

S.O.966(E), - In exercise of the powers conferred by Sections 6, 8 and 25 of the Environment (protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules, namely :-

- [Short Title and Commencement](#)
- [Definition](#)
- [Duties of Authorities](#)
- [General Responsibility of the Occupier during industrial activity](#)
- [Notification of Major accident](#)
- [Industrial activity to which rules 7 to 15 apply](#)
- [Notification of sites](#)
- [Updating of the site notification following changes in the threshold quantity](#)
- [Transitional Provisions](#)
- [Safety Reports](#)
- [Updating of reports under Rule 10](#)
- [Requirements for further information to be sent to the authority](#)
- [Preparation of on-site emergency plan by the occupier](#)
- [Preparation of off-site emergency plan by the authority](#)
- [Information to be given to person liable to be affected by a major accident](#)
- [Disclosures of information](#)
- [Collection,Development and Dissemination of Information](#)
- [Import of hazardous chemicals](#)
- [Improvement notices](#)
- [Power of the Central Government to modify the Schedules](#)

1. Short title and commencement

1. These rules may be called the Manufacture, Storage and Import of hazardous Chemical Rules, 1989.
2. They shall come into force on the date of their publication in the Official Gazette.

2. Definitions

In these rules, unless the context otherwise requires -

1. "Act" means the Environment (Protection) Act, 1986 (29 of 1986);
2. "Authority" means an authority mentioned in [Column 2 of Schedule 5](#);
3. "export" with its grammatical variations and cognate expression, means taking out of India to a place outside India;
4. "exporter" means any person under the jurisdiction of the exporting country and includes the exporting country, who exports hazardous chemical;
5. "hazardous chemical" means, -
 1. any chemical which satisfies any of the criteria laid down in [Part I of Schedule 1](#) and is listed in [Column 2 of Part II](#) of this Schedule;
 2. any chemical listed in [Column 2 of Schedule 2](#);
 3. any chemical listed in [Column 2 of Schedule 3](#);
6. "import", with its grammatical variations and cognate expression, means bringing into India from a place outside India;
7. "importer" means an occupier or any person who imports hazardous chemicals;
8. "industrial activity" means, -
 1. an operation or process carried out in an industrial installation referred to in [Schedule 4](#) involving or likely to involve one or more hazardous chemicals and includes on-site storage or on-site transport which is associated with that operation or process, as the case may be; or
 2. isolated storage; or
 3. pipeline;
9. "isolated storage" means storage of a hazardous chemical, other than storage associated with an installation on the same site specified in [Schedule 4](#) where that storage involves at least the quantities of that chemical set out in [Schedule 2](#);
10. "major accident" means an occurrence including any particular major emission fire or explosion involving one or more hazardous chemicals and resulting from uncontrolled developments in the course of an industrial activity or due to natural events leading to serious effects both immediate or delayed, inside or outside the installation likely to cause substantial loss of life and property including adverse effects on the environments;
11. "pipeline" means a pipe (together with any apparatus and works associated therewith) or system of pipes (together with any apparatus and works associated therewith) for the conveyance of a hazardous chemical other than a flammable gas as set out

in [Column 2 of Part II of Schedule 3](#) at a pressure of less than 8 bars absolute; the pipeline also includes interstate pipelines;

12. "Schedule" means Schedule appended to these rules;
13. "Site" means any location where hazardous chemicals are manufactured or processed, stored, handled, used disposed of and includes the whole of an area under the control of an occupier and includes pier, jetty or similar structure whether floating or not;
14. "Threshold quantity" means, -
 1. in the case of a hazardous chemical specified in [Column 2 of Schedule 2](#), the quantity of that chemical specified in the corresponding entry in [Columns 3 & 4](#) of that part;
 2. in the case of a hazardous chemical specified in [Column 2 of Part 1 of Schedule 3](#), the quantity of that chemical specified in the corresponding entry in [Columns 3 & 4](#) of that part;
 3. in the case of substances of a class specified in [Column 2 of Part II of Scheduled 3](#), the total quantity of all substances of that class specified in the corresponding entry in [Column 3 & 4](#) of that Part.

3. Duties of Authorities

The concerned Authority shall -

1. inspect the industrial activity at least once in a calendar year:
2. except where such authority is the Ministry of Environment & Forests, annually report on the compliance of the rules by the occupiers to the Ministry of Environment and Forests through appropriate channel.
3. subject to the other provisions of these rules, perform the duties specified in [column 3 of Schedule 5](#).

4. General responsibility of the occupier during industrial activity

1. This rules shall apply to, -

1. an industrial activity in which a hazardous chemical, satisfies any of the criteria laid down in [Part I of Schedule 1](#) and is listed in [Column 2 of Part II](#) of this Schedule is or may be involved; and
2. isolated storage in which there is involved a threshold quantity of a hazardous chemical listed in [Schedule 2 in column 2](#) which is equal to or more than the threshold quantity specified in the Schedule for that chemical for that chemical in [column 3](#) thereof.

2. An occupier who has control of an industrial activity in terms of sub-rule (1) shall provide evidence to show that he has -

1. identified the major accident hazards; and
2. taken adequate steps to -
 1. prevent such major accidents and to limited their consequences to persons and the environment;
 2. provide to the persons working on the site with the information, training and equipment including antidotes necessary to ensure their safety.

5. Notification of Major accident

1. Where a major accident occurs on a site or in a pipeline the occupier shall within 48 hours notify the concerned authority as identified in [Schedule 5](#) of that accident, and furnish thereafter to the concerned authority a report relating to the accidents in instalments, if necessary, in [schedule 6](#).
2. The concerned authority shall on receipt of the report in accordance with sub-rule 1 of this rule, shall undertake a full analysis of the major accident and send the requisite information within 90 days to the Ministry of Environment & Forest through appropriate channel.
3. An occupier shall notify to the concerned Authority, steps taken to avoid any repetition of such occurrence on a site:
4. The concerned Authority shall compile information regarding major accidents and make available a copy of the same to the Ministry of Environment and Forest through appropriate channel.
5. The concerned Authority shall in writing inform the occupier, of any lacunae which in its opinion needs to be rectified to avoid major accidents.

6. Industrial activity to which rules 7 to 15 apply

1. Rules 7 to 15 shall apply to,-

1. an industrial activity in which there is involved a quantity of a hazardous chemical listed in [Column 2 of Schedule 3](#) which is equal to or more than the quantity specified in the entry for that chemical in [Columns 3 & 4](#) (Rules 10-12 only for Column 4) and (b) isolated storage in which there is involved a quantity of a hazardous chemical listed in [Column 2 of Schedule 2](#) which is equal to or more than the quantity specified in the entry for that chemical in [Column 1](#).

2. For the purposes of rules 7 to 15 -

1. "new industrial activity" means an industrial activity which -
 1. commence after the date of coming into operation of these rules; or
 2. if commenced before that date, is an industrial activity in which a modification has been made which is likely to cover major accident hazards, and that activity shall be deemed to have commenced on the date on which the modification was made;
2. an "existing industrial activity" means an industrial activity which is not a new industrial activity.

7. Notification of sites

1. An occupier shall not undertake any industrial activity unless he has been granted an approval for undertaking such an activity and has submitted a written report to the concerned authority containing the particulars specified in [Schedule 7](#) at least 3 months before commencing that activity or before such shorter time as the concerned authority may agree and for the purpose of this paragraph, an activity in which subsequently there is or is liable to be a threshold quantity or more of an additional hazardous chemical shall be deemed to be a different activity and shall be notified accordingly.
2. The concerned Authority within 60 days from the date of receipt of the report, shall approve the report submitted and on consideration of the report if it is of the opinion that contravention of the provisions of the Act or the rules made thereunder has taken place, it shall issue notice under rule 19.

8. Updating of the site notification following changes in the threshold quality

Where an activity has been reported in accordance with rule 7(1) and the occupier makes a change in it (including an increase or decrease in the maximum threshold quantity of a hazardous chemical to which this rule applies which is or is liable to be at the site or in the pipeline or at the cessation of the activity) which affects the particulars specified in that report or any subsequent report made under this rule, the occupier shall forthwith furnish a further report to the concerned authority.

9. Transitional provision

Where, -

1. at the date of coming into operation of these rules, an occupier is in control of an existing industrial activity which is required to be reported under rule 7(1); or
2. within 6 months after that date an occupier commences any such new industrial activity;

it shall be a sufficient compliance with that rule if he reports to the concerned authority as per the particulars in [schedule 7](#) within 3 months after the date of coming into operation of these rules or within such longer time as the concerned authority may agree in writing.

10. Safety reports

1. Subject to the following paragraphs of this rule, an occupier shall not undertake any industrial activity to which this rule applies, unless he has prepared a safety report on that industrial activity containing the information specified in [Schedule 8](#) and has sent a copy of that report to the concerned authority at least ninety days before commencing that activity.
2. In the case of a new industrial activity which an occupier commences, or by virtue of sub-rule (2)(a)(ii) of rule 6 is deemed to commence within 6 months after coming into operation of these rules, it shall be a sufficient compliance with sub-rule (i) of this rule if the occupier sends to the concerned authority a copy of the report required in accordance with that sub-rule within ninety days after the date of coming into operation of these rules.
3. In case of an existing industrial activity, the occupier shall prepare a safety report in consultation with the concerned authority and submit the same within one year from the date of the commencement of the Manufacture, Storage and Import of Hazardous Chemicals (Amendment) Rules, 1994, to the concerned Authority.
4. After the commencement of the Manufacture, Storage and Import of Hazardous Chemicals (Amendment) Rules, 1994, the occupiers of both the new and the existing industrial activities shall carry out an independent safety audit of the respective industrial activities with the help of an expert, not associated with such industrial activities.
5. The occupier shall forward a copy of the auditor's report along with his comments, to the concerned Authority within 30 days after the completion of such audit.
6. The occupier shall update the safety audit report once a year by conducting a fresh safety audit and forward a copy of it with his comments thereon within 30 days to the concerned Authority.
7. The concerned authority may if it deems fit, issue improvement notice under rule 19 within 45 days of the submission of the said report.

11. Updating of reports under Rule 10

1. Where an occupier has made a safety report in accordance with sub-rule (1) of rule 10 he shall not make any modification to the industrial activity to which that safety report relates which could materially affect the particulars in that report, unless he has made a further report to take account of those modifications and has sent a copy of that report to the concerned authority at least 90 days before making those modifications.
2. Where an occupier has made a report in accordance with rule 10 sub-rule (1) of this rule and that industrial activity is

continuing, the occupier shall within three years of the date of the last such report, make a further report which shall have regard in particular to new technical knowledge which has affected the particulars in the previous report relating to safety and hazard assessment and shall within 30 days send a copy of the report to the concerned authority.

12. Requirement for further information to be sent to the Authority

Where in accordance with rule 10 an occupier has sent a safety report and the safety audit report relating to an industrial activity to the concerned Authority, the concerned Authority may, by a notice served on the occupier, require him to provide such additional information as may be specified in the notice and the occupier shall send that information to the concerned Authority within 90 days.

13. Preparation of on-site emergency plan by the occupier

1. An occupier shall prepare and keep up to-date an on-site emergency plan containing details specified in [Schedule 11](#) and detailing how major accidents will be dealt with on the site on which the industrial activity is carried on and that plan shall include the name of the person who is responsible for safety on the site and the names of those who are authorised to take action in accordance with the plan in case of an emergency.
2. The occupier shall ensure that the emergency plan prepared in accordance with sub-rule (1), takes into account any modification made in the industrial activity and that every person on the site who is affected by the plan is informed of its relevant provision.
3. The occupier shall prepare the emergency plan required under sub-rule (1),-
 1. in the case of a new industrial activity, before that activity is commenced;
 2. in the case of an existing industrial activity within 90 days of coming into operation of these rules
4. The occupier shall ensure that a mock drill of the on-site emergency plan is conducted every six months;

14. Preparation of off-site emergency plans by the authority

1. It shall be the duty of the concerned authority as identified in [Column 2 of Schedule 5](#) to prepare and keep up-to-date an adequate off-site emergency plan containing particulars specified in [schedule 12](#) and detailing how emergencies relating to a possible major accident on that site will be dealt with and in preparing that plan the concerned authority shall consult the occupier, and such other persons as it may deem necessary.
2. For the purpose of enabling the concerned authority to prepare the emergency plan required under sub-rule (1) the occupier shall provide the concerned authority with such information relating to the industrial activity under his control as the concerned authority may require, including the nature, extent and likely effect off-site of possible major accident and the authority shall provide the occupier with any information from the off-site emergency plan which relates to his duties under rule 13.
3. The concerned authority shall prepare its emergency plan required under sub-rule (1) -
 1. in the case of a new industrial activity, before that activity is commenced;
 2. in the case of an existing industrial activity, within six months of coming into operation of these rules

14. (4) The concerned authority shall ensure that a rehearsal of the off-site emergency plan, is conducted at least once in a calendar year.

15. Information to be given to persons liable to be affected by a major accident

1. The occupier shall take appropriate steps to inform person outside the site either directly or through District Emergency Authority who are likely to be in an area which may be affected by a major accident about -
 1. the nature of the major accident hazard; and
 2. the safety measures and the 'Dos' and 'Donts' which should be adopted in the event of a major accident.
2. The occupier shall take the steps required under sub-rule (1) to inform person about an industrial activity, before that activity is commenced, except, in the case of an existing industrial activity in which case the occupier shall comply with the requirements of subrule (1) within 90 days of coming into operation of these rules.

16. Disclosures of information

1. Where for the purpose of evaluating information notified under rule 5 or 7 to 15, the concerned authority disclose that information to some other person, that other person shall not use that information for any purpose except for the purpose of the concerned authority disclosing it, and before disclosing the information the concerned authority shall inform that other person of his obligations under this paragraph.

17. Collection, Development and Dissemination of Information

1. This rule shall apply to an industrial activity in which a hazardous chemical which satisfies any of the criteria laid down in [part 1 of Schedule 1](#) and is listed in [Column 2 of Part II](#) of this schedule is or may be involved.
2. An occupier, who has control of an industrial activity in term of sub-rule 1 of this rule, shall arrange to obtain or develop information in the form of safety data sheet as specified in [Schedule 9](#). The information shall be accessible upon request for reference.
3. The occupier while obtaining or developing a safety data sheet as specified in [Schedule 9](#) in respect of a hazardous chemical handled by him shall ensure that the information is recorded accurately and reflects the scientific evidence used in making the hazard determination. In case, any significant information regarding hazard of a chemical is available, it shall be added to the material safety data sheet as specified in [Schedule 9](#) as soon as practicable.
4. Every container of a hazardous chemical shall be clearly labelled or marked to identify-
 1. The contents of the container;
 2. the name and address of the manufacturer or importer of the hazardous chemical;
 3. the physical, chemical and toxicological data as per the criteria given at [Part I of schedule 1](#).
5. In terms of sub-rule 4 of this rule where it is impractical to label a chemical in view of the size of the container or the nature of the package, provision should be made for other effective means like tagging or accompanying documents.

18. Import of hazardous chemicals

1. This rule shall apply to a chemical which satisfies any of the criteria laid down in [Part I of Schedule 1](#) and is listed in [column 2 of Part II](#) of this Schedule.
2. Any person responsible for importing hazardous chemicals in India shall provide before thirty days or as reasonably possible but not later than the date of import to the concerned authorities as identified in [Column 2 of Schedule 5](#) the information pertaining to-

1. the name and address of the person receiving the consignment in India;
 2. the port of entry in India;
 3. mode of transport from the exporting country to India;
 4. the quantity of chemical (s) being imported; and
 5. Complete product safety information.
3. If the concerned authority of the State is satisfied that the chemical being imported is likely to cause major accident, it may direct the importer to take such safety measures as the concerned authority of the state may deem appropriate.
- (3 A) In the case the concerned Authority of the State is of the opinion that the chemical should not be imported on safety or on environmental considerations, such Authority may direct stoppage of such import.
4. The concerned authority at the State shall simultaneously inform the concerned Port Authority to take appropriate steps regarding safe handling and storage of hazardous safe handling and storage of hazardous chemicals while off-loading the consignment within the port premises.
 5. Any person importing hazardous chemicals shall maintain the records of the hazardous chemicals imported as specified in [Schedule 10](#) and the records so maintained shall be open for inspection by the concerned authority at the State or the Ministry of Environment and Forests or any officer appointed by them in this behalf.
 6. The improper of the hazardous chemical or person working on his behalf shall ensure that transport of hazardous chemicals from port of entry to the ultimate destination is in accordance with the Central Motor Vehicles Rules, 1989 framed under the provision of the Motor Vehicles Act, 1988.

19. Improvement notices

1. If the concerned authority is of the opinion that a person has contravened the provisions of these rules, the concerned authority shall serve on him a notice (in this para referred to as an improvement notice) requiring that person to remedy the contravention or, as the case may be, the matters occasioning it within 45 days.
2. A notice served under sub-rule (1) shall clearly specify the measures to be taken by the occupier in remedying said contraventions.

20. Power of the Central Government to modify the Schedule

The Central Government may, at any time, by notification in the Official Gazette, make suitable changes in the Schedules.

SCHEDULE 1

PART I

1. **Toxic Chemicals:** Chemicals having the following values of acute toxicity and which owing to their physical and chemical properties, are capable of producing major accident hazards:

Sl.No.	Degree of Medium lethal	Medium lethal	Medium
	Toxicity dose by the	dose by the	lethal
	oral route	dermal route	concentr-
	toxicity) (dermal	LD50	ation by
	LD50 (mg/kg	body weight	inhalation
	body weight of	test route	(Four

of test ani- animals) hours)LC50
mals) (mg/1 inh-
alation in
test ani-
mals)

1. Extremely 1-50 1-200 0.1 - 0.5
toxic

2. Highly 51-500 201-2000 0.5 - 2.0
toxic

2. Flammable Chemicals:

1. flammable gases ; chemicals which in the gaseous state at normal pressure and mixed with air become flammable and the boiling point of which at normal pressure is 20 C or below;
 2. Highly flammable liquids; chemicals which have a flash point lower than 23 C and the boiling point of which at normal pressure is above 20 C;
 3. flammable liquids: chemicals which have a flash point lower than 65 C and which remain liquids under pressure, where particular processing conditions, such as high pressure and high temperature, may create major accident hazards.
3. **Explosives:** chemicals which may explode under the effect of flame, heat or photo-chemical conditions or which are more sensitive to shocks or friction than dinitrobenzene.

PART II LIST OF HAZARDOUS AND TOXIC CHEMICALS

search alphabetically

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#) [_](#)

[scroll list](#)

Sl.No. Name of the Chemical

1. 2.
1. Acetone
2. Acetone Cyanohydrine
3. Acetyl Chloride
4. Acetylene (Ethyne)
5. Acrolein (2-Propenal)
6. Acrylonitrile
7. Aldicarb
8. Aldrin
9. Alkyl Phthalate
10. Allyl Alcohol
11. Allylamine
12. Alpha Naphthyl Thiourea (Autu)
13. Aminodiphenyl, -4
14. Aminophenol-2

15. Amiton
16. Ammonia
17. Ammonium Nitrate
18. Ammonium Nitrates in fertilizers
19. Ammonium Sulfamate
20. Anabasine
21. Aniline
22. Anisidine-p
23. Antimony and Compounds
24. Antimony Hydride (Stibine)
25. Arsenic Hydride (Arsine)
26. Arsenic Pentoxide, (Arsenic)(v) Acid and Salts
27. Arsenic Trioxide, Arsenious (iii) Acids and Salts
28. Asbestos
29. Azinphos-Ethyl
30. Azinphos-Methyl
31. Barium Azide
32. Benzene
33. Benzidine
34. Benzidine Salts
35. Benzoquinone
36. Benzoyl Chloride
37. Benzoyl Peroxide
38. Benzyl Chloride
39. Benzyl Cyanide
40. Beryllium (Powders, Compunds)
41. Biphenyl
42. Bis (2-Chloromethyl) Ketone
43. Bis (2, 4, 6-Trinitrophenyl) Amine
44. Bis (2-Chloroethyl) Sulphide
45. Bis (Chloromethyl) ketone
46. Bis (tert-Butylperoxy) Butane, -2, 2
47. Bis (tert-Butylperoxy) Cyclohexane, 11,
48. Bis, 1, 2 Tribromophenoxy-Ethane
49. Bisphenol
50. Boron and Compunds
51. Bromine
52. Bromine Pentafluoride
53. Bromoform
54. Butadiene-1, 3
55. Butane
57. Butanone-2
58. Butoxy Ethanol
59. ButylGlycidal Ether
60. Butyl Peroxyacetate, tert
61. Butyl peroxyisobutyrate, tert
62. Butyl peroxy isopropye carbonate, tert
63. Butyl Peroxymaleate, tert
64. Butyl Peroxypivalate, -tert
65. Butyl vinyl Ether
66. Butyl-n-Mercaptan
67. Butylamine
68. C 9-Aromatic Hydrocarbon Fraction
69. Cadmium and Compounds
70. Cadmium Oxide (fumes)
71. Calcium Cyanide
72. Captan

73. Captofol
74. Carbaryl (Sevin)
75. Carbofuran
76. Carbon Disulphide
77. Carbon Monoxide
78. Carbon Tetrachloride
79. Carbophenothion
80. Cellulose Nitrate
81. Chlorates (used in explosives)
82. Chlordane
83. Chlorfenvinphos
84. Chlorinated Benzenes
85. Chlorine
86. Chlorine Dioxide
87. Chlorine Oxide
88. Chlorine Trifluoride
89. Chlormequat Chloride
90. Chloroacetal Chloride
91. Chloroacetaldehyde
92. Chloroaniline, -2
93. Chloroaniline, -4
94. Chlorobenzene
95. Chlorodiphenyl
96. Chloroepoxypropane
97. Chloroethanol
98. Chloroethyl Chloroformate
99. Chlorofluorocarbons
100. Chloroform
101. Chloroformyl, -4, Morpholine
102. Chloromethane
103. Chloromethyl Ether
104. Chloromethyl Methyl Ether
105. Chloronitrobenzene
106. Chloroprene
107. Chlorosulphonic Acid
108. Chlorotrinitrobenzene
109. Chloroxuron
110. Chromium and Compounds
111. Cobalt and Compounds
112. Copper and Compounds
113. Coumafuryl
114. Comaphos
115. Coumatetralyl
116. Cresols
117. Crimidine
118. Cumene
119. Cyanophos
120. Cyanothoate
121. Cyanuric Fluoride
122. Cyclohexane
123. Cyclohexanol
124. Cyclohexanone
125. Cycloheximide
126. Cyclopentadiene
127. Cyclopentane
128. Cyclotetramethylentetranitramine
129. Cyclotrimethylene Trinitramine

130. DDT
131. Decabromodiphenyl Oxide
132. Demeton
133. Di-Isobutyl Peroxide
134. Di-n-propyl Peroxydicarbonate
135. Di-sec-Butyl Peroxydicarbonate
136. Dialifos
137. Diazodinitrophenol
138. Diazomethane
139. Dibenzyl Peroxydicarbonate
140. Dichloroacetylene-O
141. Dichlorobenzene-O
142. Dichlorobenzene-P
143. Dichloroethane
144. Dichloroethyl Ether
145. Dichlorophenol, -2, 4
146. Dichlorophenol, -2, 6
147. Dichlorophenoxy Acetic Acid, -2, 4(2, 4-D)
148. Dichloropropane, -1,2
149. Dichlorosalicylic Acid, -3, 5
150. Dichlorvos (DDVP)
151. Dicrotophos
152. Dieldrin
153. Diepoxybutane
154. Diethyl Peroxydicarbonate
155. Diethylene Glycol Dinitrate
156. Diethylene Triamine
157. Diethyleneglycol Butyl Ether/Diethyleneglycol Butyl Acetate
158. Diethylenetriamine (DETA)
159. Diglycidyl Ether
160. Dithydroperoxypropane, -2, 2
161. Di-isobutyryl Peroxide
162. Dimefox
163. Dimethoate
164. Dimethyl Phosphoramidocyanidic Acid
165. Dimethyl Phthalate
166. Dimethylcarbomyl
167. Dimethylnitrosamine
168. Dinitrophenol, Salts
169. Dinitrotoluene
170. Dintro-o-Cresol
171. Dioxane
172. Dioxathion
173. Dioxolane
174. Diphacinone
175. Diphosphoramidate Octamethyl
176. Dipropylene Glycolmethylether
177. Disulfoton
178. Endosulfan
179. Endrin
180. Epichlorohydrine
181. EPN
182. Epoxypropane, 1, 2
183. Ethion
184. Ethyl Carbamate
185. Ethyl Ether

186. Ethyl Hexanol,-2
187. Ethyl Mercaptan
188. Ethyl Methacrylate
189. Ethyl Nitrate
190. Ethylamine
191. Ethylene
192. Ethylene Chlorohydrine
193. Ethylene Diamine
194. Ethylene Dibromide
195. Ethylene Dichloride
196. Ethylene Glycol Dinitrate
197. Ethylene Oxide
198. Ethyleneimine
199. Ethylthiocyanate
200. Fensulphothion
201. Fluenetil
202. Fluoro,-4, -2-Hydroxybutyrix Acid and Salts
Esters, Amides
203. Fluoroacetic Acid and Salts, Esters, Amides
204. Fluorobutyric Acid, -4, and Salts,
Esters, Amides
205. Fluorocortonic Acid, -4, Salts, Esters,
Amides
206. Formaldehyde
207. Glyconitrile (Hydroxyacetonitrile)
208. Guanyl,-1, -4-Nitrosaminoguanyl-1-Tetrazene
209. Heptachlor
210. Hexachloro Cyclopentadiene
211. Hexachlorocyclohexane
212. Hexachlorocyclomethane
213. Hexachlorodibenzo-p-Dioxin, 1,2,3,7,8,9
214. Hexafluoropropene
215. Hexamethylphosphoramide
216. Hexamethyl, -3, 3, 6, 9, 9-1, 2, 4,
5-Tetraoxacyclononane
217. Hexamethylendiamine
218. Hexane
219. Hexanitrostilbene, -2, 2, 4, 4, 6, 6
220. Hexavalent Chromium
221. Hydrazine
222. Hydrazine Nitrate
223. Hydrochloric Acid
224. Hydrogen
225. Hydrogen Bromide (Hydrobromic Acid)
226. Hydrogen Chloride (Liquified Gas)
227. Hydrogen Cyanide
228. Hydrogen Fluoride
229. Hydrogen Selenide
230. Hydrogen Sulphide
231. Hydroquinone
232. Iodine
233. Isobenzan
234. Isodrin
235. Isophorone Diisocyanate
236. Isopropyl Ether
237. Juglone (5-Hydroxynaphthalene-1, 4-Dione)
238. Lead (inorganic fumes & dusts)

239. Lead 2, 4, 6-Trinitroresorcinoxide (Lead Styphnate)
240. Lead Azide
241. Leptophos
242. Lindane
243. Liquified Petroleum Gas (LPG)
244. Maleic Anhydride
245. Managanese & Compounds
246. Mercapto Benzothiazole
247. Mercury Alkyl
248. Mercury Fulminate
249. Mercury Methyl
250. Methacrylic Anhydride
251. Methacrylonitrile
252. Methacryloyl Chloride
253. Methamidophos
254. Methanesuphonyl Fluoride
255. Methanthiol
256. Methoxy Ethanol (2-Methyl Cellosolve)
257. Methoxyethylmercuric Acetate
258. Methyl Acrylate
269. Methyl Alcohol
260. Methyl Amylketone
261. Methyl Bromide (Bromomethane)
262. Methyl Chloride
263. Methyl Chloroform
264. Methyl Cyclohexene
265. Methyl ethyl Ketone Peroxide
266. Methyl Hydrazine
267. Methyl Isobutyl Ketone
268. Methyl Isobutyl Ketone Peroxide
269. Methyl Isocyanate
270. Methyl Isothiocyanate
271. Methyl Mercaptan
272. Methyl Methacrylate
273. Methyl Parathion
274. Methyl Phosphonic Dichloride
275. Mehtyl-N, 2, 4, 6-Tetranitroaniline
276. Methylene Chloride
277. Methylenebis, -4, 4, (2, -chloroanilne)
278. Methyltrichlorosilane
279. Mevinphos
280. Molybdenum & Compounds
281. N-Methyl-N, 2, 4, 6-Tetranitroanaline
282. Naphtha (Coal Tar)
283. Naphtylamine, 2
284. Nickel & Compounds
285. Nickel Tetracarbonyl
286. Nitroaniline-O
287. Nitroaniline-P
288. Nitrobenzene
289. Nitrochlorobenzene-P
290. Nitrocyclohexane
291. Nitroethane
292. Nitrogen Dioxide
293. Nitrogen Oxides
294. Nitrogen Trifluoride
295. Nitroglycerine

296. Nitrophenol-P
297. Nitropropane-1
298. Nitropropane-2
299. Nitrosodimethylamine
300. Nitrotoluene
301. Octabromophenyl Oxide
302. Oleum
303. Oleylamine
304. OO-Diethyl S-Ethylsulphonylmethyl
305. OO-Diethyl S-Ethylsulphonylmethyl
Phosphorothioate
306. OO-Diethyl S-Ethylthiomethyl Phosphorothioate
307. OO-Diethyl S-Isopropylthiomethyl
Phosphorodithioate
308. OO-Diethyl S-propylthiomethyl
Phosphorodithioate
309. Oxyamyl
310. Oxydisulfoton
311. Oxygen (liquid)
312. Oxygen Difluoride
313. Ozone
314. Paroxon (diethyl 4-Nitrophenyl Phosphate)
315. Paraquat
316. Parathion
317. Parathion Methyl
318. Paris green (Bis Aceto Hexametarsen ito
Tetracopper)
319. pentaborane
320. Pentabromodiphenyl Oxide
321. Pentabromophenol
322. Pentachloro Naphthalene
323. Pentachloroethane
324. Pentachlorophenol
325. Pentaerythritol Tetranitrate
326. Pentane
327. Peracetic Acid
328. Perchloroethylene
329. Perchloromethyl Mercaptan
330. Petanone, 2, 4-Methyl
331. Phenol
332. Phenyl Glycidal Ether
333. Phenylene p-Diamine
334. Phenylmercury Acetate
335. Phorate
336. Phosacetim
337. Phosalone
338. Phosfolan
339. Phosgene (carbonyl chloride)
340. Phosmet
341. Phosphamidon
342. Phosphine (Hydrogen Phosphide)
343. Phosphoric Acid and Esters
344. Phosphoric Acid, Bromoethyl Bromo
(2, 2-Dimethylpropyl) Bromoethyl Ester
345. Phosphoric Acid, Bromoethyl Bromo
(2,2-Dimethylpropyl) Chloroethyl Ester
346. Phosphoric Acid Chloroethyl Bromo

(2,2-Dimethoxypropyl Chloroethylester)

347. Phosphorous & Compounds
348. Phostalan
349. Picric Acid (2,4, 6-Trinitrophenol)
350. Polybrominated Biphenyls
351. Potassium Arsenite
352. Potassium Chlorate
353. Promurit (1-(3, 4-Dichlorophenyl)-
3 Triazenethiocarboxamide)
354. Propanesultone-1, 3
355. Propen-1, -2-Chloro-1, 3-Diol-Diacetate
356. Propylene Oxide
357. Propyleneimine
358. Pryazoxon
359. Selenium Hexafluoride
360. Semicarbazide Hydrochloride
361. Sodium Arsenite
362. Sodium Azide
363. Sodium Chlorate
364. Sodium Cyanide
365. Sodium Picramate
366. Sodium Selenite
367. Styrene, 1, 1, 3, 2-Tetrachloroethane
368. Sulfotep
369. Sulphur dichloride
370. Sulphur Dioxide
371. Sulphur Trioxide
372. Sulphuric Acid
373. Sulphoxide, 3-Chloropropyloctyl
374. Tellurium
375. Tellurium Hexafluoride
376. Tepp
377. Terbufos
378. Tetrabromobisphenol-A
379. Tetrachloro, 2, 2, 5,6,2, 5-Cyclohexadiene-1,
4-Dione
380. Tetrachlorodibenzo-p Dioxin, 2,3,7,8 (TCDD)
381. Tetraethyl Lead
382. Tetrafluoroethane
383. Tetramethylenedisulphotetramine
384. Tetramethyl Lead
385. Tetranitromethane
386. Thallium & Compounds
387. Thionazin
388. Thionazin
389. Thinoyl Chloride
389. Tirpate
390. Toluene
391. Toluene-2-4-Diisocyanate
392. Toluidine-O
393. Toluene 2,6-Diisocyanate
394. Trans-1, 4-Chlorobutene
395. Tri-1 (cyclohexyl) Stannyl-1H-1, 2, 4-Trazole
396. Triamino, -1, 3, 5, 2, 4, 6-Trintroxenzene
397. Tribromophenol, 2, 4, 6
398. Trichloro Acetyl Chloride

399. Trichloro Ethane
400. Trichloro Napthalene
401. Trichloro (Chloromethyl) Silane
402. Trichlorodichlorophenylsilane
403. Trichloroethane, 1,1, 1
404. Trichlorethyl Silane
405. Trichloroethylene
406. Trichloromethanesulphenyl Chloride
407. Trichlorophenol, 2, 2, 6
408. Trichloropnenol, 2, 4, 5
409. Triethylamine
410. Triethylenemelamine
411. Trimethyl Chlorosilane
412. Trimethylpropane Phosphite
413. Trinitroaniline
414. Trinitroanisole, 2, 2, 4, 6
415. Trinitrobenzene
416. Trinitrobenzoic Acid
417. Trinitrocresol
418. Trinitrophenetole, 2, 5, 6
419. Trinitroresorcinol, 2,4,6 (Styphnic Acid)
420. Trintrotoluene
421. Triothocresyl Phosphate
422. Triphenyltin Chloride
423. Turpentine
424. Uranium & Compounds
425. Vanadium & Compounds
426. Vinyl Chloride
427. Vinyl Fluoride
428. Vinyl Toluene
429. Warfarin
430. Xylene
431. Xylidine
432. Zinc & Compounds
433. Zirconium & Compounds

SCHEDULE 2

[See rule 2(e)(II), 4(1)(b), 4(2) AND 6(1)(b)]

1. The threshold quantities set out below relate to each installation or group of installations belonging to the same occupier where the distance between installations is not sufficient to avoid, in foreseeable circumstances, any aggravation of major accident hazards. These threshold quantities apply in any case to each group of installations belonging to the same occupier where the distance between the installations is less than 500 metres.
2. For the purpose of determining the threshold quantity of a hazardous chemical at an isolated storage, account shall also be taken of any hazardous chemical which is:-
 1. in that part of any pipeline under the control of the occupier having control of the site, which is withing 500 metres of that site and connected to it;
 2. at any other site under the control of the same occupier any part of the boundary of which is within 500 metres of the said site; and
 3. in any vehicle, vessel, aircraft or hovercraft under the control of the same occupier which is used for storage

purpose either at the site or within 500 metres of it;

But no account shall be taken of any hazardous chemical which is in a vehicle, vessel, aircraft or hovercraft used for transporting it.

Sl.No. Chemicals Threshold Quantities (tonnes)

2. 3. 4.

1. Acrylonitrile 350.000 5,000.000
2. Ammonia 60.000 600.000
3. Ammonium nitrate (a) 350.000 2,500.000
4. Ammonium nitrate 1,250.000 10,000.000
fertilizers (b)
5. Chlorine 10.000 25.000
6. Flammable gases as 50.000 3,000.000
defined in Schedule 1,
paragraph (b) (i)
7. Highly flammable 10,000.000 10,000.000
liquids as defined
in Schedule 1, para-
graph (b)(ii)
8. Liquid oxygen 200.000 2,000.000
9. Sodium chlorate 25.000 250.000
10. Sulphur dioxide 20.000 500.000
11. Sulphur trioxide 15.000 100.000
12. Carbonyl chloride 0.750 0.750
13. Hydrogen Sulphide 5.000 50.000
14. Hydrogen fluoride 5.000 50.000
15. Hydrogen cyanide 5.000 20.000
16. Carbon disulphide 20.000 200.000
17. Bromine 50.000 500.000
18. Ethylene oxide 5.000 501.000
19. Propylene oxide 5.000 50.000
20. 2-Propenal (Acrolein) 20.000 200.000
21. Bromomethane (Methyl 20.000 200.000
bromide)
22. Methyl isocyanate 0.150 0.150
23. Tetraethy lead or 5.000 50.000
tetramethyl lead
24. 1,2 Dibromoethane 5.000 50.000
(Ethylene dibromide)
25. Hydrogen chloride 25.000 250.000
(liquified gas)
26. Diphenyl methane 20.000 200.000
di-isocyanate (MDI)
27. Toluene di-isocyanate 10.000 100.000
(TDI)

1. This applies to ammonium nitrate and mixtures of ammonium nitrate where the nitrogen content derived from the ammonium nitrate is greater than 28 per cent by weight and to aqueous solutions of ammonium nitrate where the

concentration of ammonium nitrate is greater than 90 per cent by weight.

2. This applies to straight ammonium nitrate fertilizer and to compound fertilizers where the nitrogen content derived from the ammonium nitrate is greater than 28 per cent by weight (a compound-fertilizer contains ammonium nitrate together with phosphate and/or potash).

SCHEDULE 11

" (See rule 13 (1)) DETAILS TO BE FURNISHED IN THE ON-SITE EMERGENCY PLAN

1. Name and address of the person furnishing the information
2. Key personnel of the organisation and responsibilities assigned to them in case of an emergency.
3. Outside organisations if involved in assisting during on-site emergency (a) Type of accidents (b) Responsibility assigned
4. Details of liaison arrangement between the organisations
5. Information on the preliminary hazard analysis
 1. Type of accidents
 2. System elements or events that can lead to a major accident
 3. Hazards
 4. Safety relevant components
6. Details about the site
 1. Location of dangerous substances
 2. Seat of key personnel
 3. Emergency control room
7. Description of hazardous chemicals at plant site
 1. Chemicals (Quantities and toxicological data)
 2. Transformation if any which could occur
 3. Purity of hazardous chemicals
8. Likely dangers to the plant
9. Enumerate effects of:
 1. stress and strain caused during normal operation;
 2. fire and explosion inside the plant and effect if any, of fire and explosion outside.
10. Details regarding

1. warning, alarm & safety and security systems.
2. alarm and hazard control plans in line with disaster control and hazard control planning, ensuring the necessary technical and organizational precautions;
3. reliable measuring instruments, control units and servicing of such equipments.
4. precautions in designing of the foundation and load bearing parts of the building.
5. continuous surveillance of operations.
6. maintenance and repair work according to the generally recognised rules of good engineering practices;
11. Details of communication facilities available during emergency and those required for an off-site emergency.
12. Details of fire fighting and other facilities available and those required for an off-site emergency.
13. Details of first aid and hospital services available and its adequacy.

SCHEDULE 12

(See rule 14 (1)" DETAILS TO BE FURNISHED IN THE OFF-SITE EMERGENCY PLAN

1. The types of accidents and release to be taken into account
2. Organisations involved including key personnel and responsibilities and liason arrangements between them.
3. Information about the site including likely locations of dangerous substances, personnel and emergency control rooms.
4. Technical information such as chemical and physical characteristics and dangers of the substances and plant.
5. Identify the facilities and transport routes.
6. Contact for further advice e.g. meteorological information, transport, temporary food and accomodation, first aid and hospital services, water and agricultural authorities.
7. Communication links including telephones, radios and standby methods.
8. Special equipment including fire fighting materials, damage control and repair items.
9. Details of emergency response procedures.
10. Notify the public.
11. Evacuation arrangements.
12. Arrangements for dealing with the press and other media interests.
13. Longer term clean up."

SCHEDULE - 5

[See Rules 2(b) and 3]

S. Authority(ies) with legal Duties and corresponding Rule
No. backing

1. Ministry of Environment and Notification of hazardous chemicals
Forests under Environment as per Rules 2(e)(i)2(e)(ii)& 2(e)
(Protection) Act, 1986 (iii)

2. Chief Controller Imports &
Exports under Import (Con-
trol) Act, 1947

3. Central Pollution Control Imports of hazardous chemicals as
Board or State Pollution per Rule 18.
Control Board under Environ- (1) Enforcement of directions and
ment (Protection) Act, 1986 procedures in respect of isol-
as the case may be ated storage of hazardous che-
micals, regarding.

i) Notification of major acci-
dents as per Rules 5(1) and
5(2)

ii) Notification of sites as per
Rules 7 to 9.

iii) Safety reports in respect of
isolated storages as per
Rule 10 to 12.

iv) Preparation of on-site
emergency plans as per Rule
13.

(2) Import of hazardous
Chemicals and enforcement of
directions and procedures on
import of hazardous
chemicals as per Rule 18.

4. Chief Inspector of Factories Enforcement of directions and
appointed under the Factories procedures in respect of
Act, 1948. industrial installations and
isolated storages covered
under the Factories Act,
1948 dealing with hazardous
chemicals and pipelines
including inter-state

pipelines regarding,-

i) Notification of major accidents as per Rules 5(1) and 5(2).

ii) Notification of sites as per Rules 7-9.

iii) Safety reports as per Rules 10 to 12.

iv) Preparation of on-site emergency plans as per Rule 13.

v) Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per Sr. No.9 of this Schedule.

5. Chief Inspector of Dock Enforcement of directions and Safety appoint under the procedures in respect of industrial Dock Workers (Safety, Health installations and isolated storages and Welfare) Act, 1986. dealing with hazardous chemicals and pipelines inside a port regarding.

i) Notification of major accidents as per Rules 5(1) and 5(2)

ii) Notification of sites as per Rules 7 to 9.

iii) Safety reports as per Rules 7 to 9.

iv) Preparation of on-site emergency plans as per Rule 13.

v) Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per S.No.9 of this Schedule.

6. Chief Inspector of Mines Enforcement of directions and appointed under the Mines procedures in respect of industrial Act, 1952. industrial installations and

isolated storages dealing with the hazardous chemicals and pipelines including inter-state pipelines regarding:-

i) Notification of major accidents as per Rule 5(1) and 5(2).

ii) Notification of sites as per Rules 7 to 9.

iii) Safety reports as per Rules 10 to 12.

iv) Preparation of on-site emergency plans as per Rules 13.

v) Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per S.No.9 of this Schedule.

7. Atomic Energy Regulatory Enforcement of directions and Board appointed under the procedures as per the provisions Atomic Energy Act, 1972. of the Atomic Energy Act, 1972.

8. Chief Controller of Explosive appointed under the (4 of 1884) and the rules made Indian Rules, 1983. thereunder, namely:-

(a) The Gas Cylinders Rules, 1981;

(b) The Static and Mobile Pressure Vessel (unfired) Rules, 1981;

(c) The Explosives Rules, 1984

ii) The Petroleum Act, 1934 (30 of 1934) and the Rules made thereunder, namely:-

(a) The Petroleum Rules, 1976

(b) The Calcium Carbide Rules, 1987.

9. District Collector or District Emergency Authority designated by the State Government. Preparation of off-site emergency plans as per Rule 14.

10. Directorate of Explosives Enforcement of directions and Safety (DES), defense Rese- procedures in respect of labor-

arch and Development Organ- atories, industrial establish-
isation (DRDO), Department ments and isolated storages
of defense Research and dealing with hazardous chemicals
Development, Ministry of in the Ministry of defense.
defense.

BACKGROUND INFORMATION

1. Ministry of Environment and Forests brought out the Environment (Protection) Act, 1986 as a sequel to the Bhopal Gas Tragedy. After considerable deliberations for nearly two years on the ways and means to control major industrial accidents, a set of rules called the Manufacture, Storage and Import of Hazardous Chemicals Rules were notified on 27th November, 1989 under the Environment (Protection) Act 1986. These rules were amended in October 1994 to widen the scope and provide for a few additional requirements. The basis of the 1989 regulation was the EEC directive 82/501/EEC of 1982 popularly known as the "Seveso" directive. As the control of industrial Major Accident Hazards (CIMAH).
2. Keeping in view the vastness and the highly populated nature of the country and multiplicity of authorities, absence of any other scheme for the control of hazardous and toxic chemicals three level of controls were prescribed in place of two level controls of chemicals and preparation of on-site emergency plans based on maximum loss scenario for units not subject to the preparation of a safety report was also introduced. With the amendments conduct of safety audit is mandatory as also mock-trial every six months.
3. The principal objectives of the rules are the prevention of major accidents arising from industrial activities, the limitation of the effects of such accidents both on man and on the environment and the harmonisation of various control measures and agencies to prevent and limit major accidents.
4. The industrial activities covered by the rules are defined in terms of processes and storages involving specified hazardous chemicals. This has, in effect, embraced most of the chemicals and petrochemical industries using substances which have hazardous, flammable, explosive, corrosive or toxic properties.
5. An important feature of the rules is that the storage of hazardous chemicals not associated with a process is treated.