The design of the buildings and plant shall be based on the information so obtained. Where necessary, advice shall be obtained from the Chief Inspector of Factories on measures to be taken in this regard.

(b)Information in writing, giving details of the process, its hazards and the steps taken or proposed to be taken for the safety of workers as in (a) above should be sent to the Chief Inspector before commencing manufacture, handling or storage of any of the items covered under Schedule I, whether on experimental, pilot, plant or large scale basis.

143. Unauthorized personnel.- Unauthorized persons shall not be permitted to enter any section of the factory or plant where there are special dangers.

144.Visitors.- Visitors shall be provided, where necessary, with suitable safety equipment and shall be accompanied round dangerous plant by a responsible official.

145.Instruments.- All instruments such as pressure gauges, thermometers, flow meters and weighing machines shall be tested at regular intervals by a competent person, and record of these tests shall be kept in a register.

146.Cocks and valves.- Suitable valves shall be provided in all service lines at sufficiently short intervals for convenience in blanking off etc. All cocks and valves shall be operated at least once a month and tested periodically by a competent person, and record of these test, shall be kept in a register. A plan of all service installations shall be kept readily available for perusal.

147.Manholes.- No manhole shall be opened for entry until effective fencing has been erected round it.

148.Emergency instructions.- Simple and special instructions shall be framed to ensure that effective measures will be carried out in cases of emergency, to deal with escapes of inflammable, poisonous or deleterious gases, vapours, liquids or dusts, These instructions shall further be displayed in bold letters in prominent places in the different sections. All workers shall be trained and instructed in the action to be taken in such emergencies, and in the general hazards of their employment.

149.Protection of reaction mixtures.- Suitable arrangements shall be made to ensure that no foreign matter of any sort can fall into reaction mixtures.

150.Electrical apparatus.- Electrical plant, fittings and conductors shall, if exposed to a damp or corrosive atmosphere, be adequately protected, Periodic tests shall be carried out on all circuits.

151. Place of work.-

(a)Workers shall only be allowed in those places in which they have been given orders to work.
(b)In dangerous sections of a factory, the number of workers shall be kept to a minimum compatible with the process.

152.Packing, storage and transport of chemicals.- Chemicals shall be packed and stored in containers suitable for the purpose of adequate strength for storage or transport. All such containers shall be suitably labelled so that they will be stored and transported in such a manner as to ensure that, in the event of a spillage, they will neither produce a reacting mixture, nor cause the development of toxic or fire risks in contact with other products in its vicinity, or with walls, floors, or dust thereon.

Fire and Explosion Risks - Rules 153 to 171

153. Site.-Buildings and plants shall be sited with due regards to the dangers which may arise from the processes involved , and in particular shall be spaced to distances which are deemed safe for the fire and explosive risks connected with the processes in adjacent buildings. Due consideration shall be given to the effect of any processes carried out in adjacent factories.

154.Isolation of building.- Where special dangers exist, separate buildings shall be used for the different parts of a process. They shall be spaced at sufficient distances apart and shielded to prevent damage to each other in the event of fire or explosion, and shall be safeguarded by the provision of suitable blowout panels or roofs. Where the risk or fire explosion is considerable, the buildings shall be divided by ballast or protective screen walls.

155.Fire resistance.- No combustible materials shall be used in the erection of working buildings, unless there are special reasons necessitating their use, when they shall be rendered fire-resistant. The roof shall be of light fire-resistant construction and floors shall be of impervious fire resistant material and shall be regularly maintained in such condition.

156. Dangers of ignition (including lighting installation)-

(a)No internal combustion engine, and no electric motor or other electric equipment capable of generating sparks or otherwise causing combustion shall be installed or used in a building or danger zone. Electric conductor shall be fitted with screwed steel conduit.

(b)All hot exhaust pipes shall be installed outside a building and other hot pipes shall be suitable protected.

(c) Portable electric hand lamps shall not be used unless of an intrinsically safe type, and portable electric tools connected by flexible wires shall not be used, unless of the flameproof type

(d)Where on inflammable atmosphere may occur the soles of footwear worn by workers shall have no metal on them, and the wheels of trucks or conveyors shall be of conducting non-sparking materials. Adequate precautions shall be taken to prevent the ignition of explosive or inflammable substances by sparks emitted from locomotive or other vehicles operated in the factory or on public lines.

(e)No electric arc lamp, or naked light, fixed or portable, shall be used, and no person shall have in his possession any match or any apparatus of any kind for producing a naked light or spark in or on, or about any part of the factory where there is liability to fire or explosion from inflammable gas, vapour or dust and all incandescent electric light in such parts shall be in double air tight glass covers.

(f)Prominent notices in the language understood by the majority of the workers and legible by day and by night, prohibiting smoking, the use of naked lights, and the carrying of matches or any apparatus for producing a naked light or spark, shall be affixed at the entrance of every room or place where is the risk of fire or explosion from inflammable gas, vapour or dust. In the case of illiterate workers, the contents of the notice shall be fully and carefully explained to them when they commence work in the factory for the first time and again when they have completed one week at the factory.

157. Non-sparking tools.- A sufficient supply of spades, scrapes and pails made from non-sparking material shall be provided for the use of persons employed in cleaning out or removing residues from any chamber, still tank or other vessel where an inflammable or explosive danger may occur (Note
– the risk is not always obvious and may arise , for example , through the production of hydrogen in acid tanks)

158. Static electricity.

(a)All machinery and plant, particularly pipe lines and belt drives, on which static electricity is likely to accumulate, shall be effectively earthed. Receptacles for inflammable liquids shall have metallic connections to the earthed supply tanks to prevent static sparking. Where necessary, humidity shall be controlled.

(b)Mobile tank wagons shall be earthed during filling and discharge, and precautions shall be taken to ensure that earthling is effective before such filling or discharge takes place.

159.Lightning condition.- Lightning protection apparatus shall be fitted where necessary, and shall be maintained in good condition.

160. Process heating .- The method providing heat for a process 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 inflammable gas, vapour or dust coming into contact with the flame , or exhaust gases, or other hot agency likely to cause ignition. So far as practicable, the heating medium shall be automatically controlled at a pre-determined temperature below the danger temperature.

161. Escape of materials.-

(a)Provision shall be made in all plant, sewers, drains , flues, ducts, culverts and buried pipes to prevent the escape and spread of any liquid, gas, vapour, fume or dust likely to give rise to fire or explosion, both during normal working and in the event of accident or emergency.

(b)If escape occurs, such substances shall be removed expeditiously and efficiently at the point of liberation. The effluent shall be trapped and rendered safe outside the danger area.

162.Leakage of inflammable liquids.-

(a)provision shall be made to confine by means of bund walls, sumps, etc. possible leakage from vessels containing inflammable liquids.

(b)Adequate and suitable fixed fire fighting appliances shall be installed in the vicinity of such vessels

163.Cleaning of empty containers.-All empty containers which have held inflammable liquids , and metal containers which have held sulphuric acid be rendered permanently safe as soon as practicable, and shall not be repaired or destroyed until such cleaning has been completed.

164. Storage of combustible materials.

(a)Combustible and inflammable materials shall not be stores in close proximity to chemicals which are liable to cause ignition.

(b)Rubbish shall be removed from building without delay and placed in special metal containers provided with close lifting lids. The contents shall be removed daily and suitably dealt with. Waste products containing inflammable or explosive materials shall not be placed on rubbish heaps but shall be destroyed in an appropriate manner.

165. Installing of pipe lines for inflammable liquids.- All pipe lines for the transport of inflammable liquids shall be protected from breakage, shall be arranged so that there is no risk of mechanical damage from vehicles, and shall be so laid that they drain throughout without the collection of deposits at any part. All Flanged joints, bends and other connections shall be regularly inspected. Cocks and valves shall be so constructed that explosive residues cannot collect therein. The open and closed positions of all cocks and valves shall be clearly indicated on the outside.

166.Packing of reaction vessels.- Packing and jointing materials for reaction vessels(including covers, manhole covers, and exhaust pipes) and in pipe lines and high or low temperature insulating materials shall not contain materials which are combustible or which react with the products of the plant.

167.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 to dangerous degree, shall have attached to it a pressure gauge, and a proper safety valve or other equally efficient means to relive the pressure, maintained in good condition. Nothing in these Rules shall apply to metal bottles or cylinders used for the transport of compressed gases.

168.Vigorous or delayed reactions.- Suitable provision , such as automatic and distant control shall be made for controlling the effects of unduly vigorous or delayed reactions. Automatic flooding or blanketing shall be provided for in the event of an accident.

169. Examinations, testing and repair of plant.- Examination , testing and repair of plant parts which have been in contact with explosive and inflammable material or which is under pressure, shall only be carried out under proper supervision.

170.Alarm systems.- gravity or pressure feed systems of supplying inflammable materials to the various parts of the buildings or plat shall be fitted with alarm systems, automatic cut – off or other devices to prevent overcharging or otherwise endangering the plant.

171. Further precautions.-

(a)The amount of inflammable material taken in to a building in bulk containers at any one time shall be kept as low as practicable.

(b)Adequate steps shall be taken to prevent the escape of inflammable and explosive vapours from any container into the atmosphere of any building.

ACID, GAS, VAPOUR, FUME OR DUST RISKS-RULES 172 TO 183.

172. Escape of gases, etc.-

(a)Effective steps shall be taken to prevent the escape of dangerous gases, vapors, fumes or dust from any part of the plant, by the total enclosure of the process involved or by the provision of efficient exhaust draught,. Effective arrangements shall be made to ensure that in the event of failure of the control measure provided in compliance of the foregoing the process shall stop immediately.

(b) In the event of any such escape, provision shall be made to trap the materials and render them safe.

173. Danger due to effluents.-

(a) Adequate precautions shall be taken to prevent the mixing of effluents which may cause dangerous or poisonous gases to be evolved.

(b)Effluents which may contain or give rise in the presence of other effluents to such gases shall be provided with independent drainage systems to ensure that they may be trapped and rendered safe.

174.Staging.-

(a)Staging shall not be erected over any open vessel unless the vessel is so constructed and ventilated to prevent the omission of vapour or fumes about such staging.

(b) Where such staging is provided to give access to higher levels in large plants, effective means shall be provided at all levels with direct means of access for the outside of the room or building and thence to ground level.

(c) Such staging shall be fitted with suitable handrails and toe boards, and the floors and staging shall be impervious and easily cleaned.

175.Instruction as regards risk.- Before commencing work, every worker shall be fully instructed on the properties of the materials they have to handle, and of the dangerous arising from any gas, fume, vapour or dust which may be evolved during the process. Workers shall also be instructed in the measures to be taken to deal with such an escape in the event of emergency.

176.Breathing apparatus.-

(a) There shall be provided in every factory were dangerous gas or fume is liable to escape a sufficient supply of-

(i)Breathing apparatus of an approved make for the hazards involved.
(ii)Oxygen and suitable means of its administration , and
(iii)Life belts

The breathing apparatus and other appliances required by these rules shall (i) be maintained in good order and kept in an ambulance room or in some other place approved in writing by the Chief Inspector and (ii) be thoroughly inspected once every month by a competent person, appointed in writing by the occupier, and a record of their condition shall be entered in a book provided for that purpose, which shall be produced when required by an Inspector.

(b) Workers shall be trained, and given a periodic refresher course in the use of breathing apparatus and respirators.

(c) Respiration shall be kept properly labeled in clean dry light – proof cabinets, and if liable to be affected by fumes, shall be protected by suitable containers. Respiration shall be dries and cleaned after use and shall be periodically disinfected.

177. Treatment of persons.- In Every room or place wherever required in writing by the Chief Inspector there shall be fixed the official cautionary notice regarding gasing and burns. Such notices shall be legible by day and by night and shall be printed in the language understood by the majority of the workers.

178. Personal protective equipment.-

(a) Suitable protective clothing shall be provided for the use of operatives.

(i)When operating valves or cocks controlling fluids which by their nature, pressure or temperature would be highly dangerous if a blow-out occurred or when cleaning chocks in systems containing such fluids if pressure is likely to exist behind the chocks;

(ii)when there is danger of injury by absorption through the skin during the performance of normal duties or in the event of emergency;

(iii)whenever there is risk of injury in handling corrosive substances , hot or cold articles and sharp or rough objects, and

(iv)when there is the risk of poisonous materials being carried away on their cloths.

(b) There shall be provided for the use of all persons employed in the processes specified in schedule II to these rules an adequate supply of suitable protective equipment including gloves, overalls and protective footwear and of goggles and respirators. Respirators shall be of a type approved in writing by the Chief Inspector.

(c) Protective equipment shall be provided and stored in the appropriate place for use during abnormal conditions or in an emergency.

(d) Arrangements shall be made for the proper and efficient cleaning of all such protective equipments.

179. Cloakrooms.- There shall be provided and maintained for the use of all persons employed in the processes specified in Schedule II of these rules a suitable cloakroom, for clothing put off during working hours and a suitable place separate from the cloakroom, for the storage of overalls of

working clothes. The accommodation so provided shall be placed in the charge of a responsible person, and shall be kept clean.

180. Special bathing accommodation.-

(a) There shall be provided for the use of persons employed in the processes specified in Schedule III to these rules separate sanitary convenience and sufficient and suitable bathing facilities, which shall be to the satisfaction of the chief Inspector.

(b) A bath register shall be kept containing the names of all persons employed in these processes and an entry of the date when each person takes a bath.

181. Entry in to vessels.-

(a) Before any person enters, for any purpose except that of rescue, any absorber, boiler, culvert, drain, flue, gas purifier, sewer, still tank, tower, vitriol chamber or other places where there is reason to apprehend the presence of dangerous gas or fume, a responsible person appointed in writing by the occupier for the purpose shall personally examine such place and shall certify in writing in a book kept for the purpose either that such place is isolated and sealed from every source of such gas or fume and free from danger, or that it is not so isolated and sealed and free from danger. No person shall enter such place which is certified not to be so isolated and sealed and free from danger unless he is wearing a breathing apparatus, and (where there are no cross stays or obstructions likely to cause entanglement) a life belt, the free end of the rope attached to which shall be left with a man outside whose sole duty shall be to keep watch and to draw out the wearer if he appears to be affected by gas of fume. The belt and rope shall be so adjusted and worn that the wearer can be drawn up head foremost through any manhole or opening.

(b) A person entering for the purpose of rescue any such place for which a clearance certificate has not been issued shall wear a breathing apparatus and a life – belt in the manner specified.

182. Examination and Repair of plant.- Where poisonous materials are likely to be present the examination and repair of plant and piping shall only be done under the supervision of a competent person, and after the plant and piping has been thoroughly cleaned and ventilated. When opening vessels and breaking joints in pipe lines, respirators, goggles and protective clothing shall be worn to the extent required by the competent person.

183. Storage of acid carboys.- Carboys containing nitric acid or "mixed" acid shall be stored in open-sided sheds detached from other buildings, and placed on a flooring of sands, on brick, or other suitable inorganic materials. A passageway shall be provided and kept free from obstruction between every four rows of such carboys. An ample supply of water shall be available for washing away spilt acid and all precautions shall be taken to prevent workers being exposed to fumes.

Corrosive or Deleterious Substances Risks-Rules 184-191

184. Buildings.- All buildings and plant shall be sited with due regard to possible dangers from accidental liberation or splashing of corrosive and deleterious liquids, and shall be so designed as to facilitate thorough washing and cleaning. The construction of staging and other parts of building shall be carried out with materials impervious and resistant to corrosion so for as practicable.

185. Leakage

(a) All plant shall be so designed and constructed as to obviate the escape of corrosive liquid. Where necessary, separate building, rooms or protective structures shall be used for the dangerous stages of the process and the building shall be so designed as to localize any escape of liquid.

(b) Catch pits, bund walls, or other suitable precautions 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 works from such leakage.

(c) Passages and work stations shall not be situated directly below any part of plant where there is risk of escape of dangerous liquids. Access to such parts shall, so far as practicable, be prohibited, and danger notices shall be affixed at suitable points.

186. Precautions against escape.- Adequate precautions shall be taken to prevent the escape of corrosive of deleterious substances and means shall be provided for rendering safe any such escape.

187. Drainage- Adequate drainage shall be provided and shall lead to special treatment tanks where deleterious material shall be neutralized or otherwise rendered safe before it is discharged into ordinary drains or sewers.

188. Covering of vessels.

(a) Every fixed vessel or structure containing any dangerous material, and not so covered as to eliminate all reasonable risk of accidental immersion in it of any portion of the body of a worker, shall be so constructed that there is no foot hold on the top or the sides.

(b) Such vessel shall, unless its edge is at least three feet above the adjoining ground of platform, be securely fenced to a height of at least three feet above such adjoining ground or platform.

(c) No plank or gangway shall be placed across or inside any such vessel, unless such plank or gangway is at least 18 inches wide and is securely fenced on both sides by rails spaced at 9 inches apart to a height of at least three feet, or by other equally efficient means.

(d) where such vessels adjoin and the space between them, clear of any surrounding brick or other work, is either less than 18 inches in width or is 18 or more inches in width, but is not securely fenced on both sides to a height of at least 3 feet, secure barriers shall be so placed as to prevent passage between them;

Provided that paragraph (b) of this rule shall not apply to.-

(i)saturators used in the manufacture of sulphate of ammonia , and

(ii)that part of the sides of brine evaporating pans which require raking, drawing or filling.

189. Ventilation.- Adequate ventilation shall be provided and maintained at all times in rooms or buildings where dangerous gas, vapour, fume or dust may be evolved.

190. Means of escape.- Adequate means of escape from rooms or building in the event of leakage of a corrosive liquid shall be provided and maintained.

191. Treatment of personnel- In all places where (strong acids or dangerous)corrosive liquids are used:-

(a) There shall be provided for use in an emergency-

(i)adequate and readily accessible means of drenching with cold water persons and the clothing of persons, who have become splashed with such liquid;

(ii)adequate special arrangements to deal with any person who has been splashed with poisonous materials that can be absorbed through the skin.

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

(b) Except where the manipulation of such corrosive liquids is so carried on as to prevent risk for personal injury from splashing or otherwise, there shall be provided for those who have to manipulate such liquid, sufficient and suitable goggles and gloves or other suitable protection for the eyes and hands. If gloves are provided they shall be collected, examined and cleaned at the close of the days' work and shall be repaired or renewed when necessary.

Maintenance Duties of Workers, Facilities and Medical Examination – Rules 192-198.

192. Maintenance-

(a) Before any examination or repairs are carried out on plant or pipe lines, a competent person shall issue a clearance certificate permitting such examination or repairs.

(b) Adequate precautions shall be taken to liberate any pockets of gas or liquids which may have been formed in pipe-lines, and which may cause corrosive spray at the point where dismantling takes place.

193. Washing facilities.

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

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

194. Mess -room facilities.- In every factory there shall be provided and maintained for the use of those remaining on the premises during the rest intervals, suitable and adequate mess-room on canteen accommodation which shall he furnished with sufficient tables and chairs or benches with back rests and where sufficient drinking water is available.

195. Ambulance room.

(a) In every factory in which more than 250 persons are employed on the processes to which these rules apply there shall be provided and maintained in good order an ambulance room. The ambulance room shall be a separate room used only for the purpose of treatment and rest. It shall have a floor space of not less than 100 square feet, and smooth, hard and impervious walls and floor and shall be provided with ample means of natural and artificial lighting. It shall contain all the items shown in Schedule IV.
Where persons of both sexes are employed, arrangements shall be made at the ambulance room for their separate treatment.

The ambulance room shall be placed under the charge of qualified nurse or other person trained in first aid, who shall always readily available during working hours, and shall keep a record of all cases of accidents or sickness treated in the room.

(b) In every factory there shall be provided and maintained in good condition a suitably constructed ambulance van for the purpose of the removal of serious cases of accident or sickness , unless arrangements have been made with hospital or other in telephonic communication with the factory for obtaining such a carriage immediately when required

196. Medical Personnel.- There shall be whole time Medical Officer in every factory employed 250 persons or more.

197. Medical Examination.-

(a) Workers engaged in the manufacture, processing, formulation or use of the following , shall be examined once in three months by the Certifying Surgeon and records maintained:-

(i)Hexa-ethyl tetra phosphate.
(ii)Tetra ethyl pyrophosphate.
(iii)O.O.Diethyl O.P.nitrophenyl thiophosphate(parathion)
(iv)Nicotine, Nicotine sulphate.
(v)Mercury derivatives.
(vi)Methyl bromide.
(vii)Cyanides.
(viii)Arsenical derivatives.
(ix)Chrome Process compounds.
(x)Nitro or amino process compounds.

(b) A Health Register containing the names of all persons employed in the process shall be kept in a form approved by the Chief Inspector.

(c)No person shall be newly employed for more than 14 days without a certificate of fitness granted after examination by the Certifying surgeon, by a signed entry in the Health Register.

(d) Every person so employed shall present himself at the appointed time for examination by the Certifying Surgeon as provided in sub-rules (a) and (c) of this rules.

(e) The Certifying Surgeon shall have power of suspensions as regards all persons employed and no person after suspension shall be employed without written sanction from the Surgeon, entered in the Health Register

198. Duties of workers.-

(1) Every person employed shall -

(a)report to his Foreman any defect in any fencing, breathing apparatus, appliances or other requisite provided in pursuance of these rules, as soon as he becomes aware of such defects;

(b)use of the articles, appliance or accommodation requires by these rules for the purpose for which they are provided;

(c)wear the breathing apparatus and life-belt where required under rule 181 (a) and (b).

(2)No person shall.

(a)remove any fencing provided in pursuance of rule 188 unless duly authorized or

(b)stand on the edge or on the side of any vessel to which rule 188 applies;

(c)pass or attempt to pass any barrier erected in pursuance of rule 188;

(d)place across or inside any vessel to which rule 188 applies any plank or gangway which does not comply with that rule or make use of any such plank or gangway while in such position.

(e)Take a naked light or any lamp or matches or any apparatus for producing a naked light or spark into, or smoke in , any part of the works where there is liability to explosion from inflammable gas, vapour or dust;

(f)Use a metal spade, scraper or pail when cleaning out or removing the residues from any chamber, still tank, or other vessel which has contained sulphuric acid or hydrochloric acid or other substances which may cause evolution of arseniuretted hydrogen;

(g)Remove from a first-aid box or cupboard or from the ambulance room any first-aid appliance or dressing except for the treatment of injuries in the works.

Schedule 1

Chemical Works. - means any works or that part of a work in which.-

1. The manufacture or recovery of any of the following is carried on:-
   (a)Carbonates, chromates, chlorate, oxides, or hydroxides, or silicates of potassium,sodium,iron,aluminum,cobalt,nickel,arsenic,antimony,zinc or magnesium.
   (b)Ammonia and the hydroxide and salts of ammonium
   (c)Sulphurous, sulphuric, nitric, hydrochloric, hydrofluoric, hydroiodic, hydrosulphuric, boric, phosphoric, oxalic, arsenious, arsenic, lactic, acetic, tartaric or citric acids and their metallic or organic salts , and
   (d)Cyanogen compounds.
2. A wet process is carried on-
   (a)For the extraction of metal from ore or from any by-product or residual material'; or
   (b)In which electrical energy is used in any process of chemical manufacture.
3. Alkali waste or the drainage there from is subject to any chemical process for the recovery of sulphur, or for the utilization of any constituent of such waste or drainage.
4. Carbon disulphide is made or hydrogen sulphide is evolved by the decomposition of metallic sulphides or hydrogen sulphide is used in the production of such sulphides.
5. Bleaching powder is manufactured or chlorine gas is made or is used in any process of chemical manufacture.
6.(a) Gas tar or coal tar or any compound product or residue of such tars is distilled or is used in any process of chemical manufacture.
   (b)Synthetic coloring matters or their intermediates are made.
7. Refining of crude shale oil or any process incidental thereto is carried out.
8. Nitric acid is used in the manufacture of nitro compounds.
9. Explosives are made with the use of nitro compounds.
10. Insecticides which may be phosphorus, nicotine, mercury, naphthalene, cyanogens, arsenic, flurine, copper benzene and ethane compounds or derivatives and methyl bromide are manufactured, mixed, blended and packed.]
11. Phosgone (Carbonyl Chloride) is manufactured or is used in the process of chemical manufacture.
12. Aliphatic or aromatic compounds and their derivatives or substituted derivatives are manufactures or recovered.

Schedule II

1. A nitro or amino process (overalls or suits of working cloths and protective footwear)
2. Grinding raw materials in a chrome process (overall suits).
3. The crystal department and in packing in a chrome process (protective coverings).
4. Packing in a chrome process (respirators)
5. Any room or place in which chlorate is crystallised, ground or packed (clothing of woolen material and boots or overshoes, the soles which have no metal on them)
6. Any room in which caustic is ground or crushed by machinery or otherwise handled (goggles and gloves or other suitable protection for the eyes and hands)
7. Bleaching powder chambers , or in packing charges drawn on such chambers (suitable respirators)
8. Drawing off of molten sulphur from sulphur pots in the process of carbon disulphide manufacture (overall, face shields, gloves and footwear of fire proof material)
9. (a) Manufacture , mixing, blending and packing of insecticides which are phosphorus, nicotine, naphthalene, cyanogens, arsenic, fluorine, mercury and copper compounds or derivatives and methyl bromide (rubber aprons-chemical type, goggles and suitable respirators and in addition rubber gloves and boots for phosphorus and nicotine derivatives; synthetic rubber aprons, gloves and boots when working with oil solutions; and washable working clothes laundered daily)

(b)Manufacture, mixing , blending and packing of insecticides which are derivatives of benzene or ethane (rubber aprons, and suitable respirations, separate work clothes laundered frequently)

SCHEDULE III

(1)A nitro amino process.
(2)The crystal department and the packing room in a chrome process.
(3)The process of distilling gas or coal tar (other than blast furnace tar) and any process of chemical manufacture in which such tar is used.
(4)Manufacture, mixing, blending and packing of the insecticides mentioned in item 10 of schedule 1.

SCHEDULE IV

(i)A glazed sink with hot and cold water always available
(ii)A table with a smooth top.
(iii)Means for sterilizing instruments
(iv)A couch
(v)A Stretcher
(vi)Two buckets or containers with close –fitting lids
(vii)Two rubber hot water bags.
(viii)A kettle and spirit stove or other suitable means of boiling water.
(ix)Twelve plain wooden splints 36”x4” ¼”
(x)Twelve plain wooden splints 14”x3“ ¼”
(xi)Six plain wooden splints 10”x2” ½”
(xii)Three woolen blankets
(xiii)One pair artery of forceps
(xiv)One bottle of brandy.
(xv)Two medium size sponges.
(xvi)Three hand towels.
(xvii)Two kidney trays
(xviii)Four carbolic soaps.
(xix)Two glass tumbler and two wine glasses
(xx)Two clinical thermometers.
(xxi)Graduated measuring glass with teaspoon.
(xxii)One eye batch.
(xxiii)One bottle (21b.) carbolic lotion 1 in 20
(xxiv)Two chairs
(xxv)One screen
(xxvi)One electric hand torch
(xxvii)An adequate supply of anti –tetanus serum
(xxviii)Two first aid boxes , each containing
(a)24 small sterilized dressings
(b)medium size sterilized dressings
(c)12 large size sterilized dressings
(d)12 large size sterilized burn dressings
(e)12 half ounce packets sterilized cotton wool
(f)one snake bite lancet
(g) one pair scissors
(h)two (1 oz) bottle of potassium permanganate crystals

(i)One (4oz.) bottle containing a two per cent alcoholic solution of iodine
(j)one (4 oz) bottle of sal-volatile having the dose and mode of administration indicated on the label
(k)One copy of the first aid leaflet issued by the Chief Advisor, Factories, Government of India.

Special Process Rules 199 to 206

199.Application.- Rules 199 to 206 shall apply to works or parts thereof in which.

I. Caustic pots are used ; or
II. Chlorate or bleaching powder is manufactured ; or
III(a) Gas tar or coal tar is distilled or is used in any process of chemical manufacture ; or
(b) A nitro or amino process is carried on ; or
(c) A chrome process is carried on; or
IV. Crude shale oil is refined or processes incidental thereto are carried on ; or
V. Nitric acid is used in the manufacture of nitro compounds;
VI. The evaporation of brine in open pans and the stoving of salt are carried on ; and
VI. The manufacture or recovery of hydro-fluoric acid or any of its salt are carried on or
VIII. Work at a furnace where the treatment of zinc ores is carried on ,'
IX. Insecticides mentioned in item 10 of schedule I in rule 198, are manufactures mixed, blended or packed

200. Entry into gas tar or coal tar still.- Before any person enters a gas tar or coal tar still for any purpose except that of rescue, it shall be completely isolated from adjoining tar stills, either by disconnecting.

201. Entry into bleaching powder chambers.- No person shall enter a chamber for the purpose of withdrawing the charge of bleaching powder unless and until

(i) the chamber is efficiently ventilated , and
(ii) the air in the chamber has been tested and found to contain no more than 2.5 grains of free chlorine gas per cubic foot.

A register containing details of all such tests shall kept in a form approved by the Chief Inspector of Factories.

202. Special precautions for nitro and amido processes.- In a nitro or amido process-

(a)If crystallized substances are broken or any liquor agitated by hand, means shall be taken to prevent, as far as practicable, the escape or dust or fume in to the air of any place in which any person in employed. The handles of all implements used in the operations shall be cleansed daily.

(b)Cartridges shall not be filled by hand except by means of suitable scoop.

(c) Every drying stove shall be efficiently ventilated to the outside air in such a manner that hot air from the stove shall not be drawn into any work-room

(d)No person shall enter a stove to remove the contents until a free current of air has been passed through it.
(e)Every vessel containing nitro or amido derivates of phenol or benzene or its homologues shall, if steam is passed into or around it, or if the temperature of the contents be at or above the temperature of boiling water, be covered in such a way that steam or vapour shall be discharged into the open air at a height of not less than 25 feet from the ground or the working platform, and at a point where it cannot be blown back again into the work-room.

203.Precautions during caustic grinding, etc.-

(a)Every machine used for grinding or crushing caustic shall be enclosed, and

(b)Where any of the flowing processes are carried on :-

(i)Grinding or crushing of caustic;
(ii)Packing of ground caustic;
(iii)Grinding, sieving, evaporating or packing in a chrome process;
(iv) Crushing, grinding or mixing of material or cartridge filling in a nitro or amido process;
(v)The insecticides mentioned in item 10 of schedule I in rule 198 are manufactured , mixed, blended or packed an efficient exhaust draught shall be provided ;

204.Chlorate manufacture.-

(a)Chlorate shall not be crystallized, ground or packed except in a room or place not used for any other purpose, the floor of which room or place shall be of cement or other smooth, impervious and incombustible material, and shall be thoroughly cleansed daily.

(b)Wooden vessels shall not be used for the crystallization of chlorate, or to contain crystallized or ground chlorate; provided that this rule shall prohibit the packing of chlorate for sale into wooden casts or other wooden vessels.

205. Restrictions on the employment of young persons and women.-

(a)a person under 18 year of age and women shall not be employed in any process in which hydrofluoric acid fumes or ammoniacal vapors are given off or in any of the following operations.

(i)evaporation of brine in open pans;
(ii)stoving of salt
(iii)work at furnace where the treatment of zinc ores is carried on ; and
(iv)the cleaning of work-rooms where the process mentioned in (iii) is carried on .

(b)No person under 18 years of age shall be employed in a chrome or in a nitro or amido process or in a process in which the following materials are used or where the vapour of such materials is given off;

Carbon disulphide, chlorides of sulphur, benzene, carbon tetrachloride, trichloroethylene, any chlorinated hydro-carbons, or any mixture containing any of such materials.

206.Duties of employees.- Every person employed-

(a)In a process to which Rule 178 applies shall wear the protective clothing footwear , respirators, goggles or gloves provided under Rule 178 and shall deposit overalls or suits or working clothing so provided, as well as clothing put off during working hours , in the places provided under Rule 179.

(b)In process to which Rule 180 applies shall carefully wash the hands and face before partaking of any food or leaving the premises.

(c) In any processes to which Rule 199 applies shall use the protective appliances supplied in respect of any process in which he is engaged.

207.The Travancore –Cochin Factories Rule, 1952 and the Madras Factories Rules 1950 , in their application to the territories referred to as Malabar District in sub-section (2) of section 5 of the state Reorganization Act 1956 (Central Act 37 of 1956), are hereby repealed;

Provided that any order made or action taken under the rules so repealed shall be deemed to have been made or taken under the corresponding provision of these Rules.

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Court Rulings:

Rule 127: Merely because the manager of a factory has taken out licence under the Act and had purported to conform to the requirement of the Act and the Rules by submission of returns or by putting up a notice as to hours of work or maintenance of registers, would not bring the establishment within the scope of the Act. It has to be established from circumstances and upon evidence that the factory falls within the definition under s.2(m) of the Act and that the workmen employed in such place come within the definition of Section 2 (1). Sheshan v. Inspector of Factories, Cannanore. 1967-II-LLJ 423 (Ker.): 1966 KLT 951.

Rule 91: The mere fact that the company had the responsibility to provide and maintain a canteen under the Section, cannot make them the ultimate employer of the workers engaged in the canteen for all purposes. The workers of the canteen run by the controller or co-operative society cannot be treated as workmen of the management and management is not liable to pay any bonus to such workers. *Cominco Binani Zinc Ltd. v. Pappachan 1989-I-LLJ 452* (Ker).