

**BEFORE THE NATIONAL GREEN TRIBUNAL  
PRINCIPAL BENCH, DELHI  
Original Application No. 79/2021**

**IN THE MATTER OF:**

**In re: News item Published in The Hindu dated 14.03.2021 titled "Safety Lapses led to reactor blast at Pharma unit' before NGT (PB), New Delhi.**

**INDEX**

<b>S. No.</b>	<b>Particular</b>	<b>Page No.</b>
1.	Affidavit on behalf of Ministry of Environment, Forest and Climate Change, New Delhi.	
2.	<b>ANNEXURE-B</b> True copy of Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 (MSIHC)	
3.	<b>ANNEXURE-C</b> True copy of Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 [CAEPPR Rules, 1996	

DATED:

Counsel for MoEF&CC

**BEFORE THE NATIONAL GREEN TRIBUNAL**

**PRINCIPAL BENCH, DELHI**

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**IN THE MATTER OF:**

**In re: News item Published in The Hindu dated 14.03.2021 titled "Safety Lapses led to reactor blast at Pharma unit' before NGT (PB), New Delhi.**

**AFFIDAVIT ON BEHALF OF THE MINISTRY OF ENVIRONMENT,  
FOREST AND CLIMATE CHANGE.**

I, Dr. Dharmendra Kumar Gupta, currently working as Scientist- F/ Director (S) in the Hazardous Substances Management Division of the Ministry of Environment, Forest and Climate Change (MoEF&CC), New Delhi, do hereby solemnly affirm and state as under: -

1. That I, in my official capacity of as Scientist-F/Director (S), Hazardous Substances Management Division, Ministry of Environment, Forest and Climate Change (MoEF&CC), New Delhi one of the Respondents in the above mentioned matter, am conversant with the facts and circumstances of the case on the basis of official records available, and as such authorized and competent to swear this affidavit.
2. That the Hon'ble National Green Tribunal vide order dated has taken cognizance of a new paper article published in 'The Hindu' dated 14.03.2021 titled "Safety Lapses led to reactor blast at Pharma unit'. The industry under reference was M/s Tyche Industries Limited, Kakinada,

Andhra Pradesh. The incident of explosion of 3,000 kg reactor on March 11, 2021 resulted in death of two supervisors were killed and severe injuries to four workers.

3. That MoEF&CC is the nodal Ministry under Govt. of India mandated to take steps for pollution control and environmental conservation, among other things. To achieve its mandate, the MoEFCC administers various acts including Environment (Protection) Act, 1986
4. That two sets of rules have been notified to put in place a regulatory mechanism aimed at avoiding chemical accidents in industrial units viz. Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 [MSIHC Rules, 1989] and Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 [CAEPPR Rules, 1996]. Key responsibilities have been assigned to various State Government/ Central Government Departments under the provisions of MSIHC Rules, 1989 and CA(EPPR) Rules, 1996 with the objective to prevent major chemical accidents arising from industrial activities and limiting the effects of such accidents on human health and environment. [**Refer Annexure-A and Annexure-B**
5. That the MSIHC Rules, 1989 require the occupier to provide necessary information that is likely to cause major accidents and affect general public during a major accident at the site which include submission of information on usage/ storage/ manufacture of hazardous chemicals, seek approval of sites, prepare on-site emergency plan and safety reports, undertaking safety audits and mock-drills etc. The occupier is required to comply with above mentioned rule provisions with concerned authorities designated under Schedule-5 of the rules.

6. That to complement the provisions of MSIHC Rules, 1989, the CAEPPR Rules, 1996 provide statutory backup for setting up a Crisis Management framework and associated organizational support in the country. The Chemical Accidents (EPPR) Rules, 1996 envisage a Four-tier Crisis Management System in the country at the Central, State, District and Local levels. A Central Crisis Group has been constituted in compliance with Rule 3 under the chairmanship of Secretary (EF&CC). A Central Crisis Group Alert System I.e. Red Book has also been brought in compliance with Rule 4 to facilitate quick information exchange during chemical emergencies. The Red Book contains name, address and contact details of Central and State Nodal authorities, relevant national agencies/ institutes pertaining to chemical (industrial) disaster management. The Red Book is hosted on the website of MoEF&CC and updated annually. The last update was done in November, 2019. A virtual crisis control room is also set-up in the MoEF&CC to coordinate with State Authorities during chemical (industrial) accident emergencies.

7. That various provisions of the MSIHC Rules, 1989 are briefly described as follows:

<b>Rule</b>	<b>Heading</b>	<b>Description</b>
Rule 1	Short Title And Commencement	Manufacture, Storage and Import of Hazardous Chemical Rules, 1989
Rule 2	Definitions	Various terms used in the rules like Hazardous Chemical, industrial activity, isolated storage, import, importer, export, exporter, isolated

		storage, major accident, major accident hazard etc. have been defined.
Rule 3	Duties of Authorities	Duties of authorities are specified in Schedule 5.
Rule 4	General Responsibility Of The Occupier During Industrial Activity	Responsibility of MAH occupier defined such as:  (a) identify the major accident hazards; and  (b) take adequate steps to -  (i) prevent such major accidents and to limit their consequences to persons and the environment;  (ii) Provide to the persons working on the site with the information, training and equipment including antidotes necessary to ensure their safety.
Rule 5	Notification Of Major Accident	Occupier should notify about the major chemical accident to concerned authority and concerned authority shall undertake full analysis of accident report and sent to MoEF&CC

		as prescribed.
Rule 6	Industrial Activity To Which Rules 7 To 15 Apply	Defined industrial activity, isolated storage, new industrial activity, existing industrial activity are mentioned in rules for application of Rules 7 to 15
Rule 7	Approval and Notification Of Sites	Occupier should not undertake any industrial activity without approval of concerned authority (as per Schedule 5) and submit a written report as per the particulars specified in Schedule 7 at least 3 months before commencing the activity.
Rule 8	Updating of the site notification following changes in the threshold quantity	Any change in details submitted by occupier as per Schedule 7 is required to be updated by the way of submission of an updated report to the concerned authority.
Rule 9	Transitional Provisions	Modus of applicability of various rule provisions in respect of units operating prior to these rules as well as new industrial activity/ isolated storages
Rule 10	Safety Reports [And Safety Audit	Occupier to conduct safety audit for new and existing industrial activity

	[Reports]	and prepare a safety reports as per Schedule 8 and submit it to concerned authority
Rule 11	Updating of reports under rule 10	Occupier required to make prior reporting of the proposed modifications in an industrial activity as prescribed
Rule 12	Requirement for further information to be sent to the authority	Concerned authority may ask from occupier for additional information in industrial activity.
Rule 13	Preparation to on-site emergency plan by the occupier	Occupier should prepare and keep up-to-date 'on-site emergency plan' as specified in schedule 11.  The occupier required to ensure that a mock drill of the 'on-site emergency plan' is conducted every six months and report submit to concerned authority as per Schedule 5
Rule 14	Preparation of off-site emergency plan by the authority	District collector/ District authority should prepare and keep up-to-date 'off site emergency plan' as per format

		specified in schedule 12.
Rule 15	Information to be given to persons liable to be affected by a major accident	Occupier should inform public of the adjoining areas about the nature of the major accident hazard; and the safety measures and the "Do's" and "Don'ts" which should be adopted in the event of a major accident as prescribed
Rule 16	Disclosures of Information	Provisions on disclosure of information by concerned authority
Rule 17	Collection, Development and Dissemination of Information	The occupier should prepare and develop a safety data sheet as specified in Schedule 9 in respect of a hazardous chemical handled by him and ensure that the information is recorded accurately and reflects the scientific evidence used in making the hazard determination.  Container of hazardous chemical should be clearly labelled as specified under rule.
Rule 18	Import of Hazardous Chemicals	Any person responsible for importing hazardous chemicals in India should provide prior-information specified under the rule to the concerned

		<p>authorities prescribed under the rules.</p> <p>Any person importing hazardous chemicals should maintain the records of the hazardous chemicals imported as specified in Schedule 10 and the records can be checked by the concerned authority</p>
Rule 19	Improvement Notices	Concerned authority may serve the improvement notice to occupier in case of violation of rules
Rule 20	Power of the Central Government to modify the schedules	The Central Government may, at any time, by notification in the Official Gazette, make suitable changes in the Schedules.

8. That various provisions of the CA(EPPR) Rules, 1996 are briefly described as follows:

Rule	Heading	Description
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Rule 1	Short Title And Commencement	Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996
Rule 2	Definitions	Various definition viz. Chemical accident, industrial pocket, major chemical accident, industrial activity, hazardous chemical etc. has been given in the mentioned rule.
Rule 3	Constitution Of Central Crisis Group	Provision of constitution of CCG for management of chemical accident and functions.
Rule 4	Setting up of Crisis Alert System	Provision of setting up a functional crisis control room, information networking system with the State Governments under Crisis Alrest System.
Rule 5	Functions of the Central Crisis Group	Defined responsibilities of CCG/provide expert guidance for handling chemical accidents.
Rule 6	Constitution Of State Crisis Group	Provisions enabling the State Government to constitute a State Crisis Group for management of chemical accidents

Rule 7	Functions of the State Crisis Group	Defined responsibilities of SCG/ to deal with chemical accidents and coordinate efforts in planning, preparedness and mitigation of a chemical accident
Rule 8	Constitution of the District And Local Crisis Group	The State Government constitute a District and Local Crisis Group for management of chemical accidents
Rule 9	Functions Of The District Crisis Group	Apex body in the district to deal with major chemical accidents and to provide expert guidance for handling chemical accidents
Rule 10	Functions Of The Local Crisis Group	To deal with chemical accidents and coordinate efforts in planning, preparedness and mitigation. of a chemical accident
Rule 11	Powers of the members of the Central, State And District Crisis Groups	The Members of the Central Crisis Group, State Crisis Groups and District Crisis Groups shall be deemed to be persons empowered by the Central Government in this behalf under sub-section (1) of section 10 of the Environment (Protection) Act, 1986

Rule 12	Aid And assistance for the functioning of the District and Local Crisis Groups	Major Accident Hazard installations provide aid, assist and facilitate functioning of the District Crisis Group and Local Crisis Group.
Rule 13	Information to the Public	CCG, SCG, LCG provide information on request regarding chemical accident prevention, preparedness and mitigation in the country, state and industrial pocket respectively.

9. That to prevent chemical (industrial) accidents in the country, the concerned Central/ State authorities have been delegated responsibilities as per Schedule 5 of the MSIHC Rules, 1989 wherein Petroleum and Explosives Safety Organization (PESO), has been made the nodal agency to approve and notify the sites of pipelines carrying hazardous chemicals including inter-state pipelines. The PESO has also been mandated to accept On-site Emergency Plans, review the safety reports and safety audit reports submitted by occupiers. PESO is also mandated to enforce directions and procedures under the Explosives Act, 1884 as well as the Petroleum Act, 1934.

10. That the PESO, while giving approvals to industrial units, transportation pipelines and isolated storage are expected to ensure preparation of on-site emergency plans & safety reports by units, reviewing the details of mock-drills conducted and implementation of Standard Operating

Procedures (SOPs) of industrial operation by the unit from industrial safety point of view.

11.It is respectfully submitted that in view of the above submissions, this Hon'ble Tribunal may pass such order(s) as deemed fit and proper in the facts and circumstances of the case.



**DEPONENT**

(डा. धर्मेन्द्र कुमार गुप्ता)  
(Dr. DHARMENDRA K. GUPTA)  
वैज्ञानिक 'एफ' /Scientist 'F'  
पर्यावरण, वन एवं जलवायु परिवर्तन विभाग  
Min.of Environment,Forest and Climate Change  
भारत सरकार, नई दिल्ली  
Govt. of India, New Delhi

**VERIFICATION:**

Verified at on this day of 2021 that the contents of the above affidavit are true and correct to my knowledge and as per official records maintained in the routine course of business. No part of the above affidavit is false and nothing material has been concealed there from.



**DEPONENT**

(डा. धर्मेन्द्र कुमार गुप्ता)  
(Dr. DHARMENDRA K. GUPTA)  
वैज्ञानिक 'एफ' /Scientist 'F'  
पर्यावरण, वन एवं जलवायु परिवर्तन विभाग  
Min.of Environment,Forest and Climate Change  
भारत सरकार, नई दिल्ली  
Govt. of India, New Delhi

**THE MANUFACTURE, STORAGE  
AND IMPORT OF HAZARDOUS  
CHEMICAL RULES, 1989**

(As amended to date)

**THE MANUFACTURE, STORAGE AND IMPORT OF  
HAZARDOUS CHEMICAL RULES, 1989**

**MINISTRY OF ENVIRONMENT & FORESTS**

(Department of Environment, Forests and Wildlife)

**NOTIFICATION**

New Delhi, the 27<sup>th</sup> November 1989

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

**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, -

- (a) "Act" means the Environment (Protection) Act, 1986 (29 of 1986);
- (b) "Authority" means an authority mentioned in Column 2 of Schedule 5;
- (c) "export" with its grammatical variations and cognate expression, means taking out of India to a place outside India;
- (d) "exporter" means any person under the jurisdiction of the exporting country and includes the exporting country, who exports hazardous chemical;
- (e) "Hazardous Chemical " means -
  - (i) any chemical which satisfies any of the criteria laid down in Part I of <sup>1</sup>[Schedule 1 or] listed in Column 2 of Part II of this Schedule ;
  - (ii) any chemical listed in Column 2 of Schedule 2;
  - (iii) any chemical listed in Column 2 of Schedule 3;

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\* The principal rules were published in the Gazette of India vide number S.O. 966(E), dated 27.11.1989 and subsequently amended vide: S.O.115 (E), dated 05.02.1990; GSR 584, dated 09.09.1990; S.O.2882, dated 03.10.1994; and S.O. 57(E), dated 19.01.2000.

<sup>1</sup> Substituted by Rule 2(i) of the Manufacture, Storage and Import of Hazardous Chemical(Amendment) Rules, 2000 notified vide S.O. 57(E), dated 19.1.2000.

- (f) "import" with its grammatical variations and cognate expression, means bringing into India from a place outside India;
- (g) "importer" means an occupier or any person who imports hazardous chemicals;
- (h) "industrial activity" means-
  - i. 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
  - ii. isolated storage; or
  - iii. pipeline ;
- (i) "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 atleast the quantities of that chemical set out in Schedule 2;
- <sup>1</sup>[(j) "major accident" means -an incident involving loss of life inside or outside the installation, or ten or more injuries inside and/or one or more injuries outside or release of toxic chemicals or explosion or fire or spillage of hazardous chemicals resulting in on-site or off-site emergencies or damage to equipment leading to stoppage of process or adverse affects to the environment ;
- (ja) "major accident hazards (MAH) installations" means - isolated storage and industrial activity at a site handling (including transport through carrier or pipeline) of hazardous chemicals equal to or, in excess of the threshold quantities specified in, Column 3 of schedule 2 and 3 respectively; ]
- (k) "pipeline" means a pipe (together with any apparatus and works associated therewith) or system of pipes (together with any

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<sup>1</sup> Substituted by Rule 2(ii) of the Manufacture, Storage and Import of Hazardous Chemical (Amendment)Rules, 2000 notified vide S.O.57(E), dated 19<sup>th</sup> January, 2000.

apparatus and work 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 inter - state pipelines;

- (l) "Schedule" means Schedule appended to these rules;
- (m) "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;
- (n) "Threshold quantity" means, -
  - (i) 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 and 4 ;
  - (ii) in the case of a hazardous chemical specified in Column 2 of Part I of Schedule 3, the quantity of that chemical specified in the corresponding entry in Columns 3 & 4 of that part;
  - (iii) in the case of substances of a class specified in Column 2 of Part II of Schedule 3, the total quantity of all substances of that class specified in the corresponding entry in Columns 3 and 4 of that part.

### <sup>1</sup>[3. DUTIES OF AUTHORITIES –

The concerned authority shall, -

- (a) inspect the industrial activity at least once in a calendar year;
- (b) except where such authority is the Ministry of Environment and Forests, annually report on the compliance of the rules by the occupiers to the Ministry of Environment and Forests through appropriate channel ;

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<sup>1</sup> Substituted by Rule 2 of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

- (c) 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) these rules shall apply to, -

- (a) an industrial activity in which a hazardous chemical, which satisfies any of the criteria laid down in Part I of Schedule 1 <sup>1</sup>[or listed] in Column 2 of Part II of this Schedule is, or may be, involved; and

<sup>2</sup>[(b) isolated storage of a hazardous chemical listed in Schedule 2 in a quantity equal to or more than the threshold quantity specified 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, -

- (a) identified the major accident hazards; and
- (b) taken adequate steps to -
- (i) prevent such major accidents and to limit their consequences to persons and the environment;
- (ii) provide to the persons working on the site with the information, training and equipment including antidotes necessary to ensure their safety.

#### **4. NOTIFICATION OF MAJOR ACCIDENT -**

(1) Where a major accident occurs on a site or in a pipe line, the occupier shall <sup>3</sup>[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 installments, 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 sent the <sup>4</sup>[requisite information within 90 days to the Ministry] of Environment and Forests through appropriate channel.

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<sup>1</sup> Substituted by Rule 3(i) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

<sup>2</sup> Substituted by Rule 3(ii), *ibid.*

<sup>3</sup> Substituted by Rule 3(a) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

<sup>4</sup> Substituted by Rule 3(b) *ibid.*

<sup>1</sup>[(3) An occupier shall notify to the concerned Authority, steps taken to avoid any repetition of such occurrence on a site.]

<sup>2</sup>[(4) The concerned Authority shall compile information regarding major accidents and make available a copy of the same to the Ministry of Environment & Forests 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, -

- (a) an industrial activity in which there is involved a quantity of 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 Column 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 <sup>3</sup>[3 & 4 (rules 10-12 only for column 4).]

(2) For the purpose of rules 7 to 15,

- (a) "new industrial activity" means an industrial activity which, –
  - (i) commences after the date of coming into operation of these rules; or
  - (ii) 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;

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<sup>1</sup> Substituted by Rule 3(c) of the Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 1994 notified vide S.O. No.2882, dated 3.10.1994.

<sup>2</sup> Inserted by Rule 3(d); *ibid.*

<sup>3</sup> Substituted by Rule 4; *ibid.*

- (b) an "existing industrial activity" means an industrial activity which is not a new industrial activity.

## **7. <sup>1</sup>[APPROVAL AND] NOTIFICATION OF SITES -**

(1) An occupier shall not undertake any industrial activity <sup>2</sup>[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.

<sup>3</sup>(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 QUANTITY -**

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 PROVISIONS-**

**Where. –**

- (a) 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

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<sup>1</sup> Substituted by Rule 5 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

<sup>2</sup> Substituted by Rule 4 (a) of MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

<sup>3</sup> Substituted by Rule 4(b), *ibid.*

- (b) within 6 months after that date, an occupier commence 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 <sup>1</sup>[AND SAFETY AUDIT REPORTS] -**

(1) Subjects 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 (1) 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.

<sup>2</sup>[(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 commencement of the Manufacture, Storage and Import of Hazardous Chemicals (Amendment) Rules, 1994 to the concerned Authority.]

<sup>3</sup>[(4) After the commencement of the Manufacture, Storage and Import of Hazardous Chemicals (Amendment) Rules, 1994, the occupier 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.]

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<sup>1</sup> Substituted by Rule 6 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

<sup>2</sup> Substituted by Rule 5(a) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

<sup>3</sup> Inserted by Rule 5(b), *ibid.*

<sup>1</sup>[(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 and 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 pervious report relating to safety and hazard assessment and shall within 30 days <sup>2</sup>[\*\*\*] send a copy of the report to the concerned authority.

## **<sup>3</sup>[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 TO ON-SITE EMERGENCY PLAN BY THE OCCUPIER -**

(1) An occupier shall prepare and keep up-to-date <sup>4</sup>[an on-site emergency plan containing details specified in Schedule II and detailing] how major accidents will be dealt with on the site on which the industrial activity is carried

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<sup>1</sup> Inserted by Rule 5(b) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

<sup>2</sup> Omitted by Rule 6, *ibid.*

<sup>3</sup> Substituted by Rule 7, *ibid.*

<sup>4</sup> Substituted by Rule 8(a), *ibid.*

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 authorized 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 provisions.

(3) The occupier shall prepare the emergency plan required under sub-rule (1),-

(a) in the case of a new industrial activity, before that activity is commenced;

(b) in the case of an existing industrial activity within 90 days of commencing into operation of these rules.

<sup>1</sup>[(4) The occupier shall ensure that a mock drill of the on-site emergency plan is conducted every six months;

(5) A detailed report of the mock drill conducted under sub-rule (4) shall be made immediately available to the concerned Authority.]

#### **14. PREPARATION OF OFF-SITE EMERGENCY PLAN 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 <sup>2</sup>[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 effects off-site of possible major accidents and the authority shall

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<sup>1</sup> Inserted by Rule 8(b) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

<sup>2</sup> Substituted by Rule 9 (a), *ibid.*

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),-

- (a) In the case of a new industrial activity, before that activity is commenced;
- (b) In the case of an existing industrial activity, within six months of coming into operation to these rules.

<sup>1</sup>[(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 persons 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, -

- (a) the nature of the major accident hazard; and
- (b) the safety measures and the "Do's" and "Don'ts" which should be adopted in the event of a major accident.

(2) The occupier shall take steps required under sub-rule (1) to inform persons 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 sub-rule (1) within 90 days of coming into operation of these rules.

#### **16. DISCLOSURES OF INFORMATION -**

Where for the purpose of evaluating information notified under rule 5 or 7 to 15, the concerned authority discloses 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.

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<sup>1</sup> Inserted by Rule 9(b) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

## 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 I of Schedule 1<sup>1</sup>[or 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 -

- (a) the contents of the container ;
- (b) the name and address of manufacturer or importer of the hazardous chemical ;
- (c) 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 impracticable 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<sup>2</sup>[or listed] in Column 2 of Part II of this Schedule.

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<sup>1</sup> Substituted by Rule 7 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

<sup>2</sup> Substituted by Rule 8(a), *ibid.*

(2) Any person responsible for importing hazardous chemicals in India shall provide <sup>1</sup>[before 30 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, -

- (i) the name and address of the person receiving the consignment in India;
- (ii) the port of entry in India;
- (iii) mode of transport from the exporting country to India;
- (iv) the quantity of chemical (s) being imported; and
- (v) complete product safety information.

<sup>2</sup>(3) If the Concerned Authority of the State is satisfied that the chemical being imported is likely to cause major accidents, it may direct the importer to take such safety measures as the concerned Authority of the State may deem appropriate.]

<sup>3</sup>[(3A) In 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 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 importer of the hazardous chemical or a 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 provisions of the Motor Vehicles Act, 1988.

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<sup>1</sup> Substituted by Rule 10(a) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

<sup>2</sup> Substituted by Rule 10(b), *ibid.*

<sup>3</sup> Inserted by Rule 10(c), *ibid.*

**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, <sup>1</sup>[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 SCHEDULES -**

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

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<sup>1</sup> Substituted by Rule 11 of MSIHC Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

<sup>1</sup>[SCHEDULE 1]

[See rule 2e (i), 4 (1)(a), 4(2), 17 and 18]

**[Part -I]**

- (a) **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:

S.No.	Toxicity	Oral toxicity LD <sub>50</sub> (mg/kg)	Dermal toxicity LD <sub>50</sub> (mg/kg)	Inhalation toxicity LC <sub>50</sub> (mg/l)
1.	Extremely toxic	>5	<40	<0.5
2.	Highly toxic	>5-50	>40-200	<0.5-2.0
3.	Toxic	>50-200	>200-1000	>2-10

- (b) **Flammable Chemicals** :

- (i) flammable gases: Gases which at 20°C and at standard pressure of 101.3KPa are :-

- (a) ignitable when in a mixture of 13 percent or less by volume with air, or ;
- (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limits.

**Note** : The flammability shall be determined by tests or by calculation in accordance with methods adopted by International Standards Organization ISO Number 10156 of 1990 or by Bureau of Indian Standard ISI Number 1446 of 1985.

- (ii) **extremely flammable liquids** : chemicals which have flash point lower than or equal to 23°C and boiling point less than 35°C.
- (iii) **very highly flammable liquids** : chemicals which have a flash point lower than or equal to 23°C and initial boiling point higher than 35°C.

<sup>1</sup> Substituted by Rule 9 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

- (iv) **highly flammable liquids** : chemicals which have a flash point lower than or equal to 60°C but higher than 23°C.
- (v) **flammable liquids** : chemicals which have a flash point higher than 60°C but lower than 90°C.
- (c) **Explosives** : explosives mean a solid or liquid or pyrotechnic substance (or a mixture of substances) or an article.
  - (a) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings ;
  - (b) which is designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative self sustaining exothermic chemical reaction.

**PART II**  
**LIST OF HAZARDOUS AND TOXIC CHEMICALS**

S. No.	NAME OF HAZARDOUS CHEMICALS	S. No.	NAME OF HAZARDOUS CHEMICALS
1.	Acetaldehyde	41.	Antimycin A
2.	Acetic acid	42.	ANTU
3.	Acetic anhydride	43.	Arsenic pentoxide
4.	Acetone	44.	Arsenic trioxide
5.	Acetone cyanohydrin	45.	Arsenous trichloride
6.	Acetone thiosemicarbazide	46.	Arsine
7.	Acetonitrile	47.	Asphalt
8.	Acetylene	48.	Azinpho-ethyl
9.	Acetylene tetra chloride	49.	Azinphos methyl
10.	Acrolein	50.	Bacitracin
11.	Acrylamide	51.	Barium azide
12.	Acrylonitrile	52.	Barium nitrate
13.	Adiponitrile	53.	Barium nitride
14.	Aldicarb	54.	Benzal chloride
15.	Aldrin	55.	Benzenamine,3-Trifluoromethyl
16.	Allyl alcohol	56.	Benzene
17.	Allyl amine	57.	Benzene sulfonyl chloride
18.	Allyl chloride	58.	Benzene. 1- (chloromethyl)-4 Nitro
19.	Aluminium (powder)	59.	Benzene arsenic acid
20.	Aluminium azide	60.	Benzidine
21.	Aluminium borohydride	61.	Benzidine salts
22.	Aluminium chloride	62.	Benzimidazole. 4, 5-Dichloro-2 (Trifluoromethyl)
23.	Aluminium fluoride	63.	Benzoquinone-P
24.	Aluminium phosphide	64.	Benzotrichloride
25.	Amino diphenyl	65.	Benzoyl chloride
26.	Amino pyridine	66.	Benzoyl peroxide
27.	Aminophenol-2	67.	Benzyl chloride
28.	Aminopterin	68.	Beryllium (Powder)
29.	Amiton	69.	Bicyclo (2, 2, 1) Heptane -2- carbonitrile
30.	Amiton dialate	70.	Biphenyl
31.	Ammonia	71.	Bis (2-Chloroethyl) sulphide
32.	Ammonium chloro platinite	72.	Bis (Chloromethyl) Ketone
33.	Ammonium nitrate	73.	Bis (Tert-butyl peroxy) cyclohexane
34.	Ammonium nitrite	74.	Bis (Terbutylperoxy) butane
35.	Ammonium picrate	75.	Bis(2,4, 6-Trinitrophenylamine)
36.	Anabasine	76.	Bis (Chloromethyl) Ether
37.	Aniline	77.	Bismuth and compounds
38.	Aniline 2,4, 6-Trimethyl	78.	Bisphenol-A
39.	Anthraquinone	79.	Bitoscanate
40.	Antimony pentafluoride		

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|------|--|------|------------------------------------|
| 80.  | Boron Powder                                     | 124. | Chloroacetal chloride              |
| 81.  | Boron trichloride                                | 125. | Chloroacetaldehyde                 |
| 82.  | Boron trifluoride                                | 126. | Chloroaniline -2                   |
| 83.  | Boron trifluoride comp.<br>With methylether, 1:1 | 127. | Chloroaniline -4                   |
| 84.  | Bromine  | 128. | Chlorobenzene                      |
| 85.  | Bromine pentafluoride                            | 129. | Chloroethyl chloroformate          |
| 86.  | Bromo chloro methane                             | 130. | Chloroform                         |
| 87.  | Bromodialone                                     | 131. | Chloroformyl morpholine            |
| 88.  | Butadiene  | 132. | Chloromethane                      |
| 89.  | Butane   | 133. | Chloromethyl methyl ether          |
| 90.  | Butanone-2                                       | 134. | Chloronitrobenzene                 |
| 91.  | Butyl amine tert                                 | 135. | Chlorophacinone                    |
| 92.  | Butyl glycidal ether                             | 136. | Chlorosulphonic acid               |
| 93.  | Butyl isovalarate                                | 137. | Chlorothiophos                     |
| 94.  | Butyl peroxy maleate tert                        | 138. | Chloroxuron                        |
| 95.  | Butyl vinyl ether                                | 139. | Chromic acid                       |
| 96.  | Butyl-n-mercaptan                                | 140. | Chromic chloride                   |
| 97.  | C.I.Basic green                                  | 141. | Chromium powder                    |
| 98.  | Cadmium oxide                                    | 142. | Cobalt carbonyl                    |
| 99.  | Cadmium stearate                                 | 143. | Cobalt Nitrimethylidyne compound   |
| 100. | Calcium arsenate                                 | 144. | Cobalt (Powder)                    |
| 101. | Calcium carbide                                  | 145. | Colchicine                         |
| 102. | Calcium cyanide                                  | 146. | Copper and Compounds               |
| 103. | Camphchlor (Toxaphene)                           | 147. | Copperoxychloride                  |
| 104. | Cantharidin                                      | 148. | Coumafuryl                         |
| 105. | Captan   | 149. | Coumaphos                          |
| 106. | Carbachol chloride                               | 150. | Coumatetrayl                       |
| 107. | Carbaryl   | 151. | Crimidine                          |
| 108. | Carbofuran (Furadan)                             | 152. | Crotenaldehyde                     |
| 109. | Carbon tetrachloride                             | 153. | Crotonaldehyde                     |
| 110. | Carbon disulphide                                | 154. | Cumene                             |
| 111. | Carbon monoxide                                  | 155. | Cyanogen bromide                   |
| 112. | Carbonphenothion                                 | 156. | Cyanongen iodide                   |
| 113. | Carvone  | 157. | Cyanophos                          |
| 114. | Cellulose nitrate                                | 158. | Cyanothoate                        |
| 115. | Chloroacetic acid                                | 159. | Cyanuric fluoride                  |
| 116. | Chlordane  | 160. | Cyclo hexylamine                   |
| 117. | Chlorofenvinphos                                 | 161. | Cyclohexane                        |
| 118. | Chlorinated benzene                              | 162. | Cyclohexanone                      |
| 119. | Chlorine   | 163. | Cycloheximide                      |
| 120. | Chlorine oxide                                   | 164. | Cyclopentadiene                    |
| 121. | Chlorine trifluoride                             | 165. | Cyclopentane                       |
| 122. | Chlormephos                                      | 166. | Cyclotetramethyl enetetranitramine |
| 123. | Chlormequat chloride                             | 167. | Cyclotrimethylen<br>etrinnitranine |

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|------|--|------|--|
| 168. | Cypermethrin                               | 209. | Dimethyl nitrosoamine                        |
| 169. | DDT  | 210. | Dimethyl P phenylene diamine                 |
| 170. | Decaborane (1 :4)                          | 211. | Dimethyl phosphoramidi cyanidic acid (TABUM) |
| 171. | Demeton                                    | 212. | Dimethyl phosphorochloridothioate            |
| 172. | Demeton S-Methyl                           | 213. | Dimethyl sulfolane (DMS)                     |
| 173. | Di-n-propyl peroxydicarbonate (Conc = 80%) | 214. | Dimethyl sulphide                            |
| 174. | Dialifos                                   | 215. | Dimethylamine                                |
| 175. | Diazodinitrophenol                         | 216. | Dimethylaniline                              |
| 176. | Dibenzyl peroxydicarbonate (Conc >= 90%)   | 217. | Dimethylcarbonyl chloride                    |
| 177. | Diborane                                   | 218. | Dimetilan                                    |
| 178. | Dichloroacetylene                          | 219. | Dinitro O-cresol                             |
| 179. | Dichlorobenzalkonium chloride              | 220. | Dinitrophenol                                |
| 180. | Dichloroethyl ether                        | 221. | Dinitrotoluene                               |
| 181. | Dichloromethyl phenylsilane                | 222. | Dinoseb                                      |
| 182. | Dichlorophenol – 2, 6                      | 223. | Diniterb                                     |
| 183. | Dichlorophenol – 2, 4                      | 224. | Dioxane-p                                    |
| 184. | Dichlorophenoxy acetic acid                | 225. | Dioxathion                                   |
| 185. | Dichloropropane – 2, 2                     | 226. | Dioxine N                                    |
| 186. | Dichlorosalicylic acid-3, 5                | 227. | Diphacinone                                  |
| 187. | Dichlorvos (DDVP)                          | 228. | Diphosphoramidate octamethyl                 |
| 188. | Dicrotophos                                | 229. | Diphenyl methane di-isocyanate (MDI)         |
| 189. | Dieldrin                                   | 230. | Dipropylene Glycol Butyl ether               |
| 190. | Diepoxy butane                             | 231. | Dipropylene glycolmethyl ether               |
| 191. | Diethyl carbamazine citrate                | 232. | Disec-butyl peroxydicarbonate (Conc.>80%)    |
| 192. | Diethyl chlorophosphate                    | 233. | Disufoton                                    |
| 193. | Diethyl ethtanolamine                      | 234. | Dithiazamine iodide                          |
| 194. | Diethyl peroxydicarbonate (Conc=30%)       | 235. | Dithiobiurate                                |
| 195. | Diethyl phenylene diamine                  | 236. | Endosulfan                                   |
| 196. | Diethylamine                               | 237. | Endothion                                    |
| 197. | Diethylene glycol                          | 238. | Endrin                                       |
| 198. | Diethylene glycol dinitrate                | 239. | Epichlorohydrine                             |
| 199. | Diethylene triamine                        | 240. | EPN  |
| 200. | Diethleneglycol butyl ether                | 241. | Ergocalciferol                               |
| 201. | Diglycidyl ether                           | 242. | Ergotamine tartarate                         |
| 202. | Digitoxin                                  | 243. | Ethanesulfenyl chloride, 2 chloro            |
| 203. | Dihydroperoxypropane (Conc >=30%)          | 244. | Ethanol 1-2 dichloracetate                   |
| 204. | Diisobutyl peroxide                        | 245. | Ethion                                       |
| 205. | Dimefox                                    | 246. | Ethoprophos                                  |
| 206. | Dimethoate                                 | 247. | Ethyl acetate                                |
| 207. | Dimethyl dichlorosilane                    | 248. | Ethyl alcohol                                |
| 208. | Dimethyl hydrazine                         | 249. | Ethyl benzene                                |
|      |  | 250. | Ethyl bis amine                              |

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|------|--|------|---|
| 251. | Ethyl bromide                                | 292. | Furan                                       |
| 252. | Ethyl carbamate                              | 293. | Gallium Trichloride                         |
| 253. | Ethyl ether                                  | 294. | Glyconitrile (Hydroxyacetonitrile)          |
| 254. | Ethyl hexanol -2                             | 295. | Guanyl-4-nitrosaminoguynyl-1-tetrazene      |
| 255. | Ethyl mercaptan                              | 296. | Heptachlor                                  |
| 256. | Ethyl mercuric phosphate                     | 297. | Hexamethyl terta-oxyacyclononate (Conc 75%) |
| 257. | Ethyl methacrylate                           | 298. | Hexachlorobenzene                           |
| 258. | Ethyl nitrate                                | 299. | Hexachlorocyclohexan (Lindane)              |
| 259. | Ethyl thiocyanate                            | 300. | Hexachlorocyclopentadiene                   |
| 260. | Ethylamine                                   | 301. | Hexachlorodibenzo-p-dioxin                  |
| 261. | Ethylene                                     | 302. | Hexachloronaphthalene                       |
| 262. | Ethylene chlorohydrine                       | 303. | Hexafluoropropanone sesquihydrate           |
| 263. | Ethylene dibromide                           | 304. | Hexamethyl phosphoromide                    |
| 264. | Ethylene diamine                             | 305. | Hexamethylene diamine N N dibutyl           |
| 265. | Ethylene diamine hydrochloride               | 306. | Hexane                                      |
| 266. | Ethylene flourohydrine                       | 307. | Hexanitrostilbene 2, 2, 4, 4, 6, 6          |
| 267. | Ethylene glycol                              | 308. | Hexene                                      |
| 268. | Ethylene glycol dinitrate                    | 309. | Hydrogen selenide                           |
| 269. | Ethylene oxide                               | 310. | Hydrogen sulphide                           |
| 270. | Ethylenimine                                 | 311. | Hydrazine                                   |
| 271. | Ethylene di chloride                         | 312. | Hydrazine nitrate                           |
| 272. | Femamiphos                                   | 313. | Hydrochloric acid (Gas)                     |
| 273. | Femitrothion                                 | 314. | Hydrogen                                    |
| 274. | Fensulphothion                               | 315. | Hydrogen bromide                            |
| 275. | Fluemetil                                    | 316. | Hydrogen cyanide                            |
| 276. | Fluorine                                     | 317. | Hydrogen fluoride                           |
| 277. | Fluoro2-hyrdoxy butyric acid amid salt ester | 318. | Hydrogen peroxide                           |
| 278. | Fluoroacetamide                              | 319. | Hydroquinone                                |
| 279. | Fluoroacetic acid amide salts and esters     | 320. | Indene                                      |
| 280. | Fluoroacetylchloride                         | 321. | Indium powder                               |
| 281. | Fluorobutyric acid amide salt esters         | 322. | Indomethacin                                |
| 282. | Fluorocrotonic acid amides salts esters      | 323. | Iodine                                      |
| 283. | Fluorouracil                                 | 324. | Iridium tetrachloride                       |
| 284. | Fonofos                                      | 325. | Ironpentacarbonyl                           |
| 285. | Formaldehyde                                 | 326. | Iso benzan                                  |
| 286. | Formetanate hydrochloride                    | 327. | Isoamyl alcohol                             |
| 287. | Formic acid                                  | 328. | Isobutyl alcohol                            |
| 288. | Formoparanate                                | 329. | Isobutyro nitrile                           |
| 289. | Formothion                                   | 330. | Isocyanic acid 3, 4-dichlorophenyl ester    |
| 290. | Fosthiotan                                   | 331. | Isodrin                                     |
| 291. | Fuberidazole                                 |      |   |

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|------|---|------|---|
| 332. | Isofluorophosphate                            | 373. | Methoxy ethanol (2-methyl cellosolve)   |
| 333. | Isophorone diisocyanate                       | 374. | Methoxyethyl mercuric acetate           |
| 334. | Isopropyl alcohol                             | 375. | Methacryloyl chloride                   |
| 335. | Isopropyl chlorocarbonate                     | 376. | Methyl 2-chloroacrylate                 |
| 336. | Isopropyl formate                             | 377. | Methyl alcohol                          |
| 337. | Isopropyl methyl pyrazolyl dimethyl carbamate | 378. | Methyl amine                            |
| 338. | Juglone (5-Hydroxy Naphthalene-1,4 dione)     | 379. | Methyl bromide (Bromomethane)           |
| 339. | Ketene  | 380. | Methyl chloride                         |
| 340. | Lactonitrile                                  | 381. | Methyl chloroform                       |
| 341. | Lead arsenite                                 | 382. | Methyl chloroformate                    |
| 342. | Lead at high temp (molten)                    | 383. | Methyl cyclohexene                      |
| 343. | Lead azide                                    | 384. | Methyl disulphide                       |
| 344. | Lead styphanate                               | 385. | Methyl ethyl ketone peroxide (Conc.60%) |
| 345. | Leptophos                                     | 386. | Methyl formate                          |
| 346. | Lenisite                                      | 387. | Methyl hydrazine                        |
| 347. | Liquified petroleum gas                       | 388. | Methyl isobutyl ketone                  |
| 348. | Lithium hydride                               | 389. | Methyl isocyanate                       |
| 349. | N-Dinitrobenzene                              | 390. | Methyl isothiocyanate                   |
| 350. | Magnesium powder or ribbon                    | 391. | Methyl mercuric dicyanamide             |
| 351. | Malathion                                     | 392. | Methyl Mercaptan                        |
| 352. | Maleic anhydride                              | 393. | Methyl Methacrylate                     |
| 353. | Malononitrile                                 | 394. | Methyl phencapton                       |
| 354. | Manganese Tricarbonyl cyclopentadiene         | 395. | Methyl phosphonic dichloride            |
| 355. | Mechlor ethamine                              | 396. | Methyl thiocyanate                      |
| 356. | Mephospholan                                  | 397. | Methyl trichlorosilane                  |
| 357. | Mercuric chloride                             | 398. | Methyl vinyl ketone                     |
| 358. | Mercuric oxide                                | 399. | Methylene bis (2-chloroaniline)         |
| 359. | Mercury acetate                               | 400. | Methylene chloride                      |
| 360. | Mercury fulminate                             | 401. | Methylenebis-4,4(2-chloroaniline)       |
| 361. | Mercury methyl chloride                       | 402. | Metolcarb                               |
| 362. | Mesitylene                                    | 403. | Mevinphos                               |
| 363. | Methacrolein diacetate                        | 404. | Mezcarb                                 |
| 364. | Methacrylic anhydride                         | 405. | Mitomycin C                             |
| 365. | Methacrylonitrile                             | 406. | Molybdenum powder                       |
| 366. | Methacryloyl oxyethyl isocyanate              | 407. | Monocrotophos                           |
| 367. | Methanidophos                                 | 408. | Morpholine                              |
| 368. | Methane                                       | 409. | Muscinol                                |
| 369. | Methanesulphonyl fluoride                     | 410. | Mustard gas                             |
| 370. | Methidathion                                  | 411. | N-Butyl acetate                         |
| 371. | Methiocarb                                    | 412. | N.-Butyl alcohol                        |
| 372. | Methonyl                                      | 413. | N-Hexane                                |
|      |   | 414. | N- Methyl-N, 2, 4, 6-Tetranitroaniline  |

415. Naphtha  
416. Nephtha solvent  
417. Naphthalene  
418. Naphthyl amine  
419. Nickel carbonyl/nickel tetracarbonyl  
420. Nickel powder  
421. Nicotine  
422. Nicotine sulphate  
423. Nitric acid  
424. Nitric oxide  
425. Nitrobenzene  
426. Nitrocellulose (dry)  
427. Nitrochlorobenzene  
428. Nitrocyclohexane  
429. Nitrogen  
430. Nitrogen dioxide  
431. Nitrogen oxide  
432. Nitrogen trifluouide  
433. Nitroglycerine  
434. Nitropropane-1  
435. Nitropropane-2  
436. Nitroso dimethyl amine  
437. Nonane  
438. Norbormide  
439. O-Cresol  
440. O-Nitro Toluene  
441. O-Toludine  
442. O-Xylene  
443. O/P Nitroaniline  
444. Oleum  
445. OO Diethyl S ethyl suph. methyl phos  
446. OO Diethyl S propythio methyl phosdithioate  
447. OO Diethyl s ethylsulphinyl methylphosphorothioate  
448. OO Diethyl s ethylsulphonyl methylphosphorothioate  
449. OO Diethyls ethylthiomethylphospho-rothioate  
450. Organo rhodium complex  
451. Orotic acid  
452. Osmium tetroxide  
453. Oxabain  
454. Oxamyl  
455. Oxetane, 3, 3-bis(chloromethyl)  
456. Oxidiphenoxarsine  
457. Oxy disulfoton  
458. Oxygen (liquid)  
459. Oxygen difluoride  
460. Ozone  
461. P-nitrophenol  
462. Paraffin  
463. Paraoxon (Diethyl 4 Nitrophenyl phosphate)  
464. Paraquat  
465. Paraquat methosulphate  
466. Parathion  
467. Parathion methyl  
468. Paris green  
469. Penta borane  
470. Penta chloro ethane  
471. Penta chlorophenol  
472. Pentabromophenol  
473. Pentachloro naphthalene  
474. Pentadecyl-amine  
475. Pentaerythaiotol tetranitrate  
476. Pentane  
477. Pentanone  
478. Perchloric acid  
479. Perchloroethylene  
480. Peroxyacetic acid  
481. Phenol  
482. Phenol, 2, 2-thiobis (4, 6-Dichloro)  
483. Phenol, 2, 2-thiobis (4 chloro 6-methyl phenol)  
484. Phenol, 3-(1-methyl ethyl) methylcarbamate  
485. Phenyl hydrazine hydrochloride  
486. Phenyl mercury acetate  
487. Phenyl silatrane  
488. Phenyl thiourea  
489. Phenylene P-diamine  
490. Phorate  
491. Phosazetin  
492. Phosfolan  
493. Phosgene  
494. Phosmet  
495. Phosphamidon

- |      |  |      |                                      |
|------|--|------|--------------------------------------|
| 496. | Phosphine                                      | 535. | Propionitrile                        |
| 497. | Phosphoric acid                                | 536. | Propionitrile, 3-chloro              |
| 498. | Phosphoric acid dimethyl (4-methyl thio)phenyl | 537. | Propiophenone, 4-amino               |
| 499. | Phosphorothioic acid dimethyl S(2-Bis) Ester   | 538. | Propyl chloroformate                 |
| 500. | Phosphorothioic acid methyl (ester)            | 539. | Propylene dichloride                 |
| 501. | Phosphorothioic acid, OO Dimethyl S-(2-methyl) | 540. | Propylene glycol, allylether         |
| 502. | Phosphorothioic, methyl-ethyl ester            | 541. | Propylene imine                      |
| 503. | Phosphorous                                    | 542. | Propylene oxide                      |
| 504. | Phosphorous oxychloride                        | 543. | Prothoate                            |
| 505. | Phosphorous pentaoxide                         | 544. | Pseudosumene                         |
| 506. | Phosphorous trichloride                        | 545. | Pyrazoxon                            |
| 507. | Phosphorous penta chloride                     | 546. | Pyrene                               |
| 508. | Phthalic anhydride                             | 547. | Pyridine                             |
| 509. | Phylloquinone                                  | 548. | Pyridine, 2-methyl-3-vinyl           |
| 510. | Physostigmine                                  | 549. | Pyridine, 4-nitro-1-oxide            |
| 511. | Physostigmine salicylate (1:1)                 | 550. | Pyridine, 4-nitro-1-oxide            |
| 512. | Picric acid (2, 4, 6- trinitrophenol)          | 551. | Pyriminil                            |
| 513. | Picrotoxin                                     | 552. | Quinaliphos                          |
| 514. | Piperdine                                      | 553. | Quinone                              |
| 515. | Piprotal                                       | 554. | Rhodium trichloride                  |
| 516. | Pirinifos-ethyl                                | 555. | Salcomine                            |
| 517. | Platinous chloride                             | 556. | Sarin                                |
| 518. | Platinum tetrachloride                         | 557. | Selenious acid                       |
| 519. | Potassium arsenite                             | 558. | Selenium Hexafluoride                |
| 520. | Potassium chlorate                             | 559. | Selenium oxychloride                 |
| 521. | Potassium cyanide                              | 560. | Semicarbazide hydrochloride          |
| 522. | Potassium hydroxide                            | 561. | Silane (4-amino butyl) diethoxy-meth |
| 523. | Potassium nitride                              | 562. | Sodium                               |
| 524. | Potassium nitrite                              | 563. | Sodium anthra-quinone-1-sulphonate   |
| 525. | Potassium peroxide                             | 564. | Sodium arsenate                      |
| 526. | Potassium silver cyanide                       | 565. | Sodium arsenite                      |
| 527. | Powdered metals and mixtures                   | 566. | Sodium azide                         |
| 528. | Promecarb                                      | 567. | Sodium cacodylate                    |
| 529. | Promurit                                       | 568. | Sodium chlorate                      |
| 530. | Propanesultone                                 | 569. | Sodium cyanide                       |
| 531. | Propargyl alcohol                              | 570. | Sodium fluoro-acetate                |
| 532. | Propargyl bromide                              | 571. | Sodium hydroxide                     |
| 533. | Propen-2-chloro-1 ,3-diou diacetate            | 572. | Sodium pentachloro-phenate           |
| 534. | Propiolactone beta                             | 573. | Sodium picramate                     |
|      |  | 574. | Sodium selenate                      |
|      |  | 575. | Sodium selenite                      |
|      |  | 576. | Sodium sulphide                      |
|      |  | 577. | Sodium tellorite                     |

578. Stannane acetoxy triphenyl  
579. Stibine (Antimony hydride)  
580. Strychnine  
581. Strychnine sulphate  
582. Styphinic acid (2, 4,6-trinitroresorcinol)  
583. Styrene  
584. Sulphotec  
585. Sulphoxide, 3-chloropropyl octyl  
586. Sulphur dichloride  
587. Sulphur dioxide  
588. Sulphur monochloride  
589. Sulphur tetrafluoride  
590. Sulphur trioxide  
591. Sulphuric acid  
592. Tellurim (powder)  
593. Tellurium hexafluoride  
594. TEPP (Tetraethyl pyrophosphate)  
595. Terbufos  
596. Tert-Butyl alcohol  
597. Tert-Butyl peroxy carbonate  
598. Tert-Butyl peroxy isopropyl  
599. Tert-Butyl peroxyacetate (Conc  $\geq 70\%$ )  
600. Tert-Butyl peroxy pivalate (Conc  $\geq 77\%$ )  
601. Tert-Butyl peroxyiso-butyrate  
602. Tetra hydrofuran  
603. Terta methyl lead  
604. Tetra nitromethane  
605. Tetra-chlorodibenzo-p-dioxin, 1, 2, 3, 7, 8(TCDD)  
606. Tetraethyl lead  
607. Tetrafluoriethyne  
608. Tetramethylene disulphotetramine  
609. Thallic oxide  
610. Thallium carbonate  
611. Thallium sulphate  
612. Thallous chloride  
613. Thallous malonate  
614. Thallous sulphate  
615. Thiocarbazide  
616. Thiocynamic acid, 2(Benzothiazolyethio) methyl  
617. Thiofamox  
618. Thiometon  
619. Thionazin  
620. Thionyl chloride  
621. Thiophenol  
622. Thiosemicarbazide  
623. Thiourea (2 chloro-phenyl)  
624. Thiourea (2-methyl phenyl)  
625. Tirpate (2,4-dimethyl-1,3-dithiolane)  
626. Titanium powder  
627. Titanium tetra-chloride  
628. Toluene  
629. Toluene -2,4-di-isocyanate  
630. Toluene 2,6-di-isocyanate  
631. Trans-1,4-di chloro-butene  
632. Tri nitro anisole  
633. Tri (Cyclohexyl) methylstannyl 1,2,4 triazole  
634. Tri (Cyclohexyl) stannyl-1H-1, 2, 3-triazole  
635. Triaminotrinitrobenzene  
636. Triamphos  
637. Triazophos  
638. Tribromophenol 2, 4, 6  
639. Trichloro naphthalene  
640. Trichloro chloromethyl silane  
641. Trichloroacetyl chloride  
642. Trichlorodichlorophenylsilane  
643. Trichloroethyl silane  
644. Trichloroethylene  
645. Trichloromethane sulphenyl chloride  
646. Trichloronate  
647. Trichlorophenol 2, 3, 6  
648. Trichlorophenol 2, 4, 5  
649. Trichlorophenyl silane  
650. Trichlorophon  
651. Triethoxy silane  
652. Triethylamine  
653. Triethylene melamine  
654. Trimethyl chlorosilane  
655. Trimethyl propane phosphite  
656. Trimethyl tin chloride  
657. Trinitro aniline  
658. Trinitro benzene

- |      |                             |      |                           |
|------|-----------------------------|------|---------------------------|
| 659. | Trinitro benzoic acid       | 673. | Vinyl cyclohexane dioxide |
| 660. | Trinitro phenetole          | 674. | Vinyl fluoride            |
| 661. | Trinitro-m-cresol           | 675. | Vinyl norbornene          |
| 662. | Trinitrotoluene             | 676. | Vinyl toluene             |
| 663. | Tri-ortho creosyl phosphate | 677. | Vinylidene chloride       |
| 664. | Triphenyl tin chloride      | 678. | Warfarin                  |
| 665. | Tris(2-chloroethyl)amine    | 679. | Warfarin Sodium           |
| 666. | Turpentine                  | 680. | Xylene dichloride         |
| 667. | Uranium and its compounds   | 681. | Xylidine                  |
| 668. | Valino mycin                | 682. | Zinc dichloropentanitrile |
| 669. | Vanadium pentaoxide         | 683. | Zinc phosphide            |
| 670. | Vinyl acetate monomer       | 684. | Zirconium & compounds     |
| 671. | Vinyl bromide               |      |                           |
| 672. | Vinyl chloride              |      |                           |

## **SCHEDULE 2**

[See rule 2(e)(ii),4(1)(b), 4(2) (1) and 6 (1) (b)]

### **ISOLATED STORAGE AT INSTALLATIONS OTHER THAN THOSE COVERED BY SCHEDULE 4**

(a) The threshold quantities set out below relate to each installation or group of installation belonging to the same occupier where the distance between installation 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.

(b) 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 :-

- (i) in that part of any pipeline under the control of the occupier having control of the site, which is within 500 metres of that site and connected to it;
- (ii) at any other site under the control of the same occupier any part of the boundary of which is within 500 meters of the said site; and
- (iii) 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 a hovercraft used for transporting it.

S.No	Chemicals	Threshold Quantities (tonnes)	
		<sup>1</sup> [For application of rules 4,5,7 to 9 and 13 to 15]	<sup>2</sup> [For application of rule 10 to 12]
1	2	3	4
1.	Acrylonitrile	350	5,000
2.	Ammonia	60	600
3.	Ammonium nitrate (a)	350	2,500
4.	Ammonium nitrate fertilizers (b)	1,250	10,000
5.	Chlorine	10	25
6.	Flammable gases as defined in Schedule 1, paragraph (b) (i)	50	300
<sup>3</sup> [7.	Extremely flammable liquids as defined in Schedule 1, paragraph (b) (ii)	5000	50,000]
8.	Liquid oxygen	200	2000
9.	Sodium chlorate	25	250
10.	Sulphur dioxide	20	500
11.	Sulphur trioxide	15	100
<sup>4</sup> [12.	Carbonyl chloride	0.750	0.750
13.	Hydrogen Sulphide	5	50
14.	Hydrogen Fluoride	5	50
15.	Hydrogen Cyanide	5	50
16.	Carbon disulphide	20	200
17.	Bromine	50	500
18.	Ethylene oxide	5	501
19.	Propylene oxide	5	50

<sup>1</sup> Substituted by Rule 10(i) (a) of the MSIHC (Amendment) Rules, 2000 notified by S.O.57(E), dated 19.1.2000 ;

<sup>2</sup> Substituted by Rule 10(i) (b), *ibid*;

<sup>3</sup> Substituted entry 7 by Rule 10(ii), *ibid* ;

<sup>4</sup> Inserted entries 12 to 27 by Rule 11 of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882,dated 3.10.1994.

S.No	Chemicals	Threshold Quantities (tonnes)	
		<sup>1</sup> [For application of rules 4,5,7 to 9 and 13 to 15]	<sup>2</sup> [For application of rule 10 to 12]
1	2	3	4
20.	2-Propenal (Acrolein)	20	200
21.	Bromomethane (Methyl bromide)	20	200
22.	Methyl isocyanate	0.150	0.150
23.	Tetraethyl lead or tetramethyl lead	5	50
24.	1,2 Dibromoethane (Ethylene dibromide)	5	50
25.	Hydrogen chloride (liquefied gas)	25	250
26.	Diphenyl methane di-isocyanate (MDI)	20	200
27.	Toluene di-isocyanate (TDI)	10	100]
<sup>1</sup> [28.	Very highly flammable liquids as defined in Schedule 1, paragraph (b) (iii)	7,000	7,000]
29.	Highly flammable liquids as defined in Schedule 1, paragraph (b) (iv)	10,000	10,000
30.	Flammable liquids as defined in Schedule - 1, paragraph (b) (v)	15,000	1,00,000]

- (a) This applies to ammonium nitrate and mixtures of ammonium nitrates 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.
- (b) This applies to straight ammonium nitrate fertilizers 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).

<sup>1</sup> Inserted entries 28, 29 and 30 by 10(iii) of the HSIHC (Amendment) Rules, 2000 notified by S.O.57(E), dated 19.1.2000.

**SCHEDULE 3**

[See Rule 2(e)(iii), 5 and 6(1) (a)]

**LIST OF HAZARDOUS CHEMICALS FOR APPLICATION OF  
RULES 5 AND 7 TO 15**

- (a) The quantities set-out-below relate to each installation or group of installations belonging to the same occupier where the distance between the installations is not sufficient to avoid, in foreseeable circumstances, any aggravation of major-accident hazards. These 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.
- (b) For the purpose of determining the threshold quantity of a hazardous chemical in an industrial installation, account shall also be taken of any hazardous chemicals which is :-
- (i) in that part of any pipeline under the control of the occupier have control of the site, which is within 500 metres off that site and connected to it;
  - (ii) 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
  - (iii) 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.

**PART - I**  
**NAMED CHEMICALS**

S. No.	Chemicals	Threshold	Quantity	CAS Number
		for application of Rules 5, 7-9 and 13-15	for application of Rules 10-12	
(1)	(2)	(3)	(4)	(5)
<b>GROUP 1-TOXIC SUBSTANCES</b>				
1.	Aldicarb	100kg		116-06-3
2.	4-Aminodiphenyl	1 kg		96-67-1
3.	Amiton	1 kg		78-53-5
4.	Anabasine	100 kg		494-52-0
5.	Arsenic pentoxide, Arsenic (V) acid & salts	500 kg		
6.	Arsenic trioxide, Arsenic (III) acid & salts	100 kg		
7.	Arsine (Arsenic hydride)	10kg		7784-42-1
8.	Azinphos-ethyl	100kg		2642-71-9
9.	Azinphos-methyl	100 kg		86-50-0
10.	Benzidine	1 kg		92-87-5
11.	Bezidine salts	1 kg		
12.	Beryllium (powders, compounds)	10 kg		
13.	Bis (2-chloroethyl) sulphide	1 kg		505-60-2
14.	Bis (chloromethyl) ether	1 kg		542-88-1
15.	Carbophuran	100 kg		1563-66-2
16.	Carbophenothion	100 kg		786-19-6
17.	Chlorefenvinphos	100 kg		470-90-6
18.	4-(Chloroformyl) morpholine	1 kg		15159-40-7
19.	Chloromethyl methyl ether	1 kg		107-30-2
20.	Cobalt (metal, oxide, carbonates, sulphides, as powders)	1 t		
21.	Crimidine	100 kg		535-89-7
22.	Cynthoate	100 kg		3734-95-0
23.	Cycloheximide	100 kg		66-81-9
24.	Demeton	100 kg		8065-48-3
25.	Dialifos	100 kg		10311-84-9
26.	OO-Diethyl S-ethylsulphinylmethyl phosphorothiate	100 kg		2588-05-8
27.	OO-Diethyl S-ethylsulphonylmethyl phosphorothiate	100 kg		2588-06-9
28.	OO-Diethyl S-ethylthiomethyl Phosphorothioate	100 kg		2600-69-3

S. No.	Chemicals	Threshold	Quantity	CAS Number
		for application of Rules 5, 7-9 and 13-15	for application of Rules 10-12	
(1)	(2)	(3)	(4)	(5)
29.	OO-Diethyl S-isoprophylthiomethyl phosphorothiate	100 kg		78-52-4
30.	OO-Diethyl S-isopropylthiomethyl phosphorodithioate	100 kg		3309-68-0
31.	Dimefox	100 kg		115-26-4
32.	Dimethylcarbamoyl chloride	1 kg		79-44-7
33.	Dimethylnitrosamine	1 kg		62-75-9
34.	Dimethyl phosphorimidocynidic acid	1 t		63917-41-9
35.	Diphacinone	100 kg		82-66-6
36.	Disulfoton	100 kg		298-04-4
37.	EPN	100 kg		2104-64-5
38.	Ethion	100 kg		563-12-2
39.	Fensulfothion	100 kg		115-90-2
40.	Fluenetil	100 kg		4301-50-2
41.	Fluoroacetic acid	1 kg		144-49-0
42.	Fluoroacetic acid, salts	1 kg		
43.	Fluoroacetic acid, esters	1 kg		
44.	Fluoroacetic acid, amides	1 kg		
45.	4-Fluorobutyric acid	1 kg		462-23-7
46.	4-Fluorobutyric acid, salts	1 kg		
47.	4-Fluorobutyric acid, esters	1 kg		
48.	4-Fluorobutyric acid, amides	1 kg		
49.	4-Fluorobutyric acid	1 kg		37759-72-1
50.	4-Fluorocrotonic acid, salts	1 kg		
51.	4-Fluorocrotonic acid, esters	1 kg		
52.	4-Fluorocrotonic acid, amides	1 kg		
53.	4-Fluoro-2-hydroxybutyric acid, amides	1 kg		
54.	4-Fluoro-2-hydroxybutyric acid, salts	1 kg		
55.	4-Fluoro-2-hydroxybutyric acid, esters	1 kg		
56.	4-Fluoro-2-hydroxybutyric acid, amides	1 kg		
57.	Glycolonitrile (Hydroxyacetonitrile )	100 kg		107-16-4
58.	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	100 kg		194-8-74-3
59.	Hexmathylphosphoramide	1 kg		680-31-9
60.	Hydrogen selenide	10 kg		7783-07-5
61.	Isobenzan	100 kg		297-78-9
62.	Isodrin	100 kg		465-73-6
63.	Juglone (5-Hydroxynaphthalene 1,4 dione)	100 kg		481-39-0

S. No.	Chemicals	Threshold	Quantity	CAS Number
		for application of Rules 5, 7-9 and 13-15	for application of Rules 10-12	
(1)	(2)	(3)	(4)	(5)
64.	4,4-Methylenebis (2-chloroniline)	10 kg		101-14-4
65.	Mthyl isocynate	150 kg	150kg	624-83-9
66.	Mevinphos	100 kg		7786-34-7
67.	2-Naphthylamine	1 kg		91-59-8
68.	2-Nickel (metal, oxides, carbonates), sulphides, as powers)	1 t		
69.	Nickel tetracarbonyl	10 kg		13463-39-3
70.	Oxygendisulfoton	100 kg		2497-07-6
71.	Oxygen difluoride	10 kg		7783-41-7
72.	Paraxon (Diethyl 4-nitrophenyl phosphate)	100 kg		311-45-5
73.	Parathion	100 kg		56-38-2
74.	Parathion-methyl	100 kg		298-00-0
75.	Pentaborane	100 kg		19624-22-7
76.	Phorate	100 kg		298-02-2
77.	Phosacetim	100 kg		4104-14-7
78.	Phosgene (carbonyl chloride)	750 kg	750kg	75-44-5
79.	Phosphamidon	100 kg		13171-21-6
80.	Phosphine (Hydrogen phosphide)	100 kg		7803-51-2
81.	Promurit (1-(3,4 dichlorophenyl)-3-triazenthio-carboxamide)	100 kg		5836-73-7
82.	1,3-Propanesultone	1 kg		1120-71-4
83.	1-Propen-2-chloro-1,3diol diacetate	10 kg		10118-72-6
84.	Pyrazoxon	100 kg		108-34-9
85.	Selenium hexafluoride	10 kg		7783-79-1
86.	Sodium selenite	100 kg		10102-18-8
87.	Stibine (Antimony hydride)	100 kg		7803-52-3
88.	Sulfotep	100 kg		3689-24-5
89.	Sulphur dichloride	1 t		10545-99-0
90.	Tellurium hexafluoride	100 kg		7783-80-4
91.	TEPP	100 kg		107-49-3
92.	2,3,7,8,-Tetrachlorodibenzo-p-dioxin (TCDD)	1 kg		1746-01-6
93.	Tetramethylenedisulphotetramine	1 kg		80-12-6
94.	Thionazin	100 kg		297-97-2
95.	Tirpate (2,4-Dimethyl-1,3-dithiolane-2-carboxaldehyde O-methylcarbamoyloxime)	100 kg		26419-73-8

S. No.	Chemicals	Threshold	Quantity	CAS Number
		for application of Rules 5, 7-9 and 13-15	for application of Rules 10-12	
(1)	(2)	(3)	(4)	(5)
96.	Trichloromethanesulphonyl chloride	100 kg		594-42-3
97.	1-Tri (cyclohexyl) stannyl 1H-1,2,4-Triazole	100 kg		41083-11-8
98.	Triethylenemelamine	10 kg		51-18-3
99.	Warfarin	100 kg		81-81-2
<b>GROUP -2 TOXIC SUBSTANCES</b>				
100	Acetone cyanohydrin (2-Cyanopropan-2-ol)	200 t		75-86-5
101	Acrolein (2-Propenal)	20 t	<sup>1</sup> [200t]	107-02-8
102	Acrylonitrile	20 t	200t	107-13-1
103	Allyl alcohol (Propen-1-ol)	200 t		107-18-6
104	Alylamine	200 t		107-11-9
105	Ammonia	50 t	500t	7664-41-7
106	Bromine	40 t	<sup>1</sup> [500t]	7726-95-6
107	Carbon disulphide	20 t	200t	75-15-0
108	Chlorine	10 t	25t	7782-50-5
109	Diphneyl ethane di-isocynate (MDI)	20 t	<sup>1</sup> [200t]	101-68-8
110	Ethylene dibromide (1,2-Dibromoethane)	5 t	<sup>1</sup> [50t]	106-93-4
111	Ethyleneimine	5 t		151-56-4
112	Formaldehyde (concentration <90%)	5 t	<sup>1</sup> [50t]	50-00-0
113	Hydrogen chloride (liquified gas)	25 t	250t	7647-01-0
114	Hydrogen cyanide	5 t	20t	74-90-8
115	Hydrogen fluoride	5 t	50t	7664-39-3
116	Hydrogen sulphide	5 t	50t	7783-06-4
117	Methyl bromide (Bromomethane)	20 t	<sup>1</sup> [200 t]	74-83-9
118	Nitrogen oxides	50 t		11104-93-1
119	Propyleneimine	50 t		75-55-8
120	Sulphur dioxide	20 t	250t	7446-09-5
121	Sulphur trioxide	15 t	75t	7446-11-9
122	Tetraethyl lead	5 t	<sup>2</sup> [200t]	78-00-2
123	Tetra methyl lead	5 t	<sup>1</sup> [100t]	75-74-1
124	Toluene di-isocynate (TDI)	10 t		584-84-9

<sup>1</sup> Inserted by Rule14 (a to h) of MSIHC (Amendment) Rules, 1994 notified vide notification S.O.2882, dated 3.10.1994.

<sup>2</sup> Inserted by Rule14 (a to h) of MSIHC (Amendment) Rules, 1994 notified vide notification S.O.2882, dated 3.10.1994.

S. No.	Chemicals	Threshold	Quantity	CAS Number
		for application of Rules 5, 7-9 and 13-15	for application of Rules 10-12	
(1)	(2)	(3)	(4)	(5)
<b>GROUP 3-HIGHLY REACTIVE SUBSTANCES</b>				
125	Acetylene (ethyne)	5 t		74-86-2
126	a. Ammonium nitrate (1) b. Ammonium nitrate in form of fertilizer (2)	350t 1250 t	2500t	6484-52-2
127	2,2 Bis (tert-butylperoxy) butane) (concentration >70%)	5 t		2167-23-9
128	1, 1-Bis(tert-butylperoxy) cyclohexane (concentration > 80%)	5 t		3006-86-8
129	tert-Butyle peroxyacetate (concentration ≤70% )	5 t		107-71-1
130	tert-Butyle peroxy isobutyrate (concentration >80%)	5 t		109-13-7
131	Tert-Butyl peroxy isopropyl carbonate (concentration ≥80%)	5 t		2372-21-6
132	Tert-Butyl peroxyacetate (concentration ≥80%)	5 t		1931-62-0
133	Tert-Butyl peroxyisovalate (concentration ≥77%)	50 t		927-07-1
134	Dibenzyl peroxydicarbonate (concentration ≥90%)	5 t		2144-45-8
135	Di-sec-butyl peroxydicarbonate (concentration ≥80%)	5 t		19910-65-7
136	Diethyl peroxydicarbonate (concentration ≥30% )	50 t		14666-78-5
137	2,2-dihydroperoxypropane (concentration ≥30%)	5 t		2614-76-08
138	di-isobutyl peroxide (concentration ≥50%)	50 t		3437-84-1
139	Di-n-propyl peroxydicarbonate (concentration ≥80%)	5 t		16066-38-9
140	Ethylene oxide	5 t	50t	75-21-8
141	Ethyl nitrate	50 t		625-58-1
142	3,3,6,6,9,9 Hexamethyl - 1,2,4 5-tert oxacyclononane (concentration ≥75%)	50 t		22397-33-7
143	Hydrogen	2 t	50 t	1333-74-0

S. No.	Chemicals	Threshold	Quantity	CAS Number
		for application of Rules 5, 7-9 and 13-15	for application of Rules 10-12	
(1)	(2)	(3)	(4)	(5)
144	Liquid Oxygen	200 t	<sup>1</sup> [2000t]	7782-41-7
145	Methyl ethyl ketone peroxide (concentration ≥60%)	5 t		1338-23-4
146	Methyl isobutyl ketone peroxide (concentration ≥60%)	50 t		37206-20-5
147	Peracetic acid (concentration ≥60%)	50 t		79-21-0
148	Propylene oxide	5 t	<sup>1</sup> [50t]	75-56-9
149	Sodium chlorate	25 t		7775-09-9
<b>GROUP 4-EXPLOSIVE SUBSTANCES</b>				
150	Barium azide	<sup>1</sup> [100] kg		18810-58-7
151	Bis(2,4,6 -trinitrophenyl) amine	50 t		131-073-7
152	Chlorotrinitro benzene	50 t		28260-61-9
153	Cellulose nitrate (containing 12.6% Nitrogen)	50 t		9004-70-0
154	Cyclotetramethyleneteranitramine	50 t		2691-41-0
155	Cyclotrimethylenetiraniramine	50 t		121-82-1
156	Diazodinitrophenol	10 t		7008-81-3
157	Diethylene glycol dinitrate	10 t		693-21-0
158	Dinitrophenol, salts	50 t		
159	Enthylene glycol dinitrate	10 t		628-96-6
160	1-Gyanyl-4-nitrosaminoguanyl-1-tetrazene	<sup>1</sup> [100 kg]		109-27-3
161	2, 2, 4, 4, 6, 6, -Hexanitostibene	50 t		20062-22-0
162	Hydrazine nitrate	50 t		13464-97-6
163	Lead azide	<sup>1</sup> [100 kg]		13424-46-9
164	Lead Styphnate ( Lead 2,4,6-trinitroresorcinoxide)	50 t		15245-44-0
165	Mercury fulminate	10 t		20820-45-5 628-86-4
166	N-Methyl-N,2,4,6-tetranitroaniline	50 t		497-45-8
167	Nitroglycerine	10 t	10t	55-63-0
168	Pentacrythritol tetra nitrate	50 t		78-11-5

<sup>1</sup> Substituted by Rule 11(i) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

S. No.	Chemicals	Threshold	Quantity	CAS Number
		for application of Rules 5, 7-9 and 13-15	for application of Rules 10-12	
(1)	(2)	(3)	(4)	(5)
169	Picric acid, (2,3,6-Trinitrophenol)	50 t		88-89-1
170	Sodium picramate	50 t		831-52-7
171	Styphnic acid (2,4,6-Trinitroresorcinol)	50 t		82-71-3
172	1,3,5-Triamino-2,4,6-Trinitrobenzene	50 t		3058-38-6
173	Trinitroaniline-	50 t		26952-42-1
174	2,4,6-Trinitroanisole	50 t		606-35-9
175	Trinitrobenze	50 t		25377-32-6
176	Trinitrobenzoic acid	50 t		35860-50-5 129-66-8
177	Trinitrocresol	50 t		28905-71-7
178	2,4,6-Trinitrophenitole	50 t		4732-4-3
179	2,4,6-Trinitrotoluene	50 t	50 t	118-96-7

<sup>1</sup>[PART II

**CLASSES OF SUBSTANCES AS DEFINED IN PART – I, SCHEDULE – I  
AND NOT SPECIFICALLY NAMED IN PART – I OF THIS SCHEDULE**

1	2	3	4
<b>GROUP 5 - Flammable substances</b>			
1.	Flammable Gases	15t	200t
2.	Extremely flammable liquids	1000t	5000t
3.	Very highly flammable liquids	1500t	10000t
4.	Highly Flammable liquids which remains liquid under pressure	25t	200t
5.	Highly Flammable liquids	2500t	20000t
6.	Flammable liquids	5000t	50000t]

- (1) This applies to ammonium nitrate and mixtures of ammonium nitrate where the nitrogen content derived from the ammonium nitrate is greater than 28% by weight and aqueous solutions of ammonium nitrate where the concentration of ammonium nitrate is greater than 90% by weight.
- (2) This applied to straight ammonium nitrate fertilizers and to compound fertilizers where the nitrogen content derived from the ammonium nitrate is greater than 28% by weight ( a compound fertilizer contains ammonium nitrate together with phosphate and/or potash).

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<sup>1</sup> Substituted by Rule 11(ii) of the MSIHC (Amendment) Rules, 2000 notified by S.O.57(E), dated 19.1.2000.

#### SCHEDULE -4

(See Rule 2(h) (i))

1. Installation for the production, processing or treatment of organic or inorganic chemicals using for this purpose, among others;
  - (a) alkylation
  - (b) Amination by ammonolysis
  - (c) carbonylation
  - (d) condensation
  - (e) dehydrogenation
  - (f) esterification
  - (g) halogenation and manufacture of halogens
  - (h) hydrogenation
  - (i) hydrolysis
  - (j) Oxidation
  - (k) Polymerization
  - (l) Sulphonation
  - (m) desulphurization, manufacture and transformation of sulphur containing compounds
  - (n) nitration and manufacture of nitrogen containing compounds
  - (o) manufacture of phosphorous-containing compounds
  - (p) formulation of pesticides and of pharmaceutical products
  - (q) distillation
  - (r) extraction
  - (s) solvation
  - (t) mixing
2. Installation for distillation, refining or other processing of petroleum or petroleum products.
3. Installations for the total or partial disposal of solid or liquid substances by incineration or chemical decomposition.
4. Installations for production, processing, <sup>1</sup>[use] or treatment of energy gases, for example, LPG, LNG, SNG.
5. Installation for the dry distillation of coal or lignite.
6. Installations for the production of metals or non-metals by a wet process or by means of electrical energy.

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<sup>1</sup> Inserted by Rule 12 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

**SCHEDULE -5**  
**(See Rules, 2(b) and 3)**

S. No.	Authority(ies) with legal backing	Duties and corresponding Rule
(1)	(2)	(3)
1.	Ministry of Environment and Forests under Environment (Production) Act, 1986.	1. Notification of hazardous chemicals as per Rules 2(e)(i), 2(e) (ii) & 2(e) (iii)
2.	Chief Controller Imports & Exports under Import & Exports (Control) Act, 1947.	Import of hazardous chemicals as per Rule 18
3.	Central Pollution Control Board or State Pollution Control Board <sup>1</sup> [or Committee] under Environment (Protection) Act, 1986 as the case may be.	(1) Enforcement of directions and procedures in respect of isolated storage of hazardous chemicals, 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 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 appointed under the Factories Act, 1948.	Enforcement of directions and procedures in respect of 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 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 Rule 13. Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per S. No. 9 of this schedule.

<sup>1</sup> Inserted by Rule 13(i) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

<b>S. No.</b>	<b>Authority(ies) with legal backing</b>	<b>Duties and corresponding Rule</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
5.	Chief Inspector of Dock Safety appointed under the Dock Workers (Safety, Health and Welfare) Act, 1986.	Enforcement of directions and procedures in respect of industrial installations and isolated storages dealing with hazardous chemicals and pipelines <sup>1</sup> [inside a port covered under the Dock Workers (Safety, Health and Welfare) Act, 1986] 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 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 S. No.9 of this Schedule.
6.	Chief Inspector of Mines appointed under the Mines Act, 1952	Enforcement of directions and procedures in respect of industrial installations and isolated storages dealing with hazardous chemicals <sup>2</sup> [***] 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 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 S. No.9 of this Schedule.
7.	Atomic Energy Regulatory Board appointed under the Atomic Energy Act, 1972.	<sup>3</sup> [Enforcement of directions and procedures regarding :- (a) Notification of major accidents as per rule 5(1) and 5(2) (b) Approval and Notification of Sites as per rule 7; (c) Safety report and safety audit

<sup>1</sup> Substituted by Rule 13(ii) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000;

<sup>2</sup> Omitted by Rule 13(iii), *ibid*;

<sup>3</sup> Substituted by Rule 13(iv), *ibid*.

S. No.	Authority(ies) with legal backing	Duties and corresponding Rule
(1)	(2)	(3)
		repots as per rule 10 to 12; (d) Acceptance of On-site Emergency plans as per rule 13; (e) Assisting the District Collector in the preparation of Off-Site emergency plans as per serial number 9 of this Schedule ]
8.	Chief Controller of Explosives appointed under the Indian Explosive Act and Rules, 1983	Enforcement of directions and procedures as per the provisions of <sup>1</sup> [(i) The Explosives Act, 1884(4 of 1884) and the rules made thereunder, namely:- (a) The Gas Cylinders Rules, 1981; (b) The Static and Mobile Pressure Vessel (Unified) Rules, 1981; (c) The Explosive 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]; <sup>2</sup> [and in respect of Industrial installation and isolated storages dealing with hazardous chemicals and pipelines including inter-state pipelines regarding. : -  (a) Notification of major accident as per rule 5; (b) Approval and notification of sites as per rule 7; (c) Safety report and safety audit reports as per rules 10 to 12; (d) Acceptance of On-site Emergency plans as per rule 13; (e) Assisting the District Collector in the preparation of Off-Site emergency plans as per serial number 9 of this Schedule.]

<sup>1</sup> Substituted by Rule 15 of the MSIHC (Amendment) Rules, 1994, notified vide S.O.2882, dated 3.10.1994.

<sup>2</sup> Inserted by Rule 13 (v) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

<b>S. No.</b>	<b>Authority(ies) with legal backing</b>	<b>Duties and corresponding Rule</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
9.	District Collector or District Emergency Authority designated by the State Government	Preparation of off-site emergency plans as per Rule 14
<sup>1</sup> [10.	<sup>2</sup> [CENTRE FOR ENVIRONMENT AND EXPLOSIVE SAFETY (CEES), Defense Research and Development of Organisation (DRDO). Department of defence Research & Development, Ministry of Defence	Enforcement of directions and procedures in respect of laboratories, industrial establishment and isolated storages dealing with hazardous chemicals in the Ministry of Defence]

<sup>1</sup> Substituted by Rule 13(vi), of the MSIHC (Amendment) Rules, 2000 notified vide S.O.No.57(E), dated 19.1.2000.

<sup>2</sup> Inserted by G.S.R.584(E), dated 9<sup>th</sup> June, 1990.

**SCHEDULE -6**

[See Rule 5(1)]

**INFORMATION TO BE FURNISHED REGARDING NOTIFICATION OF A MAJOR ACCIDENT**Report number .....  
of the particular accident.

## 1. General data

- (a) Name of the site
- (b) Name and address of the manufacturer  
(Also state telephone/telex number)
- (c) (i) Registration number
- (ii) Licence number  
(as may have been allotted under any status applicable to the site,  
e.g.the Factories Act)
- (d) (i) Nature of industrial activity (Mention what is actually manufactured,  
stored etc.)
- (ii) National Industrial Classification, 1987 at the four digit level.

   

## 2. Type of major accident

Explosion  Fire  Emission of dangerous substance 

Substance(s) emitted .....

## 3. Description of the major accident

- (a) Date, shift and hour of the accident
- (b) Department/Section and exact place where  
the accident took place
- (c) The process/operation undertaken in the  
Department/section where the accident took place.  
(attach a flow chart if necessary)
- (d) The circumstances of the accident and  
the dangerous substance involved

## 4. Emergency Measures taken and measures envisaged to be taken to alleviate short term effects of the accident.

## 5. Causes of the major accident.

Known (to be specified)

## 6. Not Known

Information will be supplied as soon as possible

7. Nature and extent of damage

- (a) Within the establishment - casualties .....Killed
- .....Injured
- .....Poisoned

Persons exposed to the major accident .....

- material damaged
- danger is still present
- danger no longer exists.

- (b) Outside the establishment casualties. ....Killed
- .....Injured
- .....Poisoned

Persons exposed to the major accident.....

- material damaged
- damage to environment
- the danger is still present
- the danger no longer exists

8. Data available for assessing the effects of the accident on persons and environment.

9. Steps already taken or envisaged

- (a) to alleviate medium or long term effects of the accident
- (b) to prevent recurrence of similar major accident
- (c) Any other relevant information.

**SCHEDULE -7**

[ See Rule 7(1)]

**INFORMATION TO BE FURNISHED FOR THE NOTIFICATION OF SITES****PART -I**

Particulars to be included in a notification of a site

1. The name and address of the employer making the notification.
2. The full postal address of the site where the notifiable industrial activity will be carried on.
3. The area of the site covered by the notification and of any adjacent site which is required to be taken into account by virtue of b(ii) of schedule 2 and 3.
4. The date on which it is anticipated that the notifiable industrial activity will commence, or if it has already commenced a statement to that effect.
5. The name and maximum quantity liable to be on the site of each dangerous substance for which notification is being made.
6. Organisation structure namely organisation diagram for the proposed industrial activity and set up for ensuring safety and health.
7. Information relating to the potential for major accidents, namely-
  - (a) identification of major accident hazards ;

- (b) the conditions or the events which could be significant in bringing one about;
- (c) a brief description of the measures taken.

8. Information relating to the site namely-

- (a) a map of the site and its surrounding area to a scale large enough to show any features that may be significant in the assessment of the hazard or risk associated with the site,-
  - (i) area likely to be affected by the major accident.
  - (ii) Population distribution in the vicinity.
- (b) a scale plan of the site showing the location and quantities of all significant inventories of the hazardous chemicals;
- (c) a description of the process or storage involving the hazardous chemicals and an indication of the conditions under which it is normally held;
- (d) the maximum number of persons likely to be present on site.

9. The arrangement for training of workers and equipment necessary to ensure safety of such workers.

**PART -II**

Particulars to be included regarding pipeline-

1. The names and address of the persons making the notification.
2. The full postal address of the place from which the pipeline activity is controlled, addresses of the places where the pipeline starts and finishes and a map showing the pipeline route drawn to a scale of not less than 1:400000.
3. The date on which it is anticipated that the notifiable activity will commence, or if it is already commenced a statement to that effect.
4. The total length of the pipeline, its diameter and normal operating pressure and the name and maximum quantity liable to be in the pipeline of each hazardous chemical for which notification is being made.

**SCHEDULE -8**  
**[See Rule 10(1)]**  
**INFORMATION TO BE FURNISHED IN A SAFETY REPORT**

1. The name and address of the person furnishing the information.
2. Description of the industrial activity, namely-
  - (a) site,
  - (b) construction design,
  - (c) protection zones explosion protection, separation distances,
  - (d) accessibility of plant,
  - (e) maximum number of persons working on the site and particularly of those persons exposed to be hazard.
3. Description of the processes, namely -
  - (a) technical purpose of the industrial activity,
  - (b) basic principles of the technological process,
  - (c) process and safety -related data for the individual process stages,
  - (d) process description,
  - (e) Safety-related types of utilities.
4. Description of the hazardous chemicals, namely -
  - (a) chemicals (quantities, substance data, safety-related data, toxicological data and threshold values),
  - (b) the form in which the chemical may occur on or into which they may be transformed in the event of abnormal conditions,
  - (c) the degree of purity of the hazardous chemical.

5. Information on the preliminary hazard analysis, namely-

- (a) types of accident
- (b) system elements or events that can lead to a major accident,
- (c) hazards,
- (d) safety-relevant components.

6. Description of safety -relevant units, among others;

- (a) special design criteria,
- (b) controls and alarms,
- (c) special relief systems,
- (d) quick-acting valves,
- (e) collecting tanks/dump tank,
- (f) sprinkler system,
- (g) fire fighting etc.

7. Information on the hazards assessment, namely-

- (a) identification of hazards ,
- (b) the cause of major accidents,
- (c) assessment of hazards according to their occurrence frequency,
- (d) assessment of accident consequences,
- (e) safety systems,
- (f) known accident history.

8. Description of information or organizational systems used to carry on the industrial activity safety, namely-

- (a) maintenance and inspection schedules,
- (b) guidelines for the training of personnel,
- (c) allocation and delegation of responsibility for plant safety,
- (d) implementation of safety procedure.

9. Information on assessment of the consequences of major accidents, namely-

- (a) assessment of the possible release of hazardous chemicals or of energy,
- (b) possible dispersion of released chemical,
- (c) assessment of the effects of the releases (size of the affected area, health effects, property damage)

10. Information on the mitigation of major accidents, namely -

- (a) fire brigade,
- (b) alarm systems,
- (c) emergency plan containing system of organisation used to fight the emergency, the alarm and the communication rules guidelines for fighting the emergency, information about hazardous chemicals, examples of possible accident sequences,
- (d) coordination with the District Emergency authority and its off-site emergency plan,
- (e) notification of the nature and scope of the hazard in the event of an accident,
- (f) antidotes in the event of a release of a hazardous chemical.

**SCHEDULE -9**

(See Rule 17)

**SAFETY DATA SHEET****1. CHEMICAL IDENTITY**

Chemical Name		Chemical Classification	
Synonyms		Trade Name	
Formula	C.A.S.No	U.N. No.:	
Regulated Identification	Shipping Name Codes/Lable	Hazchem No.:	
		Hazardous Waste I.D. No.:	
Hazardous Ingredients	C.A.S. No.	Hazardous Ingredients	C.A.S No.:
1.		3.	
2.		4.	

**2. PHYSICAL AND CHEMICAL DATA**

Boiling Range/Point °C	Physical State	Appearance
Melting/Freezing Point °C	Vapour Pressure @ 35 °C mm/Hg	Odour
Vapour Density (Air=1)	Solubility in Water at 30°C Others	
Specific Gravity Water =1	pH	

**3. FIRE AND EXPLOSION HAZARD DATA**

Flammability	Yes/No	<i>LEL</i>	%	Flash Point °C	Auto ignition Temperature °C
TDG Flammability		<i>UEL</i>	%	Flash Point °C	
Explosion Sensitivity to Impact				Explosion Sensitivity to Static Electricity	Hazardous Combustion Products
Hazardous Polymerisation Combustible Liquid		Explosive Material		Corrosive Material	
Flammable Material		Oxidiser		Others	
Pyrophoric Material		Organic Peroxide			

**4. REACTIVITY DATA**

Chemical Stability
Incompatibility With other Material
Reactivity
Hazardous Reaction Products

**5. HEALTH HAZARD DATA**

Routes of Entry					
Effects of Exposure/Symptoms					
Emergency Treatment					
TLV(ACGIH)	ppm	mg/m <sup>3</sup>	STEL	ppm	mg/m <sup>3</sup>

Permissible Exposure Limits LD <sub>50</sub>	ppm	mg/m <sup>3</sup>	Odour threshold LD <sub>50</sub>	ppm	mg/m <sup>3</sup>
NEPA Hazard Signals	Health	Flammability	Stability	Special	

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## 6. PREVENTIVE MEASURES

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Personnel  
Protective  
Equipment

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Handling and  
Storage  
Precautions

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## 7. EMERGENCY AND FIRST AID MEASURE

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Fire Extinguishing  
Media  
FIRE

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Special Procedures

---

Unusual Hazards  
EXPOSURE

---

First Aid Measures

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Antidotes/Dosages  
SPILLS

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Steps to be taken

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Waste Disposal Method

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## 8. ADDITIONAL INFORMATION / REFERENCES

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**9. MANUFACTURER / SUPPLIER DATA**


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Name of Firm	Contact Person in Emergency
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Mailing Address	Local Bodies Involved
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Telephone/Telex Nos.	Standard Packing
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Telegraphic Address	Tremcard Details/Ref Other.
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**10. DISCLAIMER**

Information contained in this material data sheet is believed to be reliable but no representation, guarantee or warranties of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. It is upto the manufacturer/seller to ensure that the information contained in the material safety data sheet is relevant to the product manufactured/handled or sold by him as the case may be. The Government makes no warranties expressed or implied in respect of the adequacy of this document for any particular purpose.

**SCHEDULE -10**

[See Rule 18(5)]

**FORMAT FOR MAINTAINING RECORDS OF HAZARDOUS CHEMICALS IMPORTED**

1. Name and address of the Importer:
2. Date and reference number of issuance of permission to import hazardous chemicals:
3. Description of hazardous chemicals:
  - (a) Physical form:
  - (b) Chemical form:
  - (c) Total volume and weight (in kilogram's/  
Tones)
4. Description of purpose of Import:
5. Description of storage of hazardous chemicals:
  - (a) Date:
  - (b) Method of storage

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**Note:** Published in the Gazette No.787, dt.27.11.1989.

All correction made in the terms of corrigendum No.S.O.115(E), dt.5.2.1990 published in the Gazette No. 59 dt.5.2.1990.

**<sup>1</sup>[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 organization and responsibilities assigned to them in case of an emergency
3. Outside organization if involved in assisting during on-site emergency:
  - (a) Type of accidents
  - (b) Responsibility assigned
4. Details of liaison arrangement between the organizations.
5. Information on the preliminary hazard analysis:
  - (a) Type of accidents
  - (b) System elements or events that can lead to a major accident
  - (c) Hazards
  - (d) Safety relevant components

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<sup>1</sup> Inserted by Rule 16 of the MSIHC (Amendment) Rules, 1994 notified by S.O.2882, dated 3.10.1994.

6. Details about the site:
  - (a) Location of dangerous substances
  - (b) Seat of key personnel
  - (c) Emergency control room
  
7. Description of hazardous chemicals at plant site:
  - (a) Chemicals (Quantities and toxicological data)
  - (b) Transformation if any, which could occur.
  - (c) Purity of hazardous chemicals.
  
8. Likely dangers to the plant.
  
9. Enumerate effects of:
  - (i) Stress and strain caused during normal operation:
  - (ii) Fire and explosion inside the plant and effect if any, of fire and explosion outside.
  
10. Details regarding:
  - (i) Warning, alarm and safety and security systems.

- (ii) alarm and hazard control plans in line with disaster control and hazard control planning, ensuring the necessary technical and organizational precautions;
  - (iii) Reliable measuring instruments, control units and servicing of such equipments.
  - (iv) Precautions in designing of the foundation and load bearing parts of the building.
  - (v) Continuous surveillance of operations.
  - (vi) maintenance and repair work according to the generally recognized 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.

<sup>1</sup>[**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 liaison 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 accommodation, first aid and hospital services, water and agricultural authorities.
7. Communication links including telephones, radios and standby methods.

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<sup>1</sup> Inserted by Rule 16 of the MSIHC (Amendment) Rules, 1994 notified by S.O.2882, dated 3.10.1994.

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.]

**Note:** Principal rules were published in Gazette of India vide Notification S.O. 966(E), dated 27.11.1989. Amending rules were published vide GSR No.681, dated 9.6.1990, S.O.115 (E), dated 5.2.1990, S.O.2882, dated 3.10.1994 and S.O.57 (E), dated 19.1.2000.

**THE CHEMICAL ACCIDENTS  
(EMERGENCY PLANNING,  
PREPAREDNESS AND RESPONSE)  
RULES, 1996**

**THE CHEMICAL ACCIDENTS (EMERGENCY PLANNING,  
PREPAREDNESS AND RESPONSE) RULES, 1996**

**MINISTRY OF ENVIRONMENT & FORESTS**

**NOTIFICATION**

New Delhi, the 1<sup>st</sup> August, 1996

**\*G.S.R.347(E).**- In exercise of the power conferred by Section 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules, namely :-

**1. SHORT TITLE AND COMMENCEMENT.-**

(1) These rules may be called the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996.

(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,-

- (a) "chemical accident" means an accident involving a fortuitous, or sudden or unintended occurrence while handling any hazardous chemicals resulting in continuous, intermittent or repeated exposure to death, or injury to, any person or damage to any property but does not include an accident by reason only of war or radio-activity;
- (b) "hazardous chemical" means,-
  - (i) any chemical which satisfies any of the criteria laid down in **Part I of Schedule 1** or is listed in **Part 2** of the said schedule;

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\* As published in Gazette of India, Part II Section 3 (i) Extraordinary S.NO. 241, dt. 2.8.1996.

- (ii) any chemical listed in Column 2 of **Schedule 2**;
  - (iii) any chemical listed in Column 2 of **Schedule 3**;
- (c) “industrial activity” includes an operation or process,-
- (i) carried out in an industrial installation referred to in **Schedule –4** involving or likely to involve one or more hazardous chemicals;
  - (ii) on-site storage or on-site transport which is associated with that operation or process as the case may be;
  - (iii) isolated storage;
  - (iv) pipeline;
- (d) “industrial pocket” means any industrial zone ear-marked by the Industrial Development Corporation of the State Government or by the State Government;
- (e) “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**;
- (f) “major chemical 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 industrial activity or transportation 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 environment;
- (g) “Major Accident Hazards (MAH) Installations”.- means, isolated storage and industrial activity at a site, handling (including transport through carrier or pipeline) of hazardous chemicals equal to or, in excess of the threshold quantities specified in column 3 of **Schedule 2 and 3** respectively;
- (h) “Manufacture, Storage and Import of Hazardous Chemical, Rules” means, – the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989, published in the notification of Government of India in the Ministry of Environment & Forests No. S.O.966 (E), dated 27<sup>th</sup> November, 1989;

- (i) “off-site emergency plan” means,- the off-site emergency plan prepared under rule 14 of the Manufacture, Storage and Import of Hazardous Chemicals Rules ;
- (j) “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 1, at a pressure of less than 8 bars absolute;
- (k) “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;
- (l) “transport” means.- movement of hazardous chemicals by any means over land, water or air,

### **3. CONSTITUTION OF CENTRAL CRISIS GROUP.-**

(1) The Central Government shall constitute a Central Crisis Group for management of chemical accidents and set up a Crisis Alert System in accordance with the provisions of Rule-4 within thirty days from the date of the commencement of these rules.

(2) The composition of the Central Crisis Group shall be as specified in Schedule 5.

(3) The Central Crisis Group shall meet at least once in six months and follow such procedure for transaction of business as it deems fit.

(4) Notwithstanding anything contained in sub-rule (2), the Central Crisis Group may co-opt any person whose assistance or advice is considered useful in performing any of its functions to participate in the deliberations of any of its meetings.

### **4. CONSTITUTION OF CRISIS ALERT SYSTEM.-**

The Central Government shall,-

- (a) set up a functional control room at such place as it deems fit;

- (b) set up an information net working system with the State and district control rooms;
- (c) appoint adequate staff and experts to man the functional control room;
- (d) publish a list of Major Accident Hazard installations;
- (e) publish a list of major chemical accidents in chronological order;
- (f) publish a list of members of the Central, State and District Crisis Groups;
- (g) take measures to create awareness amongst the public with a view to preventing chemical accidents.

#### **5. FUNCTIONS OF THE CENTRAL CRISIS GROUP .-**

(1) The Central Crisis Group shall be the apex body to deal with major chemical accidents and to provide expert guidance for handling major chemical accidents.

(2) Without prejudice to the functions specified under sub-rule (1), the Central Crisis Group shall, -

- (a) continuously monitor the post accident situation arising out of a major chemical accident and suggest measures for prevention and to check recurrence of such accidents;
- (b) conduct post-accident analysis of such major chemical accidents and evaluate responses;
- (c) review district off-site emergency plans with a view to examine its adequacy in accordance with the Manufacture, Storage and Import of Hazardous Chemicals, Rules, and suggest measures to reduce risks in the Industrial pockets;
- (d) review the progress reports submitted by the State Crisis Groups;
- (e) respond to queries addressed to it by the State Crisis Groups and the District Crisis Groups;
- (f) publish a State-wise list of experts and officials who are concerned with the handling of chemical accidents;

- (g) render, in the event of a chemical accident in a State, all financial and infrastructural help as may be necessary.

## **6. CONSTITUTION OF STATE CRISIS GROUP.-**

(1) The State Government shall constitute a State Crisis Group for management of chemical accidents within thirty days from the date of the commencement of these rules.

(2) The composition of the State Crisis Group shall be as specified in **Schedule 6**.

(3) The State Crisis Group shall meet at least once in three months and follow such procedure for transaction of business as it deems fit.

(4) Notwithstanding anything contained in sub-rule (2), the State Crisis Group may co-opt any person whose assistance or advice is considered useful in performing any of its functions, to participate in the deliberation of any of its meetings.

## **7. FUNCTIONS OF THE STATE CRISIS GROUP.-**

(1) The State Crisis Group shall be the apex body in the State to deal with major chemical accidents and to provide expert guidance for handling major chemical accidents.

(2) Without prejudice to the functions specified under sub-rule (1), the State Crisis Group shall,-

- (a) review all district off-site emergency plans in the State with a view to examine its adequacy in accordance with the Manufacture, Storage and Import of Hazardous Chemicals, Rules and forward a report to the Central Crisis Group once in three months;
- (b) assist the State Government in managing chemical accidents at a site;
- (c) assist the State Government in the planning, preparedness and mitigation of major chemical accidents at a site in the State;

- (d) continuously monitor the post accident situation arising out of a major chemical accident in the State and forward a report to the Central Crisis group;
- (e) review the progress report submitted by the District Crisis groups;
- (f) respond to queries addressed to it by the District Crisis groups;
- (g) publish a list of experts and officials in the State who are concerned with the management of chemical accidents.

## **8. CONSTITUTION OF THE DISTRICT AND LOCAL CRISIS GROUP.-**

(1) The State Government shall cause to be constituted within thirty days from the date of commencement of these rules,-

- (a) District Crisis Groups;
- (b) Local Crisis Groups;

(2) The composition of the District Crisis Groups and the Local Crisis Groups shall be as specified in **Schedule 7 and 8** respectively.

(3) The District Crisis Group shall meet every forty five days and send a report to the State Crisis Group;

(4) The Local Crisis Group shall meet every month and forward a copy of the proceedings to the District Crisis Group.

## **9. FUNCTIONS OF THE DISTRICT CRISIS GROUP.-**

(1) The District Crisis Group shall be the apex body in the district to deal with major chemical accidents and to provide expert guidance for handling chemical accidents;

(2) Without prejudice to the functions specified under sub-rule (1), the District Crisis Group shall,-

- (a) assist in the preparation of the district off-site emergency plan;

- (b) review all the on-site emergency plans prepared by the occupier of Major Accident Hazards installation for the preparation of the district off-site emergency plan;
- (c) assist the district administration in the management of chemical accidents at a site lying within the district;
- (d) continuously monitor every chemical accident ;
- (e) ensure continuous information flow from the district to the Central and State Crisis Group regarding accident situation and mitigation efforts;
- (f) forward a report of the chemical accident within fifteen days to the State Crisis Group;
- (g) conduct at least one full scale mock-drill of a chemical accident at a site each year and forward a report of the strength and the weakness of the plan to the State Crisis Group.

#### **10. FUNCTIONS OF THE LOCAL CRISIS GROUP.-**

(1) The Local Crisis Group shall be the body in the industrial pocket to deal with chemical accidents and coordinate efforts in planning, preparedness and mitigation of a chemical accident;

(2) Without prejudice to the functions specified under sub-rule (1), the Local Crisis Group shall,-

- (a) prepare local emergency plan for the industrial pocket;
- (b) ensure dovetailing of the local emergency plan with the district off-site emergency plan;
- (c) train personnel involved in chemical accident management;
- (d) educate the population likely to be affected in a chemical accident about the remedies and existing preparedness in the area;
- (e) conduct at least one full scale mock-drill of a chemical accident at a site every six months forward a report to the District Crisis Group;
- (f) respond to all public inquiries on the subject.

**11. POWERS OF THE MEMBERS OF THE CENTRAL, STATE AND DISTRICT CRISIS GROUPS.-**

(1) The Members of the Central Crisis Group, State Crisis Groups and District Crisis Groups shall be deemed to be persons empowered by the Central Government in this behalf under sub-section (1) of section 10 of the Environment (Protection) Act, 1986.

**12. AID AND ASSISTANCE FOR THE FUNCTIONING OF THE DISTRICT AND LOCAL CRISIS GROUPS.-**

(1) The Major Accident Hazard installations in the industrial pockets in the district shall aid, assist and facilitate functioning of the District Crisis Group;

(2) The Major Accident Hazard installations in the industrial pockets shall also aid, assist and facilitate the functioning of the Local Crisis Group.

**13. INFORMATION TO THE PUBLIC .-**

(1) The Central Crisis Groups shall provide information on request regarding chemical accident prevention, preparedness and mitigation in the country;

(2) The State Crisis Group shall provide information on request regarding chemical accident prevention, preparedness and mitigation to the public in the State;

(3) The Local Crisis Group shall provide information regarding possible chemical accident at a site in the industrial pocket and related information to the public on request;

(4) The Local Crisis Group shall assist the Major Accident Hazard installations in the industrial pocket in taking appropriate steps to inform persons likely to be affected by a chemical accident.

**SCHEDULE-1**

[see rule 2(b) &amp; 2(j)]

**PART – 1**

**(a) 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 Toxicity	Oral Toxicity LD <sub>50</sub> (mg/kg)	Dermal Toxicity (Dermal LD <sub>50</sub> ) (mg/kg)	Inhalation toxicity by dust & mists ( mg/l)
1	Extremely toxic	1-50	1-200	0.1-0.5
2.	Highly Toxic	51-500	201-2000	0.5-2.0

**(b) Flammable Chemicals :-** (i) 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;

(ii) 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;

(iii) Flammable liquids : chemicals which have a flash point lower than 65°C and which remains liquids under pressure, where particular processing conditions, such as high pressure and high temperature, may create major accident hazards.

**(c) 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 dinitro-benzene.

**PART II**  
**LIST OF HAZARDOUS AND TOXIC CHEMICALS**

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<b>S.No.</b>	<b>Name of the Chemical</b>
1.	2.

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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 (ANTU)
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, Compounds)
41. Biphenyl
42. Bis (2-chloromethyl) Ketone
43. Bis (2,4,6-Trinitrophenyl) Amine
44. Bis (2-chloroethyl) Sulphide
45. Bis (Chloromethyl) ether
46. Bis(tert-Butylperoxy) Butane, -2,2
47. Bis(tert-Butylperoxy) cyclohexane, 1,1
48. Bis, 1,2 Tribromophenoxy-Ethane
49. Bisphenol
50. Boron and compounds
51. Bromine
52. Bromine Pentafluoride
53. Bromoform
54. Butadiene 1,3

55. Butane
56. Butanone-2
57. Butoxy Ethanol
58. Butylglycidal Ether
59. Buty peroxyacetate, tert
60. Butyl peroxyisobutyrate, tert
61. Butyl peroxy isopropyl carbonate, tert
62. Butyl peroxy maleate, tert
63. Butyl peroxy pivalate, tert
64. Butyl vinyl Ether
65. Butyl-n-Mercaptan
66. Butylamine
67. C9 Aromatic Hydrocarbon Fraction
68. Cadmium and Compounds
69. Cadmium oxide (fumes)
70. Calcium Cyanide
71. Captan
72. Captofol
73. Carbaryl (Sevin)
74. Carbofuran
75. Carbon Disulphide
76. Carbon Monoxide
77. Carbon Tetrachloride
78. Carbonphenothion
79. Cellulose Nitrate
80. Chlorates (used in explosives)
81. Chlordane
82. Chlorfenvinphos
83. Chlorinated Benzenes
84. Chlorine

85. Chlorine Dioxides
86. Chlorine Oxide
87. Chlorine Trifluoride
88. Chloromequate Chloride
89. Chloroacetal Chloride
90. Chloroacetaldehyde
91. Chloroaniline, -2
92. Chloroaniline,-4
93. Chlorobenzene
94. Chlorodiphenyl
95. Chloroepoxypropane
96. Chloroethanol
97. Chloroethyl Chloroformate
98. Chlorofluorocarbons
99. Chloroform
100. Chloroformyl,-4, Morpholine
101. Chloromethane
102. Chloromethyl Ether
103. Chloromethyl Methyl Ether
104. Chloronitrobenzene
105. Chloroprene
106. Chlorosulphonic Acid
107. Chlorotrinitrobenzene
108. Chloroxuron
109. Chromium and Compounds
110. Cobalt and Compounds
111. Copper and Compounds
112. Coumafuryl
113. Comaphos
114. Coumatetrayl

115. Cresols
116. Crimidine
117. Cumene
118. Cyanophos
119. Cyanothoate
120. Cyanuric Fluoride
121. Cyclohexane
122. Cyclohexanol
123. Cyclohexanone
124. Cycloheximide
125. Cyclopentadiene
126. Cyclopentane
127. Cyclotetamethylenete-tranitramine
128. Cyclotrimethylene Trinitramine
129. DDT
130. Decabromodiphenyl Oxide
131. Demeton
132. Di-Isobutyl Peroxide
133. Di-n-propyl peroxydicarbonate
134. Di-sec-Butyl Peroxydicarbonate
135. Dialifos
136. Diazodinitrophenol
137. Diazomethane
138. Dibenzyl Peroxydicarbonate
139. Dichloroacetylene-o
140. Dichloro obenzene-o
141. Dichlorobenzene-p
142. Dichloroethane
143. Dichloroethyl Ether
144. Dichlorophenol 2-4

145. Dichlorophenol -2, 6
146. Dichlorophenboxy Acetic Acid, -2,4(2,4-D)
147. Dichloropropane,-1,2
148. Dichlorosalicylic Acid, -3,5
149. Dichlorvos (DDVP)
150. Dicrotophos
151. Dieldrin
152. Diepoxybutane
153. Diethyl Peroxydicarbonate
154. Diethylene Glycol dinitrate
155. Diethylene Triamine
156. Diethyleneglycol Butyl Ether/Diethyleneglycol Butyl Acetate
157. Diethylenetriamine (DETA)
158. Diglycidyl Ether
159. Dithydroperoxypropane, -2, 2
160. Di-isobutyryl peroxide
161. Dimefox
162. Dimethoate
163. Dimethyl Phosphoramidocyanidic Acid
164. Dimthyl Phthalate
165. Dimethylcarbomyl
166. Dimethylnitrosamine
167. Dinitrophenol, Salts
168. Dinitrotoluene
169. Dintro-o-Cresol
170. Dioxane
171. Dioxathion
172. Dioxolane
173. Diphacinone
174. Diphosphoramide Octamethyl

175. Dipropylene Glycolmethylether
176. Disulfoton
177. Endosulfan
178. Endrin
179. Epichlorohydrine
180. EPN
181. Epoxypropane, 1-2
182. Ethion
183. Ethyl carbamate
184. Ethyl Ether
185. Ethyl Hexanol, -2
186. Ethyl Mercaptan
187. Ethyl Methacrylate
188. Ethyl Nitrate
189. Ethylamine
190. Ethylene
191. Ethylene Chlorohydrine
192. Ethylene Diamine
193. Ethylene Dibromide
194. Ethylene Dichloride
195. Ethylene Glycol Dinitrate
196. Ethylene Oxide
197. Ethyleneimine
198. Ethylthiocyanate
199. Fensulphothion
200. Fluenetil
201. Fluoro, -4,-2-Hydroxybutyric Acid and Salts Esters, Amides
202. Fluoracetic Acid and salts, Esters, Amides
203. Fluorobutyric Acid, -4, and Salts, Esters, Amides
204. Fluorocortonic Acid, -4, Salts, Esters, Amides

205. Formaldehyde
206. Glyconitrile (Hydroxyacetonitrile)
207. Guanyl, -1,-4 Nitrosaminoguynyl-1 Tetrazene
208. Heptachlor
209. Hexachloro Cyclopentadiene
210. Hexachlorocyclohexane
211. Hexachlorocyclomethane
212. Hexachlorodibenzo-p-Dioxin. 1, 2, 3, 7, 8, 9
213. Hexafluoropropene
214. Hexamethylphosphoramide
215. Hexamethyl, -3, 3, 6, 9, 9-1, 2, 4, 5-Tetraoxacyclononane
216. Hexamethylenediamine
217. Hexane
218. Hexanitrostilbene, -2,2, 4, 4, 6, 6
219. Hexavalent Chromium
220. Hydrazine
221. Hydrazine Nitrate
222. Hydrochloric Acid
223. Hydrochloric Acid
224. Hydrogen
225. Hydrogen Bromide (Hydrobromic Acid)
226. Hydrogen Chloride (Liquified Gas )
227. Hydrogen Cyanide
228. Hydrogen Fluoride
229. Hyrdogen 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. Liquefied 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. Methanesulphonyl Fluoride
255. Methanthiol
256. Methoxy Ethanol
257. Methoxyethylmercuric Acetate
258. Methyl Acrylate
259. 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. Methyl-N, 2, 4, 6-Tetranitroaniline
- 276. Methylene Chloride
- 277. Methylenebis-(4, 4, (2,- chloroaniline)
- 278. Methyltrichlorosilane
- 279. Mevinphos
- 280. Molybdenum & Compounds
- 281. N-Methyl-N, 2, 4, 6- Tetranitroaniline
- 282. Naptha (Coal Tar)
- 283. Naphthylamine, 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 Phosphorothioate
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. Paris green
318. Pentaborane
319. Pentabromodiphenyl Oxide
320. Pentabromophenol
321. Pentachloro Napthalene
322. Pentachloroethane
323. Pentachlorophenol
324. Pentaerythritol Tetranitrate

- 325. Pentane
- 326. Pentanone, 2, 4-Methyl
- 327. Peradetic Acid
- 328. Perchloroethylene
- 329. Perchloromethyl Mercaptan
- 330. Phenol
- 331. Phenyl Glycidal Ether
- 332. Phenylene p-Diamine
- 333. Phenylmercury Acetate
- 334. Phorate
- 335. Phosacetim
- 336. Phosalone
- 337. Phosfolan
- 338. Phosgene (carbonyl chloride)
- 339. Phosmet
- 340. Phosphamidon
- 341. Phosphine (Hydrogen Phosphide)
- 342. Phosphoric Acid and Esters
- 343. Phosphoric Acid, Bromoethyl Bromo (2,2-Dimethylpropyl) Bromethyl Ester
- 344. Phosphoric Acid, Bromoethyl Bromo (2, 2-Dimethylpropyl)
- 345. Phosphoric Acid, Cloroethyl Bromo (2, 2-Dimethylpropyl Chloroethylester)
- 346. Phosphorous & Compounds
- 347. Phostalan
- 348. Picric Acid, (2, 4, 6-Trinitrophenol)
- 349. Polybrominated Biphenyls
- 350. Potassium Arsenite
- 351. Potassium Chlorate
- 352. Promurit (1-(3, 4 Dichlorophenyl)-3-Triazenethiocarboxamide)
- 353. Propanesultone-1, 3

- 354. Propen-1, -2-Chloro-1, 3-Diol-Diacetate
- 355. Propylene Oxide
- 356. Propyleneimine
- 357. Pyrazoxon
- 358. Selenium Hexafluoride
- 359. Semicarbazide Hydrochloride
- 360. Sodium Arsenite
- 361. Sodium Azide
- 362. Sodium Chlorate
- 363. Sodium Cyanide
- 364. Sodium Picramate
- 365. Sodium Selenite
- 366. Styrene, 1, 1, 3, 2-Tetrachloroethane
- 367. Sulfotep
- 368. Sulphur dichloride
- 369. Sulphur Dioxide
- 370. Sulphur Trioxide
- 371. Sulphuric Acid
- 372. Sulphoxide, 3-chloropropyloctyl
- 373. Tellurium
- 374. Tellurium Hexafluoride
- 375. Tepp
- 376. Terbufos
- 377. Tetrabromobisphenol-A
- 378. Tetrachloro, 2, 2, 5, 6, 2, 5-Cyclohexadiene-1, 4-Dione
- 379. Tetrachlorodibenzo-p Dioxin, 2 3, 7, 8(TCDD)
- 380. Tetraethyl Lead
- 381. Tetrafluoroethane
- 382. Tetramethylenedisulphotetramine
- 383. Tetramethyl Lead

- 384. Tetranitromethane
- 385. Thallium & Compounds
- 386. Thionazin
- 387. Thionyl Chloride
- 388. Tirpate
- 389. Toluene
- 390. Toluene-2-4Diisocyanate
- 391. Toluidine-o
- 392. Toluene 2, 6-Diisocyanate
- 393. Trans-1, 4-dichlorobutene
- 394. Tri-1(cycloexyl) Stannyl-1-H-1, 2, 3-Triazole
- 395. Triamino, -1, 3 5, 2, 4, 6-Trinitrobenzene
- 396. Tribromophenol, 2, 4, 6
- 397. Trichloro Acetyl Chloride
- 398. Trichloro Ethane
- 399. Trichloro Napthalene
- 400. Trichloro (Chloromethyl) Silane
- 401. Trichlorodichlorophenylsilane
- 402. Trichloroethane, 1, 1 –1
- 403. Trichloroethyl Silane
- 404. Trichloroethylene
- 405. Trichloromethanesulphenyl chloride
- 406. Trichlorophenol, 2, 2, 6
- 407. Trichlorophenol, 2, 4, 5
- 408. Triethylamine
- 409. Triethylenemelamine
- 410. Trimethyl Chlorosilane
- 411. Triethylpropane Phosphite
- 412. Trinitroaniline
- 413. Trinitroanisole, 2, 2, 4, 6

- 414. Trinitrobenzene
- 415. Trinitrobenzoic Acid
- 416. Trinitrocresol
- 417. Trinitrophenetole, 2, 5, 6
- 418. Trinitroresorcinol, 2, 4, 6 ( Styphnic Acid)
- 419. Trinitrotoluene
- 420. Triorthocresyl Phosphate
- 421. Triphenyl Tin Chloride
- 422. Turpentine
- 423. Uranium & Compounds
- 424. Vanadium & Compounds
- 425. Vinyl Chloride
- 426. Vinyl Fluoride
- 427. Vinyl Toluene
- 428. Warfarin
- 429. Xylene
- 430. Xylidine
- 431. Zinc & Compounds
- 432. Zirconium & Compounds

**SCHEDULE -2**

[ see rules 2(b), 2(e) 2(g)]

<b>S.No.</b>	<b>Chemicals</b>	<b>Threshold Planning Quantities (M.T.)</b>
<b>1</b>	<b>2</b>	<b>3</b>
1.	Acrylonitrile	350
2.	Ammonia	60
3.	Ammonium nitrate (c)	350
4.	Ammonium nitrate fertilizers (d)	1,250
5.	Chlorine	10
6.	Flammable gases as defined in Schedule 1, paragraph (b) (i)	50
7.	Highly flammable liquids as defined in schedule 1, paragraph (b) (ii)	10,000
8.	Liquid oxygen	200
9.	Sodium chlorate	25
10.	Sulphur dioxide	20
11.	Sulphur trioxide	15
12.	Carbonyl chloride	0.750
13.	Hydrogen Sulphide	5
14.	Hydrogen fluoride	5
15.	Hydrogen cyanide	5
16.	Carbon disulphide	20
17.	Bromine	50
18.	Ethylene oxide	5
19.	Propylene oxide	5
20.	2-Propenal (Acrolein)	20
21.	Bromomethane (Methyl bromide)	20
22.	Methyl isocyanate	0.150

23.	Tetraethyl Lead or tetramethyl lead	5
24.	1,2 Dirbromoethane (Ethylene dibromide)	5
25.	Hydrogen chloride (liquified gas)	25
26.	Diphenyl methane di-isocyanate (MDI)	20
27.	Toluene di-isocyanate (TDI)	10

Note : (a) The threshold quantities set out above 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 between the installations is less than 500 metres.

(b) 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 :-

(i) in that part of any pipeline under the control of the occupier having control of the site, which is within 500 metres of that site and connected to it;

(ii) 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

(iii) 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.

(c) 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.

(d) This applies to straight ammonium nitrate fertilizers 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 - 3**

[see rule 2(b), 2(e), 2(g)]

**Named Chemicals**

<b>S. No.</b>	<b>Chemical</b>	<b>Threshold quantity</b>	<b>CAS number</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Group 1-TOXIC CHEMICALS</b>			
1.	Aldicarb	100 kg	116-06-3
2.	4-Aminodiphenyl	1 kg	96-67-1
3.	Amiton	1 kg	78-53-5
4.	Anabasine	100 kg	494-52-0
5.	Arsenic pentoxide, Arsenic (V) acid and salts	500 kg	
6.	Arsenic trioxide, Arsenious (III) acid & salts	100 kg	
7.	Arsine (Arsenic hydride)	10 kg	7784-42-1
8.	Azinpho-ethyl	100 kg	2642-71-9
9.	Azinpho-methyl	100 kg	86-50-0
10.	Benzidine	1 kg	92-87-5
11.	Benzidine salts	1 kg	-
12.	Beryllium (powders & "compounds")	10 kg	-
13.	Bis(2-chloroethyl) Sulphide	1 kg	505-60-2
14.	Bis (chloromethyl) ether	1 kg	542-88-1
15.	Carbofuran	100 kg	1563-66-2
16.	Carbophenothion	100 kg	786-19-6
17.	Chlorfenvinphos	100 kg	470-90-6
18.	4-(Chloroformyl) morpholine	1 kg	15159-40-7
19.	Chloromethyl methyl ether	1 kg	107-30-2

<b>S. No.</b>	<b>Chemical</b>	<b>Threshold quantity</b>	<b>CAS number</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
20.	Cobalt (metal, oxides, carbonates, sulphides, as powders)	1000 kg	-
21.	Crimidine	100 kg	535-89-7
22.	Cyanothoate	100 kg	3734-90-0
23.	Cycloheximide	100 kg	66-81-9
24.	Demeton	100 kg	8065-48-3
25.	Dialifos	100 kg	10311-84-9
26.	OO-Diethyl S-ethylsuphynylmethyl phosphorothioate	100 kg	2588-06-8
27.	OO-Diethyl S-ethylsuphonylmethyl phosphorothioate	100 kg	2588-06-9
28.	OO-Diethyl S-ethylthiomethyl phosphorothioate	100 kg	2600-69-3
29.	OO-Diethyl S-isopropylthiomethyl phosphorodithioate	100 kg	-
30.	OO-Diethyl S-propylthiomethyl phosphorodithioate	100 kg	3309-68-0
31.	Dimefox	100 kg	115-26-4
32.	Dimethylcarbamoyl chloride	1 kg	79-44-7
33.	Dimethylnitrosamine	1 kg	62-75-9
34.	Dimethyl phospho amidocyanidic acid	1000 kg	7781-6
35.	Diphacinone	100 kg	82-66-6
36.	Disulfoton	100 kg	298-04-4
37.	EPN	100 kg	2104-64-5
38.	Ethion	100 kg	563-12-2
39.	Fensulfothin	100 kg	115-90-2
40.	Fluenetil	100 kg	4301-50-2
41.	Fluoroacetic acid,	1 kg	144-49-0
42.	Fluoroacetic acid, salts	1 kg	
43.	Fluoroacetic acid, esters	1 kg	
44.	Fluoroacetic acid, amides	1 kg	

<b>S. No.</b>	<b>Chemical</b>	<b>Threshold quantity</b>	<b>CAS number</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
45.	4-Fluorobutyric acid	1 kg	
46.	S-Fluorobutyric acid, salts	1 kg	
47.	4- Fluorobutyric acid, esters	1 kg	
48.	4- Fluorobutyric acid	1 kg	
49.	4- Fluorocrotonic acid,	1 kg	37759-72-1
50.	4- Fluorocrotonic acid, salts	1 kg	
51.	4- Fluorocrotonic acid, esters	1 kg	
52.	4- Fluorocrotonic acid, amides	1 kg	
53.	4-Fluoro-2-hydroxybutyric acid	1 kg	
54.	4-Fluoro-2-hydroxy butyric acid, salts	1 kg	
55.	4-Fluoro-2-hydroxybutyric acid, esters	1 kg	
56.	4-Fluoro 2-hydroxybutyric acid, amides	1 kg	
57.	Glyconitrile (Hydroxyacetonitrile)	100 kg	107-16-4
58.	1, 2, 3, 7, 8, 9,-Hexachlorodibenzo-p-dioxine	100 kg	19408-74-3
59.	Hexamethylphosphoramide	1 kg	680-31-9
60.	Hydrogen selenide	10 kg	7783-07-5
61.	Isobenzan	100 kg	297-78-9
62.	Isodrin	100 kg	465-73-6
63.	Juglone (5-Hydroxynaphthalene) 1, 4-dioone)	100 kg	481-39-0
64.	4, 4-Methylenebis (2-chloroaniline)	10 kg	101-14-4
65.	Methyl isocyanate	150 kg	624-83-9
66.	Mevinphos	100 kg	7786-34-7
67.	2-Napthylamine	1 kg	91-59-8
68.	Nickel (metal oxides, carbonates , sulphide, as powders)	1000 kg	-
69.	Nickel tetracarbonyl	10 kg	13463-39-3
70.	Oxydisulfoton	100 kg	2497-07-6

<b>S. No.</b>	<b>Chemical</b>	<b>Threshold quantity</b>	<b>CAS number</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
71.	Oxygen difluoride	10 kg	7783-41-7
72.	Paraoxan (Deithyl 4-nitrophenyl phosphate)	100 kg	311-45-5
73.	Parathion	100 kg	56-38-2
74.	Parathion-methyl	100 kg	298-00-0
75.	Pentaborane	100 kg	19624-22-7
76.	Phorate	100 kg	298-02-2
77.	Phosazetim	100 kg	4104-14-7
78.	Phosgene (carbonul chloride)	750 kg	75-55-5
79.	Phoshamidon	100 kg	13171-21-6
80.	Phosphine (Hydrogen phosphide)	100 kg	5836-73-7
81.	Promurit ( 1-(3, 4-Dichlorophenyl)-3 triazenethiocarboxamide	100 kg	5836-73-7
82.	1, 3-Propanesultone	1 kg	1120-71-4
83.	1-Propene-2-chloro-1, 3-diol diacetate	10 kg	10118-72-6
84.	Pyrazoxom	100 kg	108-34-9
85.	Selenium hexafluoride	10 kg	7783-79-1
86.	Sodium selenite	100 kg	10102-18-8
87.	Stibine (Antimony hydride)	100 kg	7803-52-3
88.	Sulfotep	100 kg	3689-24-5
89.	Sulphur dichloride	1000 kg	10545-99-0
90.	Tellurium hexafluoride	100 kg	7783-80-4
91.	TEPP (Tetraethyl pyrophosphate)	100 kg	107-49-3
92.	2, 3, 7, 8-Tetrachlorodibenzo-p-dioxine (TCDD)	1 kg	1746-01-6
93.	Tetramethylenedisulphotetramine	1 kg	80-12-6
94.	Thionazine	100 kg	297-97-2
95.	Tirpate (2, 4-Dimethyl-1, 3-dithiolane-2carboxaldehyde O-methylcarbarnoyloxime)	100 kg	26419-73-8
96.	Trichloromethanesulphenyl chloride	100 kg	594-42-3

<b>S. No.</b>	<b>Chemical</b>	<b>Threshold quantity</b>	<b>CAS number</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
97.	1-Tri ( cyclohexyl)v stannyl IIIH-1, 2, 3-triazole	100 kg	40183-11-8
98.	Triethylenemelamine	10 kg	51-18-3
99.	Warfarin	100 kg	81-81-2
<b>GROUP 2- TOXIC CHEMICALS</b>			
100.	Acetone cyanohydrin (2-Cyanopropan2-1)	200 T	75-86-5
101.	Acrolein (2-Propenal)	20 T	107-02-8
102.	Acrylonitrile	20 T	107-13-1
103.	Allyl alcohol (Propen-1-01)	200 T	107-18-6
104.	Allamine	200 T	107-11-9
105.	Ammonia	50 T	7664-41-7
106.	Bromine	40 T	7726-95-6
107.	Carbon disulphide	20 T	75-15-0
108.	Chlorine	10 T	7782-50-5
109.	Diphenyl methane di-isocyanate (MDI)	20 T	101-68-8
110.	Ethylene dibormide (1,2-Dibormoethane)	5 T	106-93-4
111.	Ethyleneimine	50 T	151-56-4
112.	Formaldehyde (Concentration >90%)	5 T	50-00-0
113.	Hydrogen chloride (liquified gas)	25 T	7647-01-0
114.	Hydrogen cyanide	5 T	74-90-8
115.	Hydrogen fluoride	5 T	7664-39-3
116.	Hydrogen sulphide	5 T	7783-06-4
117.	Methyl bromide ( bromomethane)	20 T	74-83-9
118.	Nitrogen oxides	50 T	11104-93-1
119.	Propyleneimine	50 T	75-55-8
120.	Sulphur dioxide	20 T	7446-09-5
121.	Sulphur trioxide	15 T	7446-11-9

<b>S. No.</b>	<b>Chemical</b>	<b>Threshold quantity</b>	<b>CAS number</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
122.	Tetraethyl lead	5 T	78-00-2
123.	Tetramethyl lead	5 T	75-74-1
124.	Toluene 2, 4, di-isocyanate (TDI)	10 T	584-84-9
<b>GROUP 3- HIGHLY REACTIVE CHEMICALS</b>			
125.	Acetylene (ethyne)	5 T	74-86-2
126.	I. Ammonium nitrate (c) II. Ammonium nitrate in the form of fertilisers(d)	350 T 250 T	6484-52-2
127.	2,2-Bis (tert-butylperoxy) butane (concentration >70%)	5 T	2167-23-9
128.	1,1-Bis (tert-butylperoxy) cyclohexane (concentration –80%)	5 T	3006-86-8
129.	tert-Butyl peroxyacetate (concentration –70%)	5 T	107-71-1
130.	tert-Butyl peroxyisobutyrate (concentration –80%)	5 T	109-13-7
131.	tert-Butyl peroxy isopropyl carbonate (concentration –80%)	5 T	2372-21-6
132.	Terty-Butyl peroxy maleate (concentration –80%)	5 T	1931-62-0
133.	Tert-Butyl peroxy pivalate (concentration –70%)	50 T	927-07-1
134.	Dibenzyl peroxydicarbonate (concentration –90%)	5 T	2144-45-8
135.	Di-sec. butyl peroxydicarbonate (concentration –80%)	5 T	19910-65-7
136.	Diethyl peroxydicarbonate (concentration –30%)	50 T	1466-78-5
137.	2,2-Dihydroperoxypropane (concentration –30%)	5 T	2614-76-8
138.	Di-isobutryl peroxide (concentration –80%)	5 T	3437-84-1
139.	Di-n-propyl peroxydicarbonate (concentration –80%)	5 T	16066-38-9
140.	Ethylene oxide	5 T	75-21-8
141.	Ethyl nitrate	50 T	625-58-1
142.	3,3,6,6,9,9-Hexamethyl-1, 2, 3, 4,5-tetra-oxacyclononane ( concentration – 75%)	5 T	22397-33-7

<b>S. No.</b>	<b>Chemical</b>	<b>Threshold quantity</b>	<b>CAS number</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
143.	Hydrogen	2 T	1333-74-0
144.	Methyl ethyl ketone peroxide (concentration – 60%)	5 T	1339-23-4
145.	Methyl isobutyl ketone peroxide (concentration –60%)	5 T	37206-2-5
146.	Oxygen Liquid	200 T	7782-44-7
147.	Peracetic acid (concentration –60%)	5 T	79-21-0
148.	Propylene oxide	5 T	75-56-9
149.	Sodium chlorate	25 T	7775-09-9
<b>GROUP 4- EXPLOSIVE CHEMICALS</b>			
150.	Barium azide	50 T	18810-58-7
151.	Bis (2, 4, 6-trinitrophenyl amine)	50 T	131-73-7
152.	Chlorotrinitrobenzene	50 T	28260-61-9
153.	Cellulose nitrate (Containing 12.6% Nitrogen )	50 T	9004-70-0
154.	Cyclotetramethylenetetra nitramine	50 T	2691-41-0
155.	Cyclotrimethylenetrinitramine	10 T	121-82-4
156.	Diazodinitrophenol	10 T	87-31-4
157.	Diethylene glycol dinitrate	50 T	693-21-0
158.	Dinitrophenol salts	10 T	-
159.	Ethylene glycol dinitrate	10 T	628-96-6
160.	1-Guanyl-4-nitrosaminoguanyl-1-tetrazene	50 T	109-27-3
161.	2, 2, 4, 4, 6, 6-Hexanitrostilbene	50 T	20062-22-0
162.	Hydrazine nitrate	50 T	13464-97-6
163.	Lead azide	50 T	13424-46-9
164.	Lead styphnate (lead 2, 4 6-trinitroresorcinoxide)	10 T	15424-40-9
165.	Mercury fulminate	50 T	628-86-4
166.	N-Methyl-N,2, 4, 6-tetranitroaniline	10 T	479-45-8

<b>S. No.</b>	<b>Chemical</b>	<b>Threshold quantity</b>	<b>CAS number</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
167.	Nitroglycerine	50 T	55-63-0
168.	Pentaerythritol tetranitrate	50 T	78-11-5
169.	Picric acid (2, 4, 6-Trinitrophenol)	50 T	88-89-1
170.	Sodium picramate	50 T	831-52-7
171.	Styphnic acid (2, 4, 6- Trinitroesorcinol)	50 T	82-71-3
172.	1, 3,5-Triamino-2, 4, 6-trinitrobenzene	50 T	3058-38-9
173.	Trinitroaniline	50 T	26952-42-1
174.	2, 4, 6-Trinitroanisole	50 T	606-95-9
175.	Trinitrobenzene	50 T	9935-42-6
176.	Trinitrobenzoic acid	50 T	129-66-8
177.	Trinitrocresol	50 T	602-99-3
178.	2, 4, 6-Trinitrophenitole	50 T	4732-14-3
179.	2, 4, 6-Trinitrotoluene	50 T	118-96-7

## PART-II

[ Classes of Substances not specially named in Part-I]

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1.	2.	3.
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### GROUP 5- FLAMMABLE CHEMICALS

1. Flammable gases :

Substances 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;

15t

2. Highly flammable liquids :

Substances which have a flash point lower than 23°C and the boiling point of which at normal pressure is above 20°C;

1000t

3. Flammable liquids :

Substances which have a flash point lower than 65°C and which remain liquid under pressure, where particular processing conditions, such as high pressure and high temperature, may create major accident hazards.

25t

- (a) The quantities set-out above relate to each installation or group of installations belonging to the same occupier where the distance between the installations is not sufficient to avoid, in foreseeable circumstances, any aggravation of major accident hazards. These quantities apply in any case to each group of installations belonging to the same occupier where the distance between the installation is less than 500 metres.
- (b) For the purpose of determining the threshold quantity of a hazardous chemical in an industrial installation account shall be taken of any hazardous chemicals which is :-

- (i) in that part of any pipeline under the control of the occupier having control of the site, which is within 500 metres off that site and connected to it;
- (ii) 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
- (iii) 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, vessels, aircraft or hovercraft used for transporting it.

- (c) This applies to ammonium nitrate and mixture of ammonium nitrate where the nitrogen content derived from the ammonium nitrate is greater than 28% by weight and aqueous solutions of ammonium nitrate where the concentration of ammonium nitrate is greater than 90% by weight.
- (d) This applies to straight ammonium nitrate fertilizers and to compound fertilizers where the nitrogen content derived from the ammonium nitrate is greater than 28% by weight ( a compound fertilizer contains ammonium nitrate together with phosphate and/or potash).

**SCHEDULE –4**  
[see rule 2(c), 2(e)]

1. Installations for the production, processing or treatment of organic or inorganic chemicals using for this purpose, among other :
  - (a) alkylation
  - (b) Amination by ammonolysis
  - (c) carbonylation
  - (d) condensation
  - (e) dehydrogenation
  - (f) esterification
  - (g) halogenation and manufacture of halogens
  - (h) hydrogenation
  - (i) hydrolysis
  - (j) oxidation
  - (k) polymerisation
  - (l) sulphonation
  - (m) desulphurization, manufacture and transformation of sulphur-containing compounds
  - (n) nitration and manufacture of nitrogen-containing compounds
  - (o) manufacture of phosphorous containing compounds
  - (p) formulation of pesticides and of pharmaceutical products
  - (q) distillation
  - (r) extraction
  - (s) solvation
  - (t) mixing
2. Installations for distillation, refining or other processing of petroleum or petroleum products.
3. Installations for the total or partial disposal of solid or liquid substances by incineration or chemical decomposition.
4. Installations for production, processing or treatment of energy gases, for example, LPG, LNG, CNG\*.
5. Installations for the dry distillation of coal or lignite.
6. Installations for the production of metals or non-metals by a wet process or by means of electrical energy.

**SCHEDULE –5**

[see rule 3(2)]

**COMPOSITION OF THE CENTRAL CRISIS GROUP**

(i)	Secretary, Govt. of India, Ministry of Environment & Forests	Chairperson
(ii)	Joint Secretary/Adviser (Environment & Forests)	Member Secretary
(iii)	Joint Secretary (labour)	Member
(iv)	Joint Secretary/ Adviser (Chemical & Pharmaceuticals)	”
(v)	Director General, Civil Defence	”
(vi)	Fire Advisor, Directorate General Civil Defence	”
(vii)	Chief Controller of Explosive	”
(viii)	Joint Secretary, (Deptt. of Industries )	”
(ix)	Director General, Indian Council of Medical Research	”
(x)	Joint Secretary (Health)	”
(xi)	Chairman, Central Pollution Control Board	”
(xii)	Director General, Indian Council of Agriculture Research	” ”
(xiii)	Director General, Council of scientific & Industrial Research	”
(xiv)	4 Experts (Industrial Safety and Health)	”

- (xv) Joint Secretary(Fertilizers) ”
- (xvi) Director General(Telecom) ”
- (xvii) 2 Representatives of Industries to be  
nominated by the Central Govt. ”
- (xviii) Joint Secretary (Surface Transport) ”
- (xix) General Manager (Rail safety) ”
- (xx) Adviser, Centre for environment and  
Explosive safety ”
- (xxi) One Representative of Indian Chemical  
Manufacturers Association to be  
nominated by the Central Govt. ”

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**SCHEDULE-6**

[ See rule 6(2)]

**COMPOSITION OF THE STATE CRISIS GROUP**

(i)	Chief Secretary	Chairperson
(ii)	Secretary (Labour)	Member Secy.
(iii)	Secretary (Environment)	Member
(iv)	Secretary (Health)	”
(v)	Secretary (Industries)	”
(vi)	Secretary (Public Health Engg.)	”
(vii)	Chairman, State Pollution Control Board	”
(viii)	4-Experts (Industrial Safety & Health) to be nominated by the State Government	”
(ix)	Secretary/Commissioner(Transport)	”
(x)	Director(Industrial Safety)/Chief Inspector of Factories	”
(xi)	Fire Chief	”
(xii)	Commissioner of Police	”
(xiii)	One Representative from the Industry to be nominated by the State Govt.	”

**SCHEDULE-7**

[ See rule 8]

**COMPOSITION OF THE DISTRICT CRISIS GROUP**

(i)	District Collector	Chairperson
(ii)	Inspector of Factories	Member Secy.
(iii)	District Energy Officer	Member
(iv)	Chief Fire Officer	Member
(v)	District Information Officer	”
(vi)	Controller of Explosives	”
(vii)	Chief, Civil Defence	”
(viii)	One Representative of Trade Unions to be nominated by the District Collector	”
(ix)	Deputy Superintendent of Police	”
(x)	District Health Officer/Chief Medical Officer	”
(xi)	Commissioner, Municipal Corporations	”
(xii)	Representative of the Department of Public Health Engineering	”
(xiii)	Representative of Pollution Control Board	”
(xiv)	District Agriculture Officer	”
(xv)	4 Experts (Industrial Safety & Health) to be nominated by the District Collector	”
(xvi)	Commissioner (Transport)	”
(xvii)	One Representative of Industry to be nominated by the District Collector	”
(xviii)	Chair-person/Member-Secretary of Local Crisis Groups	”

**SCHEDULE-8**

[ See rule 8)]

**COMPOSITION OF THE LOCAL CRISIS GROUPS**

(i)	Sub-divisional Magistrate / District Emergency Authority	Chairperson
(ii)	Inspector of Factories	Member Secy.
(iii)	Industries in the District/Industrial area/ industrial pocket	Member
(iv)	Transporters of Hazardous Chemicals (2 Numbers)	”
(v)	Fire Officer	”
(vi)	Station House Officer (Police)	”
(vii)	Block Development Officer	”
(viii)	One Representative of Civil Defence	”
(ix)	Primary Health Officer	”
(x)	Editor of local News paper	”
(xi)	Community leader/Sarpanch/Village Pradhan nominated by Chair-person	”
(xii)	One Representative of Non-Government Organisation to be nominated by the Chair-person	”
(xiii)	Two Doctors eminent in the Local area, to be nominated by Chair-person	”
(xiv)	Two Social Workers to be nominated by the Chair-person	”