there from except in quantities no greater than that required for the purposes 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 with not less than one part of water to two parts of benzidine hydrochloride at all times.
27. 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 are not necessary for

the 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 of all or any of such provisions subject to such conditions, if any, as he may specify therein.

APPENDIX

Cautionary Placard/Notice

1. Dye intermedicates which are nitro or 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 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 absorbed through skin and 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 the place of work. 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 XXIII

Highly Flammable Liquids and Flammable compressed Gases

1. Application:- These rules shall be applicable to all factories where highly flammable liquids or flammable compressed gases are manufacture, 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 storeroom of adequate fire resistant construction.

2) Except as necessary for use, operation or maintenance, every vessels or tank which contains or had contained a highly flammable liquids or flammable compressed gas shall be always kept closed and all reasonably practicable steps shall be taken to contain or immediately drain off to suitable container any spill or leak that may occur.

3) Every container vessels, 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 System for conveying Highly Flammable Liquids:- Whenever it is reasonably practicable, highly flammable liquids shall be conveyed within a factory in totally enclosed system 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 possibility for leakage or spill of highly flammable liquid or flammable compressed gas from an 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:-

1) 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 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 smoking would give rise to a risk of fire. The occupier 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 manufactures, 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 materials, 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 **Rule 82**.

9. Exemptions:- If in respect or any factory, the Chief Inspector is satisfied that owing to the exceptional circumstances or infrequency of the processes or for any other reasons 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 XXIV

Operations involving High Noise Level

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 logarithmic to the base of 10 of this ratio. The noise level (or the sound pressure level) corresponds to a reference pressure of 2×10^{-5} newtons per square meter. 00002 or 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 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 or a number Of short term exposures) per day, in hours	Sound pressure Level in dBA
8	90
6	92
4	95
3	97
2	100
1½	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 or impact per day.	Permitted number of impulses
140	100
135	315
130	1,000
125	3160
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 indicated in column1, the permitted number of impulses or impacts per day is to be determined by extrapolation on a proportionate basis.
 - 3) For any purposes of this schedule, if the variations in the noise level involve maxima at intervals of one second or less, the noise is to be considered as 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.
 - 4) When the daily noise 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

$$\text{fractions } \frac{C_1}{T_1} = \frac{C_2}{T_2} \dots \dots \dots \frac{C_n}{T_n} \text{ exceeds unity.}$$

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 permissible at that level. Noise exposure of less than 90 dBA may be ignored in the above circulation.

- 5) Where it is not possible to reduce the noise exposure specified in sub-rule (i) by reasonably practicable engineering control or administrative measures, the noise exposure shall be reduced to the greater extent feasible by such control measures, and each worker so exposed shall be provided with suitable protectors so as to reduce the exposure to noise to the levels specified in sub-clause (i).
- 6) Where the ear protectors provided in accordance with sub-clause (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 suitable reduced to correspond to the permissible noise exposure specified in sub-clause (1).
- 7) a) In all cases where the prevailing sound level exceed for permissible levels specified sub-clause (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 worker

either by reducing the exposure to the noise levels or by transferring then to places where noise levels are relatively less or by any other suitable means.

- 7) b) Every worker employed in areas where the noise exceeds the maximum permissible exposure levels specified in sub-clause (1) shall be subjected to an auditory examination by a Certifying Surgeon/medical Inspector of Factories within 14 days of his first employment and thereafter, shall be re-examined atleast once in every 12 months. Such initial and periodical examinations shall include tests which the Certifying Surgeon/Medical Inspector of Factories 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

Chemical Works

Part I

1. Application: This schedule shall apply to all manufacture and processes incidental thereto carried on in chemical works.

2. Definition: 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 per chlorate;
- 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 173, 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, run-away reactions, delayed reactions, etc. and are characterized by evolution of

large quantities of heat, intense release of toxic or flammable gases or vapours, sudden pressure build-up etc.,

- 1) “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.
- 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 kept 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 purposes 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 & 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 unauthorized 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 its 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 173**.
 - 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.
 - 4)
 - a) 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 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, pipe lines etc. used in such storage facility 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 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 substance 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 as 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 matter. 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 in 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 safety and health of the persons assigned for this work. The log book so maintained shall be retained as long as the concerned workers are in service and produced 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 to 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 includes the observance of the following precautions while carrying out any specified work to be subjected to the permit to work system.
- a) All works 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 pre-determined work procedures which integrate safety with the work. Such procedures shall be reviewed whenever any change occurs in materials or equipments 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 and 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.
 - 4) The occupier shall arrange to install distinctive and recognizable 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 First Aid measures taking into consideration the special 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 when the information is needed to administer proper emergency of 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 Explosive Risks

1. Source of ignition including lighting installation:
 - 1) No internal combustion engine and no electric motor or other electric 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 used 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 takes 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 leakage 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 in 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 in 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 recognized 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 pumpman 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 be 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 interlinked 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 the buildings shall be so designed as to localize 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 atleast 90 centimeters above the adjoining ground or platform, be securely fenced to a height of atleast 90 centimeters 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 45 centimeters in width or is 45 or more centimeters in width, but is not securely fenced in both sides to a height of atleast 90 centimeters, 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 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 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 inactive 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 the 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.
- 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 glasses 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 like 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 crystallization or chlorate or to contain crystallised ground chlorate.
5. Special precautions in the use of plant and equipments made from reinforced plastics:-
 - 1) All plant and equipments shall conform to appropriate Indian or any other National Standard.
 - 2) Care shall be taken during storage, transport, handling and installation of plant and equipments to avoid accidental damage.
 - 3) All plant and equipments shall be installed in such a way as to ensure that loads are dis_____ or as per the recommendations of the manufacturers.
 - 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 equipments 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 competent person shall be obtained and kept available at site.
 - 6) All plant and equipments shall be subjected to periodical test and examination and record maintained as per paragraph 15 in Part II of this Schedule.
 - 7) Plant and equipments 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 any time	No of drenching showers
Upto 50 persons	2
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 50 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 whom 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 emergency.

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;

i) There shall be 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 or 15 sq. metre with floors and walls made of smooth and impervious surface and adequate illumination and ventilation as well as equipment as per the schedule annexed to the Rule.

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.

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 process covered in Appendix “A” shall be medically examined by a qualified medical practitioner in the following manner:-

a) Once before employment, to ascertain physical fitness of the person to 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.

c) The details of per-employment and periodical medical examinations carried out as aforesaid shall be recorded in the Health Register in **Form 29**.

2) No person shall be employed for the first time without a certificate of fitness in **Form 28** granted by the Factory Medical Officer. If the Factory Medical Officer declares a person unfit for being employed in any process covered in Appendix “A”, 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 inturn, 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 covered in Appendix “A” 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.

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 tap for every 115 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 alongwith the provisions 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 conditions.
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 workers 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 so provided in pursuance of sub-para (1) shall be located as far as possible near to the facilities provided for washing in pursuance of para1(1). If it is not possible to locate the washing facilities the cloak room 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 these 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 processes covered in Appendix ‘A’ and Appendix ‘B’ shall not make any 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 of 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 equipments 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 arrangements or adopt short cut method of 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 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 suitable and effective alternate arrangements are available to any of the requirements covered in this schedule.

Appendix 'A'

Any work 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, hydrosulphuric, hydrobromic, boric;
 - iv) cyanogen compounds, cyanide compounds, cyanate compounds;
 - v) phosphorous and its compounds other than organo phosphorous 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 esphalt 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 derivaties or substituted derivatives, such as chloroform, ethylene glycol, formaldehyde, benzyls chloride, phenol, methyl ethyl keytone 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 amino 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

Ambulance should have the following equipments:-

General

- An wheeled stretcher with folding and adjusting devices;
- Head of the stretcher must be capable of being tilted upward,
- Fixed suction unit with equipments;
- Fixed oxygen supply with equipments;
- Pillow with case;
- Sheets;
- Blankets;
- Towels;
- Emesis bag;
- Bed pan;
- Urinal;
- Glass.

Safety equipment

- Flares with life or 30 minutes;
- Flood lights;
- Flash lights;
- Fire extinguisher dry powder type;

- Insulated gauntlets.

Emergency care equipments

Resuscitation

- Portable suction
- Portable oxygen unit;
- Bag-valve-mask, hand operated artificial ventilation unit;
- Airways;
- Mouth bags;
- Tracheotomy adaptors;
- Short spine board;
- I.V. Fluids with administration unit;
- B.P. manometer;
- Chug;
- Stethoscope.
- Immobilization;-
- Long & short spine boards.

Dressings

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

Poisoning

- Syrup of Ipecac;
- Activated charcoal;
- Snake bite kit; pre-packeted in doses.
- Drinking water.

Emergency Medicines

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

Schedule XXVI

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(five) percent by weight of free silica.

3. Precautions in manipulations:- 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 appended to **Rule 173**.

Provided that such measures as abovesaid 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 cleaned 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 to 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 on.

6. Medical facilities and records of examination and tests:-

- 1) The occupier of every factory to which the schedule applies shall:-
 - a) employ a qualified medical officer for medical surveillance of the workers employed therein whose employment shall be subject to the approval of the Chief Inspector and
 - b) Provide to the said medical officer all the necessary facilities for the purpose referred to in clause (a)
- 2) The record of medical examination and appropriate tests carried out by the said Medical Officer shall be maintained in a separate register approved by the Chief Inspector, 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(fifteen) days of his first employment. Such medical examination shall include pulmonary function tests and chest x-ray. No worker shall be allowed to work after (15) (fifteen) 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 12(twelve) months. Such examination shall, wherever the Certifying Surgeon considers appropriate, inclusive all tests as specified in sub-paragraph (1) except chest X-Ray which will be once in three years.

- 3) The Certifying Surgeon after examining a worker, shall issue a certificate of fitness in **Form 28**. 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 subparagraphs (1) & (2), including the nature and the results of the tests, shall also be entered by the Certifying Surgeon in a health register in **Form 29**.
- 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 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 subparagraph (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 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 issue 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

Fire Works Manufacture and Match Factories

1. Application: The provisions of this schedule shall apply to all manufactories and processes incidental thereto carried on in any fire works manufactory or a match works and shall be in addition to and not in derogation of any provisions of the Factories Act, 1948 and the Tripura Factories Rules, 1996 or of any other Act or Rules that are applicable to fire works manufactories and match factories.

2. Definition:

a) "Fire Works Manufactory" means any factory or such part of any factory wherein the following chemicals or combination of chemicals and materials are being used for the manufacture of crackers, sparklers, caps, fuses, blasting powder and fire works:

Salpetre;

Pyrotechnic Alluminium Powder

Barium Nitrate

Charcoal

Potassium Chloride

Red Phosphorous

Gum

Dextrine

Stronium Nitrate

Magnesium Powder

Copper Coated Wires
Steel fillings or Iron fillings
G I Wire
Gun Powder (Black Powder)

- b) "Match Works" means any establishment which manufactures safety matches or colour matches by the use of chemicals mentioned in clause (a).
- c) "Breathing Apparatus" means a device covering mouth or nose with necessary connections by means of which a person using it in a poisonous asphyxiating or irritant atmosphere breaths ordinary air or any other suitable apparatus approved in writing by the Chief Inspector in this behalf.

3. Buildings:

- a) The building of any fire works manufactory or match factory shall conform to the standards prescribed under the Indian Explosive Act, 1884.
- b) No building inside a fire works manufactory shall have a first floor at any time.
- c) In match works, provided with a first floor, there shall be 2 staircases leading from the first floor to the ground irrespective of the number of persons employed in the first floor and one of the staircases shall be of masonry construction or of non-inflammable materials;
- d) All doors shall open outwards and all the doorways shall be kept free from obstructions;
- e) All doors of workrooms shall not be less than 1.2 metres in width or less than 2 metres in height;
- f) The floors of all work rooms including mixing sheds shall be completely covered by a rubber sheet having a smooth surface and having a thickness of atleast 3 mm. If the floor cannot be covered by a single rubber sheet, more than one rubber sheet may be used, so that each sheet is overlapped by the other atleast 150 mm; and
- g) Mixing sheds shall be 30.5 metres away from all other sheds and be separated by baffle walls opposite each exit of the mixing shed.

4. House-keeping:-

- a) Every part of ways, works, machinery and plant shall be maintained in a clean and tidy condition;
- b) Any spillage of materials shall be cleaned without delay;
- c) Close platforms, passages and gangways shall be kept free of temporary obstructions.

5. Electrical Equipment:-

- a) If at any time, use of electricity is allowed in the factory, all leads, etc, shall be in conduits with flame-proof junctions;
- b) Electrical supply shall never be through a lamp even with a non-conducting handle.

6. Protective clothing:-

- a) Under no circumstances clothes made of artificial fibre like terelene, etc, be allowed inside the factory;
- b) All workers shall be supplied with asbestos aprons especially to cover the chest, gonads and thighs;
- c) Breathing apparatus shall be used in mixing sheds to avoid workers inhaling poisonous fumes in the event of an untoward reaction.

- d) In mixing sheds where aluminium and magnesium powders are used “anti-stat” foot-wear to combat static electricity shall be supplied.
 - e) All protective equipments shall be maintained in an efficient condition and also shall be maintained in a clean and hygienic condition.
7. Match Factory:- In match factories:-
- i) the residue of the head composition shall not in any way be mixed with the residue of the friction composition;
 - ii) the rooms comprising the two mixing departments, namely, (a) head composition and (b) friction composition shall be entirely separated from each other and the drains from these two departments shall be kept entirely separate;
 - iii) rubbish containing the residues of the head composition and friction composition shall be kept and burnt separately;
 - iv) department in which completed matches (matches with heads on) are stored shall be separated from all other departments by means of fire-proof walls and doors providing adequate means of escape in case of fire;
Provided that the Chief Inspector may, subject to such conditions, as he may deem necessary, exempt any factory in existence on the first January 1935, from the provisions of this clause;
exempt any factory in existence on the first January 1935, from the provisions of this clause;
 - v) Splints, veneers and other materials in excess of the quantity required for the day’s manufacture shall be kept in separate rooms of the factory where no manufacturing process is carried on. No manufactured material shall be stored anywhere in the factory compound for more than 5(five) days after the manufacture except in the storage godowns;
Provided that nothing contained in this clause shall apply to splints and veneers in cases stored in peeling and box making departments;
 - vi) Store room for matches shall be entirely separated by fire proof walls from the buildings used for manufacture; and
 - vii) The racks in the dipped splints room shall have sides, top and the rear part provided with non-inflammable materials.
8. Precautions to be taken in connection with manufacture of fuses used in crackers, etc:-
- a) Bundles of fuses shall be handled by carrying and not dragging them on the floor;
 - b) Drying of fuses after wrapping shall be carried out on platforms away from workrooms;
 - c) Cutting shall be done by experienced workers employed only for this purpose and under proper supervision;
 - d) Cutting shall be done on a large masonry platform covered with a tarpaulin and kept free from grit and pebbles;
 - e) Cutting shall be done on a raised platform so that workers can work standing, Cutting must be done by placing the fuse on wooden sleepers kept over blocks of wood. Brick shall not be used beneath the wooden sleepers; and
 - f) Workers, while on dangerous operations, shall not wear clothing seqn with ferrous or steel buttons, buckles or attachments. They shall not carry on their persons, iron knives, keys, etc.
9. Employment of women and children:- Women workers and young persons below 18 (eighteen) years of age shall not be employed on operations where chemicals are mixed and where fuses are cut.
10. General:

a) No person other than a factory worker and/or an inspecting officer or others connected with the manufacturing process shall be allowed to enter the working area.

b) Cardboard containers and trays without steel nails shall be used for storage and day to day working purposes.

c) During the manufacture of fuses only brass or non ferrous knives shall be used and drying of fuses shall be away from all workrooms.

d) Door mats shall be provided outside the workrooms and near all drying platforms and where fuses are cut for the workers to clean their feet.

e) At no time, mixing materials shall exceed the quantity that is required for the manufacture of mixing for half an hour operation only.

f) For filling up chemicals in the inner tube of crackers, only aluminium or plastic rings shall be used and not galvanized iron rings.

g) Buckets, containers, hoops, locks, nails, screws bolts, nuts, knives, scissors, etc made up of iron shall not be used within the factory premises.

h) Wooden racks without iron nails shall be used for drying paper cap sheets, in amorcess factories.

i) Wooden racks used for drying paper sheets shall be provided with asbestos or other fire resistant sheets on the three sides leaving the front side open.

j) Dried paper cap sheets shall be carried in wooden trays with four compartments (partitioned) each compartment (partition) carrying a single sheet.

k) Each manufacturing shed of a fire works shall have atleast two doors facing each other. The doors provided to the worksheds of adjacent rows shall not face each other.

l) Not more than four persons shall be employed or allowed at any one time in any one building in which explosive is being manufactured.

11. Display of Notices: The following notices in the local language understood by the majority of workers shall be displayed at a conspicuous place in the factory. Smoking is strictly prohibited.

1) No one shall carry matches or other igniting materials into the factory.

2) No worker shall be in a workroom or area where no work has been assigned to him.

3) If anything untoward happens in any shed all workers shall dash to the gates which serve as outgates of the factory and in no circumstances be curious to see what has happened in the affected shed.

4) Any spillage of materials should be cleaned without any delay.

5) Wearing of clothes made of artificial fibre like terene, terelene etc is prohibited. Clothing sewn with ferrous or steel buttons or buckles or attachments should not be worn.

6) Foot wears with iron nails should not be used.

7) Workers should not carry with themselves iron knives and iron keys etc.

12. First Aid Boxes:

a) The materials required under **Rule 124** shall be kept in the First Aid Box. In addition , four stretchers shall be available for every 20 (twenty) persons employed in the premises.

b) Adequate amount of burn dressings and 24 ounces of coconut oil be used as the first remedy for burns shall be kept in the First Aid Box.

c) Persons who are in charge of First Aid Boxes shall be those who possess the certificate granted by the St. John's Ambulance Association for rendering first aid.

13. Exemption: If the Chief Inspector is satisfied in respect of any factory or any process that, owing to the special conditions or special methods of work or by

reason of the Frequency of the process or for other reason the application of all or any of the provisions of the schedule to the Factory or process, or for the persons employed in such factory or process is not necessary, he may by order in writing exempt such factory or part of the factory or process or any part of the factory or person from all or any of these provisions subject to such conditions as he may deem expedient to ensure safety and health of the workers.

The chief Inspector may at any time in his discretion revoke such order without assigning any reason.

Schedule XXVIII

Composing, Printing, Binding and Processes and/or Operations incidental thereto

1. Application: This schedule shall supply to all factories with any or all of the types of facilities available for Composing, Printing, Binding and Processes and/or Operations incidental thereto.
2. Definitions:
“Video Display Terminal (VDT)” means an alphanumeric or graphic display screen regardless of display process employed.
3. VDT’s check/inspection:
The occupier shall ensure that:
 - a) every VDT installed carry a certificate from the manufacturer that this model has been approved by the competent authority for radiation protection and the emission level at 5 cm from the surface is below 0.5 mrem/h.
 - b) shielding of scan transformers are effective.
 - c) the VDT is maintained in such a way that its use is safe and without risk to health; and
 - d) wherever a number of VDTs are in use, they shall be so distributed and located that their combined effect is not hazardous and their emission levels are monitored to keep the levels within permissible limits.
4. Provision for correction glasses:
The occupier shall provide at his cost correction glasses of the appropriate power to workers employed on VDTs who are using power glasses for vision.
5. Special Provisions for pregnant women:
Necessary measures like provision for proper work station shall be made so that pregnant women employees perform duties without excessive discomfort and fatigue.
6. Control of Ultraviolet Rays, Ozone and fumes in work atmosphere:
Whatever ultraviolet rays are used, such as for drying, they shall be properly shielded by interlock guards and the units are well ventilated.
7. Collection, Development, Dissemination, Disclosure etc, for information:
No chemical shall be stored or used in any process or operation unless full information regarding the hazards involved and the required safety measures are collected and developed and made known to Chief Inspector and disseminated to workers.
8. Medical Examination:
 - a) Medical examination of workers shall be carried out as prescribed under [Rule 165 \(4\)](#).
 - b) Pre-employment: Optahalmological examination shall be carried out for each worker before initial employment on VDT operation to identify any

diseases of the eye which pre-disposes the individual to visual disorders including photo sensitive epilepsy while using VDT.

- c) Necessary annual ophthalmological examination shall be carried out for each worker employed on VDT.
- d) Any worker who complains of visual discomfort or visual disorder shall be ophthalmologically re-examined immediately.

Schedule XXIX

Processing of Cashew nut

1. Application:- This schedule shall apply to all factories in which roasting, scrubbing and shelling of cashewnuts or extracting oil from cashewnuts or cashewnut shells are carried on.
2. Prohibition of employment of women and young persons:- No women or young person shall be employed in any of the processes specified in paragraph 1 except in shelling of roasted cashewnuts.
3. Protective clothing and equipment:- The Occupier shall provide and maintain for the use of all persons employed in roasting and scrubbing of cashewnuts or extracting oil from cashewnuts or cashewnut shells-
 - a) 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 of footwear to afford protection to feet and legs against cashewnut oil; and for the workers employed in cashewnut shelling, either
 - d) a protective ointment containing 10% of shellac, 55% 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 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 its use, maintenance and cleanliness.
5. Disposal of shells, ashes, or oil of cashewnut:-
 - 1) Shells, ashes or oil of cashewnut 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 of 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 cashewnuts 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 cashewnut oil in any workroom shall be washed with soap and cleaned immediately.
7. Seating accommodation:- Workers engaged in shelling of cashewnuts shall be provided with adequate seats or work benches which shall be cleaned daily.
8. Messrooms:-
 - 1) There shall be provided and maintained for the use of all persons 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 cashewnuts or extracting oil from cashewnuts or cashewnut 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 cashewnuts. 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; 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, 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 28](#). 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 subparagraph (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 29](#).

- 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 there in 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 subparagraph (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 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 XXX

Printing presses and type foundries and certain lead processes carried therein.

1. Definitions:- For the purposes of this schedule:-
 - a) “lead material” means material containing not less than five percent of lead;
 - b) “lead process” means-
 - i) the melting of lead or any lead material for casting and mechanical compressing;
 - ii) the recharging of machines with used lead material;
 - iii) any other work including removal of dress 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 heat 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 gas, vapour, fume or dust at the point where they originate.
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 dress:- A suitable receptacle with tightly fitting cover shall be provided and used for dress as it is provided from every melting pot, such receptacle shall be kept covered while in the workroom near the machine except when the dress 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:- There shall be provided and maintained in a clean 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 material, 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 workers 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; 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, which shall be kept readily available for inspection by the Inspector.

11. Medical examination by Certifying Surgeon:-

- 1) Every worker employed in a lead process 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, 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 process 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 28**. 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 subparagraphs (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 29**.
- 4) The Certificate of Fitness and the health register shall be kept readily available for inspection by the Inspector.
- 5) If 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 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 of such provisions subject to such conditions as he may specify therein. Such certificate may at any time be revoked by the Chief Inspector.

Schedule XXXI

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, 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 sulphate;

- f) "ground 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 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) fitting of tiles made from clay dust by pressure, except where the fitting is done wholly on, or with, damp material, and fitting of other articles made from clay dust, unless the material is so damp that no dust is given off;
- f) process of loading unloading of sugars 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 as adequate having regard to all the circumstances of the case;

- h) fetting of biscuitware 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 effectively 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 of 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 head 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:-

- 1) 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 smooth impervious surface fitted with a waste pipe without plug, and of sufficient length to allow at least 60 centimeters 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 centimeters; 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 centimeters apart; and
 - b) a sufficient supply of clean towels made of suitable material changed daily, with sufficient supply of nail brushes and soap.

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. Messroom:-

- 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 mess room; 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 a separate register approved by the Chief Inspector, 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 pulmonary function tests and chest x-ray for workers engaged in processes mentioned in clauses (a) and (n) of paragraph 3 and pulmonary function tests and chest x-rays for the others. No worker shall be allowed to work after 15 days of his first employment in the factory unless certifies fit for such employment by the Certifying Surgeon.
- 2) 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 once 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 Certificate of Fitness in **Form No. 28**. 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 such 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 No. 29**.
- 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 suitably rehabilitated.
- 6) No person who has been found unfit to work as said in subparagraph (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 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 XXXII

Operation in Foundry

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 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 diecasting), 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:-
- a) any process in which metal is obtained by a reducing operation or any process incidental to such operation; or
 - b) the production of steel in the form of ingots; or
 - c) any process in the course of the manufacture of solder or any process incidental to such manufacture; or
 - f) the melting 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 or 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 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 casting (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 castings, 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 the course of, such production, namely, the preparation and mixing of materials used in foundry process, the 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 mould.

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 per cent 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 an even 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 be kept 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 gangways 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 millimeters wider than the overall width of the ladle;
 - ii) where hand shanks are carried by not more than two men, at least 920 millimeters 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 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 reasonable practicable free from obstruction;
 - c) if molten metal is carried in hand ladles or bull ladles by not more than two men per ladle, shall be at least 460 millimeters wide, but where any moulds alongside the aisle are more than 510 millimeters above the floor of the aisle, the aisle shall be not less than 600 millimeters wide;
 - d) if molten metal is carried in hand ladles or bull ladles by more than two men per ladle, shall be at least 760 millimeters 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 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 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 the 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 or 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 the 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 period of twelve months; and particulars of the results of 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 test shall be immediately reported in writing by the person carrying out the examination and test to the occupier or manager of the factory.
12. Protective equipment-
 - 1) The occupier shall provide and maintain suitable protective equipment specified for the protection of workers;
 - a) Suitable gloves or 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 heavy 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 at operations involving material at such a temperature that its contact with body would cause a burn;
 Shall be provided with suitable footwear and gaiters which worn by them prevent, so far as reasonably practicable, risk of burns to his feet and ankles.
 - 4) Where appropriate, suitably 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 the form of bath room.
 - 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 skimmings:- Dross and skimmings removed from molten metal or taken from 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 road ways or pathways which shall be properly maintained. Such roadways or pathways shall have a fire 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 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; 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, which shall be kept readily available for inspection by the Inspector.
18. Medical examination by Certifying Surgeon:-
 - 1) Every worker employed in foundry shall be examined by a Certifying Surgeon within 15 days of his first employment. Such medical examination shall include pulmonary function tests 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 said processes shall be re-examined by a Certifying Surgeon at least once in every twelve months. Such 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 28](#). 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 subparagraphs (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 29](#).
 - 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 process. 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.
19. 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 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.

Rule 161. Notification of accidents or dangerous occurrences:

- 1) When any accident specified in sub-clause (a) of clause 1 of the Schedule hereto appended or any dangerous occurrence specified in clause 2 of the said schedule takes place in a factory, the manager of the factory shall, within 4 hours of the happening of such accident or occurrence, send notice thereof by telephone, special messenger or telegram to the Inspector and where the accident is fatal or of such a serious nature that it is likely to prove fatal, notice as aforesaid shall also be sent to:
 - a) the District Magistrate or Sub-Divisional Officer,
 - b) the Officer-in-Charge of the nearest police station, and
 - c) the nearest relatives of the injured or deceased person.

- 2) The notice so given shall be confirmed by the manager of the factory to the authorities mentioned in sub-rule (1) by sending to them a written report in the case of an accident in [Form 30](#) and in the case of dangerous occurrence, in [Form 31](#) within 12 hours of the taking place of any such accident or occurrence referred to in that sub-rule.
- 3) If in the case of an accident, the injured person subsequently dies due to such accident, information of his death whenever known shall be sent by the manager by telephone, special messenger or telegram within 24 hours of the occurrence to:
 - a) the Inspector
 - b) the District Magistrate or Sub Divisional Officer
 - c) the Officer-in Charge of the nearest police station.

Explanation: For the purpose of this rule “accident of a serious nature” means an accident which results in:

 - i) immediate loss of any part of the body or any limb or part thereof
 - ii) crushed or serious injury to any part of the body due to which loss of the same is obvious or any injury which is likely to prove fatal.
 - iii) unconsciousness, or
 - iv) severe burns or scalds due to chemicals, steam or any other cause.
- 4) Wherever the person injured does not return to work in the factory before the expiry of 21 days after the occurrence of the accident with or without disablement and wherever the person injured returns to work in the factory after sustaining compassable disablement as a result of the accident, the Manager of the factory shall send to the Inspector within 28 days of the occurrence of the accident, a written report in the prescribed [Form 32](#) and follow it up a necessary with further reports in the same [Form 32](#) once every fortnight thereafter, until the final report on the date of return to work of the person injured is made. In the event of the person injured not returning to work of his own accord or otherwise the full circumstances of the same should also be reported to the Inspector by the Manager of the factory within seven days of his name being removed from muster roll of the factory.

Schedule

- 1
 - a) Accidents which cause death to any person or are of a serious nature.
 - b) Accidents which cause such bodily injury as will prevent or will probably prevent the person injured from working for a period of 48 hours or more immediately following the accident.
2. The following classes of dangerous occurrences, whether or not they are attended by personal injury or disablement:
 - a) Bursting of a vessel used for containing steam under pressure greater than atmospheric pressure, other than plant which comes within the scope of the Indian Boilers Act.
 - b) Collapse or failure of a crane, derrick, winch, lift, hoist or other appliances used in raising or lowering persons or goods or any part thereof or the overturning of a crane.
 - c) Explosion, fire, bursting out, leakage or escape of any molten metal, hot liquor or gas causing bodily injury to the person or damage to any part or portion of the factory in which persons are employed or damage to any plant machinery or material.
 - d) Explosion of a receiver or container used in any process or for storage at a pressure greater than atmospheric pressure, of any gas or any gases (including air) or any liquid or any solid.

- e) Collapse or subsidence of any floor, gallery, roof, bridge, tunnel, chimney, wall or building forming part of a factory or within the compound or cartilages of factory.

Rule 162. Notice of Poisoning or Disease:

A notice in [Form 33](#) should be sent forthwith both to the Chief Inspector and to the Certifying Surgeon, by the manager of a factory in which there occurs a case of lead, phosphorous, mercury, manganese, arsenic, carbon bisulphide or benzene poisoning; or of poisoning by nitrous fumes or by halogen derivatives of the hydrocarbons of aliphatic series; or of chrome ulceration, anthrax, silicosis, toxic anaemia, toxic jaundice, primary epitheliomatous cancer of skin, or of pathological manifestations due to radium or other radio-active substances or x-rays.

Rule 163. Procedures in appeals:

- 1) An appeal presented under section 107 shall lie to the Chief Inspector or in cases where the order appealed against is an order passed by that officer to the State Govt. or to such authority as the State Government may appoint in this behalf and shall in the form of memorandum setting forth concisely the grounds of objection to the order and bearing court fees stamps in accordance with the Article 11 of Schedule II of the court Fees Act, 1870 and shall be accompanied by a copy of the order appealed against.
- 2) Appointment of Assessors: 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 the 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 such bodies, be that body;
 - b) if he is a member of two such bodies, be the body which the appellant desires 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) Remuneration of assessors:- An assessor appointed in accordance with provisions of sub-rules (2) and (3) shall receive for the hearing of the appeal, a fee to be fixed by the appellate authority, subject a maximum of fifty rupees per diem. He shall also receive the actual travelling expenses. The fees and travelling expenses. The fees and travelling expenses shall be paid to the assessor by 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 assessor shall be paid in whole or in part by the appellant.

Rule 164. Display of notices:

The abstract of the Act and of the Rules required to be displayed in every factory shall be in [Form 34](#)

Rule 165. Returns:

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

- a) annual return in [Form 35](#) in duplicate, on or before the 31st January of each year; and
- b) half-yearly return in [Form 36](#), in duplicate, on or before the 15th July of each year.

Rule 166. Service of notices:

The dispatch 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.

Rule 167. 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 and Rule have 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 courses 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.

Rule 168. Registers / records to be produced on demand to the Inspector.

The registers, records and notices maintained and exhibited under the provisions of these rules shall always be available at or as near as practicable to the site of employment and shall be produced or caused to be produced for inspection at all reasonable hours by any Inspector having jurisdiction over the factory.

Rule 169. 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 specified in this Schedule shall apply to all factories.

Schedule

- 1. Definition: For the purpose of this schedule-
 - a) “mg/m³” means milligrams of a substance per cubic meter of air.
 - b) “mppcm” means million particles of a substance per cubic meter of air.
 - c) “pmm” means parts of vapour or gas per million parts of air by volume at 25⁰ C and 7600 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.

$$\text{Time Weighted Average Concentration:} = \frac{C_1 T_1 + C_2 T_2 + \dots + C_n T_n}{T_1 + T_2 + \dots + T_n}$$

Where C1 represents the concentration of the substance for duration T1 hours; C2 represents the concentration of the substance for duration T2 hours; and Cn represents the concentration of the substance for duration Tn 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 Concentrations of Substance at Work Locations:

- 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 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 thorough respiratory tract.
- 4) a) In case, the air at any work location contains a mixture of such substance 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.

$$\text{i.e. } \frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n} \quad \text{Should not exceed unity}$$

When C1, C2 Cn are the time weighted concentration of toxic substances 1,2 and n respectively, determined after measurement of work location;

and L1, L2 Ln are the permissible time weighted average concentration of the toxic substances 1, 2, and in respectively.

- b) In case the air at any work location contains a mixture of substances, mentioned in Table 1, 2, or 3, and those 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 this 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 midge impinger and the counts made by light-field technique.
 - b) The percentage of quartz in the 3 formulate 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 % magnification 14mm objectives 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 with 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 or 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.

Substance	Permissible limits of exposure			
	Time-weighted Concentration	average	Short-term concentration	maximum
	ppm	Mg/m ³	ppm	Mg/m ³
Acetic acid	10	25	15	37
Acrolein	0.1	0.25	0.3	0.8
Aldrin-skin	-	0.25	-	0.75
Ammonia	25	18	35	27
Aniline-skin	2	10	5	20
Anisidine (O-poisomers)- skin	0.1	0.5	-	-
Arsenic & Compounds (as As)	-	0.2	-	-
Benzene	10	30	-	-
Bromine	0.1	0.7	0.3	2
2 Butanene Methylolthyl (ketone-MEK)	200	590	300	885
n-Butyl acetate	150	710	200	950
Sec/tert. Butyl acetate	200	950	250	1190
Cadmium-dust and salts(as Cd)	-	0.05	-	0.2
Calcium oxide	-	2	-	-
Carbaryl (Sovin)	-	5	-	10
Carbofuran (Furadan)	-	0.1	-	-
Carbon disulfide-skin	2	60	30	90
Carbon monoxide	50	55	400	440
Carbon tetrachloride-skin	10	65	20	130
Carbonyl chloride (phosgene)	0.1	0.4	-	-
Chlordane-skin	-	0.5	-	2
Chlorobenzene (mono chlorobenzene)	75	350	-	-
Chlorine	1	3	3	9
bis-Chloromethyl either	0.001	-	-	-
Chromic acid and chromates(as, Cr)	-	0.05	-	-
Chromium, Sel-chramic 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	-	-
Cyanegen	10	20	-	-
DDT (Dichlorodiphenyl- trichlore-ethane)	-	1	-	-
Demeton-skin	0.01	0.1	0.03	0.3

Diazion-skin	-	0.1	-	0.3
Dibutyl phthalate	-	5	-	10
Dichloroves(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 (Fe ₂ O ₃ as Fe)	-	5	-	10
Iscamyl acetate	100	525	125	655
Isoamyl alcohol	100	525	125	655
Isobutyloalcohol	50	150	75	225
Lead, inorg, fumes and dusts (as Pb)	-	0.15	-	-
Lindane-skin	-	0.5	-	1.5
Mala thien-skin	-	10	-	-
Manganese fume (as Mo)	-	1	-	3
Mercury (as Hg)	-	0.00	-	0.15
Mercury (alkyl compounds)-skin (as Hg)	0.001	0.01	0.003	0.03
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
Napthalene	10	50	15	175
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	30
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, Menemer (phenylethylene)	100	420	125	525
Sulfur dioxide	5	13	-	-
Sulfuric acid	-	1	-	-
Toluene (teluel)-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--p-isomers)-skin	100	435	150	655

TABLE 2

Substance	Permissible time weighted average Concentration
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1. Silica

(a) Crystalline

i) Quartz

1060

1) In terms of dust count : ----- mpp cm
% Quartz + 10

10

2) In terms of respirable : ----- mg/m³
dust % respirable quartz +2

30

3) In terms of total dust : ----- mg/m³
% 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 mpp cm

2. Silicate having less than 1% free silica by weight

a) Asbestos (fibres longer than 5 microne) 2 fibres/cubic centimeter

b) Mica 705 mppcm

c) Mineral wool fibre 10mg/m³

d) Porlite 1060 mppcm

e) Portland cement 1060 mppcm

f) Soap stone 705 mppcm

g) Talc (monobostiform) 705 mppcm

h) Talc (fibrous) same limit as for asbestos

i) Tromolite same limit as for asbestos

3. Coal dust

- 1) For airborne dust having less than 5% silicon dioxide by weight : 2 mg/m³
- 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 ³
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

Rule 170. Muster roll:

The manager of every factory shall maintain a muster roll of all the workers employed in the factory in [Form 32](#) 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 respect of adults and child workers in the registers of workers in [Form 22](#) and 24 respectively, 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.

Rule 171. 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 38](#).

Rule-172. Maintenance of Inspection Book:

The manager of every factory shall maintain a bound inspection book and shall produce it when so required by the Inspection or Certifying Surgeon.

Rule-173. Information regarding closure of factories:

(1) The occupier and the manager shall be jointly or severally responsible for sending information in duplicate to the Inspector, of any intended closure to the factory or any shift, section or department thereof, immediately after it is decided to do so, and before the closure takes place, stating-

- a) the reasons for closure;
- b) the reasons for closure;
- c) the number of workers on the muster-roll of the factory on the day the information is sent;
- d) the number of workers likely to be affected by the closure;

- e) the probable period of closure;

Provided further that it shall not be necessary for the occupier or manager to send information of intended closure if the closure is rendered inevitable on account of fire, breakdown of machinery, stoppage of power or water supply or any other cause beyond his control.

- 2) The Occupier and the Manager shall be jointly or severally responsible for sending also information in duplicate to the Inspector as soon as the factory or any shift, section or department thereof, is actually closed in the [Form 39](#).
- 3) The Occupier and the Manager shall be jointly or severally responsible for sending also information in duplicate to the Inspector as soon as the factory or any shift, section or department thereof, is reopened in [Form 40](#).

Explanation 1: For the purpose of this rule, “closure” means the closing the factory, or any shift, section or department thereof or the total or partial suspension of work (other than work of a temporary nature) by the occupier or manager of the factory, or total or partial refusal by the occupier or manager of the factory to continue to employ persons employed by him where such refusal does not amount to the discharge, dismissal or suspension of worker or workers by way of punishment.

Explanation 2: This rule shall not apply in the case of any section or department of a factory if such closure does not affect the total number of workers employed in the factory.

Rule 174. Power to Cancel the Licence and Registration upon receipt of report:

The Chief Inspector may, on receipt of a report in respect of any factory under sub-rule (1) of 173, and after making such enquiry as he thinks fit, by order, cancel the licence and registration in respect of such factory with effect from such date as may be specified in this order.

Rule 175. Preservation of Records

The records specified in column 1 of the table below shall be preserved in the office of the Chief Inspector for the periods specified in the corresponding entries in column 2 thereof:-

Records	Period of Retention
Applications presented under Rule 7 to 9 of the Tripura Factories Rules 2007	Five Yrs from the date of disposals of the applications
Counterfoils and licences issued under the said Rules.	Five Yrs from the date of issue of licences.
Challans	Five yrs from the date of issue of Licences.

Rule 176. Manner of Destruction for Records

After the period of retention specified in rule 180, the record shall be destroyed either by tearing or burning in the presence of the head of the office.

Rule 177. Language in the Registers and records

The registers and records required to be maintained in the factory under the provisions of the Act and these rules shall be either in English or in a Bengali.

Rule 178. Exhibition of Name Board

The name board of a factory shall be displayed conspicuously at the entrance of the factory premises. The name board shall be in English or Bengali.

Rule 179. Power of Exemption

The State Government may, by notification in the official Gazette, exempt subject to other to such conditions as it may be consider necessary, any workshop or workspace where a manufacturing process carried on and which is attached to a public institution maintaining for the process of education, training or reformation, from all or any provisions of those rules.

Rule 180. Repeal and saving

On the commencement of these rules, the Tripura Factories Rules, 1952, shall stand repealed. Notwithstanding such repeal, anything done or any action taken under the said Rule shall be deemed to have been done or taken under the corresponding provisions of this Rules.