

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

MINISTRY OF ENVIRONMENT & FORESTS

(Department of Environment, Forests and Wildlife)

NOTIFICATION

(New Delhi, the 27th 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. 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 1[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;

* 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.

1Substituted 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.

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(f) "import" with its grammatical variations and cognate expression, means brining 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;

1[(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;]

1	Substituted by Rule 2(ii) of the Manufacture, Storage and Import of Hazardous Chemical (Amendment)Rules, 2000 notified vide S.O.57(E), dated 19th January, 2000.
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(k) "pipeline" means a pipe (together with any apparatus and works

associated therewith) or system of pipes (together with any

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.

1[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 ;

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

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- (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 1[or
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listed] in Column 2 of Part II of this Schedule is, or may be, involved; and

2[(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 3[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 4[requisite information within 90 days to the Ministry] of Environment and Forests through appropriate channel.

1 Substituted by Rule 3(i) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994. 2 Substituted by Rule 3(ii), *ibid*.

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

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Substituted by Rule 3(b) *ibid*.

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

2[(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 3[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;

1 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.

2Inserted by Rule 3(d); *ibid.*

3Substituted by Rule 4; *ibid.*

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

7. 1[APPROVAL AND] NOTIFICATION OF SITES -

(1) An occupier shall not undertake any industrial activity 2[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.

3[(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

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

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

3Substituted by Rule 4(b), *ibid.*

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(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 1[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.

2[(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.]

3[(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.]

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

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

3Inserted by Rule 5(b), *ibid*.

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1[(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 2[***] send a copy of the report to the concerned authority.

3[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 4[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

1	Inserted by Rule 5(b) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994. Omitted by
2	Rule 6, <i>ibid</i> .
3	Substituted by Rule 7, <i>ibid</i> .
4	Substituted by Rule 8(a), <i>ibid</i> .

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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.

1[(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 2[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

1	Inserted by Rule 8(b) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994. Substituted
2	by Rule 9 (a), <i>ibid</i> .

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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.

1[(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.

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

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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 [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 2[or listed] in Column 2 of Part II of this Schedule.

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

2Substituted by Rule 8(a), *ibid*.

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(2) Any person responsible for importing hazardous chemicals in India shall provide 1[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.

2(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.]

3[(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.

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

2Substituted by Rule 10(b), *ibid*.

3Inserted by Rule 10(c), *ibid*.

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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, 1[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.

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

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1[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 LD50(mg/kg)	Dermal toxicity LD50(mg/kg)	Inhalation toxicity LC50(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 20oC 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 23oC and boiling point less than 35oC.
(iii)	very highly flammable liquids : chemicals which have a flash point lower than or equal to 23oC and initial boiling point higher than 35oC.

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

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(iv) **highly flammable liquids** : chemicals which have a flash point lower than or equal to 60oC but higher than 23oC.

(v)	<i>flammable liquids</i> : chemicals which have a flash point higher than 60oC but lower than 90oC.
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(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.

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PART II

LIST OF HAZARDOUS AND TOXIC CHEMICALS

S. NAME OF HAZARDOUS CHEMICALS S. NAME OF HAZARDOUS CHEMICALS No. No.			
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
23.	Aluminium fluoride	63.	(Trifluoromethyl)
24.	Aluminium phosphide		Benzoquinone-P
25.	Amino diphenyl	64.	Benzotrichloride
26.	Amino pyridine	65.	Benzoyl chloride
27.	Aminophenol-2	66.	Benzoyl peroxide
28.	Aminopterin	67.	Benzyl chloride
29.	Amiton	68.	Beryllium (Powder)
30.	Amiton dialate	69.	Bicyclo (2, 2, 1) Heptane -2-
31.	Ammonia	70.	carbonitrile
32.	Ammonium chloro		Biphenyl
33.	platinate	71.	Bis (2-Chloroethyl) sulphide
	Ammonium nitrate	72.	Bis (Chloromethyl) Ketone
34.	Ammonium nitrite	73.	Bis (Tert-butyl peroxy) cyclohexane
35.	Ammonium picrate	74.	Bis (Terbutylperoxy) butane
36.	Anabasine	75.	Bis(2,4, 6-Trinitrophenylamine)

37.	Aniline	76.	Bis (Chloromethyl) Ether
38.	Aniline 2,4, 6-Trimethyl	77.	Bismuth and compounds
39.	Anthraquinone	78.	Bisphenol-A
40.	Antimony pentafluoride	79.	Bitoscanate

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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. 127. Chloroaniline -4
With methylether, 1:1 128. Chlorobenzene
84. Bromine 129. Chloroethyl chloroformate
85. Bromine pentafluoride 130. Chloroform
86. Bromo chloro methane 131. Chloroformyl morpholine
87. Bromodialone 132. Chloromethane
88. Butadiene 133. Chloromethyl methyl ether
89. Butane 134. Chloronitrobenzene
90. Butanone-2 135. Chlorophacinone
91. Butyl amine tert 136. Chlorosulphonic acid
92. Butyl glycidal ether 137. Chlorothiophos
93. Butyl isovalerate 138. Chloroxuron
94. Butyl peroxy maleate tert 139. Chromic acid
95. Butyl vinyl ether 140. Chromic chloride
96. Butyl-n-mercaptan 141. Chromium powder
97. C.I. Basic green 142. Cobalt carbonyl
98. Cadmium oxide 143. Cobalt Nitrilmethylidyne compound
99. Cadmium stearate 144. Cobalt (Powder)
100. Calcium arsenate 145. Colchicine
101. Calcium carbide 146. Copper and Compounds
102. Calcium cyanide 147. Copperoxychloride
103. Camphechlor (Toxaphene) 148. Coumafuryl

104. Cantharidin 149. Coumaphos
 105. Captan 150. Coumatetralyl
 106. Carbachol chloride 151. Crimidine
 107. Carbaryl 152. Crotenaldehyde
 108. Carbofuran (Furadan) 153. Crotonaldehyde
 109. Carbon tetrachloride 154. Cumene
 110. Carbon disulphide 155. Cyanogen bromide
 111. Carbon monoxide 156. Cyanogen iodide
 112. Carbonphenothion 157. Cyanophos
 113. Carvone 158. Cyanothoate
 114. Cellulose nitrate 159. Cyanuric fluoride
 115. Chloroacetic acid 160. Cyclo hexylamine
 116. Chlordane 161. Cyclohexane
 117. Chlorofenvinphos 162. Cyclohexanone
 118. Chlorinated benzene 163. Cycloheximide
 119. Chlorine 164. Cyclopentadiene
 120. Chlorine oxide 165. Cyclopentane
 121. Chlorine trifluoride 166. Cyclotetramethyl enetetranitramine
 122. Chlormephos 167. Cyclotrimethylen
 123. Chlormequat chloride etrintramine

742	168.	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>		
		Cypermethrin	209.	Dimethyl nitrosoamine
	169.	DDT	210.	Dimethyl P phenylene diamine
	170.	Decaborane (1 :4)	211.	Dimethyl phosphoramidi cyanidic
	171.	Demeton	acid (TABUM)	
	172.	Demeton S-Methyl	212.	Dimethyl phosphorochloridothioate
	173.	Di-n-propyl peroxydicarbonate	213.	Dimethyl sulfolane (DMS)
	174.	(Conc = 80%)	214.	Dimethyl sulphide

	Dialifos	215.	Dimethylamine
175.	Diazodinitrophenol	216.	Dimethylaniline
176.	Dibenzyl peroxydicarbonate	217.	Dimethylcarbonyl chloride
177.	(Conc>= 90%)	218.	Dimetilan
	Diborane	219.	Dinitro O-cresol
178.	Dichloroacetylene	220.	Dinitrophenol
179.	Dichlorobenzalkonium chloride	221.	Dinitrotoluene
180.	Dichloroethyl ether	222.	Dinoseb
181.	Dichloromethyl phenylsilane	223.	Diniterb
182.	Dichlorophenol – 2, 6	224.	Dioxane-p
183.	Dichlorophenol – 2, 4	225.	Dioxathion
184.	Dichlorophenoxy acetic acid	226.	Dioxine N
185.	Dichloropropane – 2, 2	227.	Diphacinone
186.	Dichlorosalicylic acid-3, 5	228.	Diphosphoramide octamethyl
187.	Dichlorvos (DDVP)	229.	Diphenyl methane di-isocynate
188.	Dicrotophos	(MDI)	
189.	Dieldrin	230.	Dipropylene Glycol Butyl ether
190.	Diepoxy butane	231.	Dipropylene glycolmethyl ether
191.	Diethyl carbamazine citrate	232.	Disec-butyl peroxydicarbonate
192.	Diethyl chlorophosphate	(Conc.>80%)	
193.	Diethyl ethtanolamine	233.	Disufoton
194.	Diethyl peroxydicarbonate	234.	Dithiazamine iodide
195.	(Conc=30%)	235.	Dithiobiurate

	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.	Ethanesulphenyl chloride, 2 chloro
203.	Dihydroperoxypropane	244.	Ethanol 1-2 dichloracetate
204.	(Conc >=30%)	245.	Ethion
	Diisobutyl peroxide	246.	Ethoprophos
205.	Dimefox	247.	Ethyl acetate
206.	Dimethoate	248.	Ethyl alcohol
207.	Dimethyl dichlorosilane	249.	Ethyl benzene
208.	Dimethyl hydrazine	250.	Ethyl bis amine

The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 743

251. Ethyl bromide 292. Furan

252. Ethyl carbamate 293. Gallium Trichloride

253. Ethyl ether 294. Glyconitrile (Hydroxyacetonitrile)

254. Ethyl hexanol -2 295. Guanyl-4-nitrosaminogynyl-1-

255. Ethyl mercaptan tetrazene

256. Ethyl mercuric phosphate 296. Heptachlor

257. Ethyl methacrylate 297. Hexamethyl terta-oxyacyclononate

258. Ethyl nitrate (Conc 75%)

259. Ethyl thiocyanate 298. Hexachlorobenzene

260. Ethylamine 299. Hexachlorocyclohexan (Lindane)

261. Ethylene 300. Hexachlorocyclopentadiene
262. Ethylene chlorohydrine 301. Hexachlorodibenzo-p-dioxin
263. Ethylene dibromide 302. Hexachloronapthalene
264. Ethylene diamine 303. Hexafluoropropanone
265. Ethylene diamine hydrochloride sesquihydrate
266. Ethylene flourohydrine 304. Hexamethyl phosphoromide
267. Ethylene glycol 305. Hexamethylene diamine N N
268. Ethylene glycol dinitrate dibutyl
269. Ethylene oxide 306. Hexane
270. Ethylenimine 307. Hexanitrostilbene 2, 2, 4, 4, 6, 6
271. Ethylene di chloride 308. Hexene
272. Femamiphos 309. Hydrogen selenide
273. Femitrothion 310. Hydrogen sulphide
274. Fensulphothion 311. Hydrazine
275. Fluemetil 312. Hydrazine nitrate
276. Fluorine 313. Hydrochloric acid (Gas)
277. Fluoro2-hyrdoxy butyric acid 314. Hydrogen
amid salt ester 315. Hydrogen bromide
278. Fluoroacetamide 316. Hydrogen cyanide
279. Fluoroacetic acid amide salts and 317. Hydrogen fluoride
esters 318. Hydrogen peroxide
280. Fluoroacetylchloride 319. Hydroquinone
281. Fluorobutyric acid amide salt 320. Indene
esters 321. Indium powder
282. Fluorocrotonic acid amides salts 322. Indomethacin
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-

290. Fosthiotan dichlorophenyl ester

291. Fuberidazole 331. Isodrin

744	332.	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>		
		Isofluorophosphate	373.	Methoxy ethanol (2-methyl
	333.	Isophorone diisocyanate	cellosolve)	
	334.	Isopropyl alcohol	374.	Methoxyethyl mercuric acetate
	335.	Isopropyl chlorocarbonate	375.	Methacryloyl chloride
	336.	Isopropyl formate	376.	Methyl 2-chloroacrylate
	337.	Isopropyl methyl pyrazolyl	377.	Methyl alcohol
	338.	dimethyl carbamate	378.	Methyl amine
		Juglone (5-Hydroxy	379.	Methyl bromide (Bromomethane)
	339.	Naphthalene-1,4 dione)	380.	Methyl chloride
		Ketene	381.	Methyl chloroform
	340.	Lactonitrile	382.	Methyl chloroformate
	341.	Lead arsenite	383.	Methyl cyclohexene
	342.	Lead at high temp (molten)	384.	Methyl disulphide
	343.	Lead azide	385.	Methyl ethyl ketone peroxide
	344.	Lead styphanate	(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	395.	Methyl phosphonic dichloride
355.	cyclopentadiene	396.	Methyl thiocyanate
	Mechlor ethamine	397.	Methyl trichlorosilane
356.	Mephospholan	398.	Methyl vinyl ketone
357.	Mercuric chloride	399.	Methylene bis (2-chloroaniline)
358.	Mercuric oxide	400.	Methylene chloride
359.	Mercury acetate	401.	Methylenebis-4,4(2-chloroaniline)
360.	Mercury fulminate	402.	Metolcarb
361.	Mercury methyl chloride	403.	Mevinphos
362.	Mesitylene	404.	Mezacarbate
363.	Methaacrolein diacetate	405.	Mitomycin C
364.	Methacrylic anhydride	406.	Molybdenum powder
365.	Methacrylonitrile	407.	Monocrotophos
366.	Methacryloyl oxyethyl	408.	Morpholine
367.	isocyanate	409.	Muscinol
	Methanidophos	410.	Mustard gas
368.	Methane	411.	N-Butyl acetate
369.	Methanesulphonyl fluoride	412.	N.-Butyl alcohol
370.	Methidathion	413.	N-Hexane

	371.	Methiocarb	414.	N- Methyl-N, 2, 4, 6-
	372.	Methonyl	Tetranitroaniline	

The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 745

415. Naphtha 454.Oxamyl
416. Nephtha solvent 455.Oxetane, 3, 3-bis(chloromethyl)
417. Naphthalene 456.Oxidiphenoxarsine
418. Naphthyl amine 457.Oxy disulfoton
419. Nickel carbonyl/nickel 458.Oxygen (liquid)
tetracarbonyl 459.Oxygen difluoride
420. Nickel powder 460.Ozone
421. Nicotine 461.P-nitrophenol
422. Nicotine sulphate 462.Paraffin
423. Nitric acid 463.Paraoxon (Diethyl 4 Nitrophenyl
424. Nitric oxide phosphate)
425. Nitrobenzene 464.Paraquat
426. Nitrocellulose (dry) 465.Paraquat methosulphate
427. Nitrochlorobenzene 466.Parathion
428. Nitrocyclohexane 467.Parathion methyl
429. Nitrogen 468.Paris green
430. Nitrogen dioxide 469.Penta borane
431. Nitrogen oxide 470.Penta chloro ethane
432. Nitrogen trifluouide 471.Penta chlorophenol
433. Nitroglycerine 472.Pentabromophenol
434. Nitropropane-1 473.Pentachloro naphthalene
435. Nitropropane-2 474.Pentadecyl-amine
436. Nitroso dimethyl amine 475.Pentaerythaiotol tetranitrate
437. Nonane 476.Pentane
438. Norbormide 477.Pentanone
439. O-Cresol 478.Perchloric acid
440. O-Nitro Toluene 479.Perchloroethylene
441. O-Toludine 480.Peroxyacetic acid

442. O-Xylene 481.Phenol

443. O/P Nitroaniline 482.Phenol, 2, 2-thiobis (4, 6-Dichloro)

444. Oleum 483.Phenol, 2, 2-thiobis (4 chloro 6-

445. OO Diethyl S ethyl suph. methyl methyl phenol)

phos 484.Phenol, 3-(1-methyl ethyl)

446. OO Diethyl S propythio methyl methylcarbamate

phosdithioate 485.Phenyl hydrazine hydrochloride

447. OO Diethyl s ethylsulphanyl 486.Phenyl mercury acetate

methylphosphorothioate 487.Phenyl silatrane

448. OO Diethyl s ethylsulphonyl 488.Phenyl thiourea

methylphosphorothioate 489.Phenylene P-diamine

449. OO Diethyls 490.Phorate

ethylthiomethylphospho-rothioate 491.Phosazetin

450. Organo rhodium complex 492.Phosfolan

451. Orotic acid 493. Phosgene

452.Osmium tetroxide 494. Phosmet

453.Oxabain 495. Phosphamidon

746	496.	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>		
		Phosphine	535.	Propionitrile
	497.	Phosphoric acid	536.	Propionitrile, 3-chloro
	498.	Phosphoric acid dimethyl (4-	537.	Propiophenone, 4-amino
	499.	methyl thio)phenyl	538.	Propyl chloroformate
		Phosphorthioic acid dimethyl S(2-	539.	Propylene dichloride
	500.	Bis) Ester	540.	Propylene glycol, allylether
		Phosphorothioic acid methyl	541.	Propylene imine
	501.	(ester)	542.	Propylene oxide
		Phosphorothioic acid, OO	543.	Prothoate
	502.	Dimethyl S-(2-methyl)	544.	Pseudosumene

	Phosphorothioic, methyl-ethyl	545.	Pyrazoxon
503.	ester	546.	Pyrene
	Phosphorous	547.	Pyridine
504.	Phosphorous oxychloride	548.	Pyridine, 2-methyl-3-vinyl
505.	Phosphorous pentaoxide	549.	Pyridine, 4-nitro-1-oxide
506.	Phosphorous trichloride	550.	Pyridine, 4-nitro-1-oxide
507.	Phosphorous penta chloride	551.	Pyriminil
508.	Phthalic anhydride	552.	Quinaliphos
509.	Phylloquinone	553.	Quinone
510.	Physostigmine	554.	Rhodium trichloride
511.	Physostigmine salicylate (1:1)	555.	Salcomine
512.	Picric acid (2, 4, 6- trinitrophenol)	556.	Sarin
513.	Picrotoxin	557.	Selenious acid
514.	Piperdine	558.	Selenium Hexafluoride
515.	Piprotal	559.	Selenium oxychloride
516.	Pirinifos-ethyl	560.	Semicarbazide hydrochloride
517.	Platinous chloride	561.	Silane (4-amino butyl) diethoxy-
518.	Platinum tetrachloride	meth	
519.	Potassium arsenite	562.	Sodium
520.	Potassium chlorate	563.	Sodium anthra-quinone-1-
521.	Potassium cyanide	sulphonate	
522.	Potassium hydroxide	564.	Sodium arsenate
523.	Potassium nitride	565.	Sodium arsenite

524.	Potassium nitrite	566.	Sodium azide
525.	Potassium peroxide	567.	Sodium cacodylate
526.	Potassium silver cyanide	568.	Sodium chlorate
527.	Powdered metals and mixtures	569.	Sodium cyanide
528.	Promecarb	570.	Sodium fluoro-acetate
529.	Promurit	571.	Sodium hydroxide
530.	Propanesultone	572.	Sodium pentachloro-phenate
531.	Propargyl alcohol	573.	Sodium picramate
532.	Propargyl bromide	574.	Sodium selenate
533.	Propen-2-chloro-1,3-di-ol	575.	Sodium selenite
534.	diacetate	576.	Sodium sulphide
	Propiolactone beta	577.	Sodium tellorite

The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 747

578. Stannane acetoxy triphenyl 618. Thiometon
579. Stibine (Antimony hydride) 619. Thionazin
580. Strychnine 620. Thionyl chloride
581. Strychnine sulphate 621. Thiophenol
582. Styphinic acid (2, 4,6- 622. Thiosemicarbazide
trinitroresorcinol) 623. Thiourea (2 chloro-phenyl)
583. Styrene 624. Thiourea (2-methyl phenyl)
584. Sulphotec 625. Tirpate (2,4-dimethyl-1,3-di-
585. Sulphoxide, 3-chloropropyl octyl thiolane)
586. Sulphur dichloride 626. Titanium powder
587. Sulphur dioxide 627. Titanium tetra-chloride
588. Sulphur monochloride 628. Toluene
589. Sulphur tetrafluoride 629. Toluene -2,4-di-isocyanate
590. Sulphur trioxide 630. Toluene 2,6-di-isocyanate

591. Sulphuric acid 631. Trans-1,4-di chloro-butene
 592. Tellurim (powder) 632. Tri nitro anisole
 593. Tellurium hexafluoride 633. Tri (Cyclohexyl) methylstannyl
 594. TEPP (Tetraethyl pyrophosphate) 1,2,4 triazole
 595. Terbufos 634. Tri (Cyclohexyl) stannyl-1H-1, 2,
 596. Tert-Butyl alcohol 3-triazole
 597. Tert-Butyl peroxy carbonate 635. Triaminotrinitrobenzene
 598. Tert-Butyl peroxy isopropyl 636. Triamphos
 599. Tert-Butyl peroxyacetate (Conc 637. Triazophos
 >=70%) 638. Tribromophenol 2, 4, 6
 600. Tert-Butyl peroxy pivalate (Conc 639. Trichloro naphthalene
 >=77%) 640. Trichloro chloromethyl silane
 601. Tert-Butyl peroxyiso-butyrate 641. Trichloroacetyl chloride
 602. Tetra hydrofuran 642. Trichlorodichlorophenylsilane
 603. Terta methyl lead 643. Trichloroethyl silane
 604. Tetra nitromethane 644. Trichloroethylene
 605. Tetra-chlorodibenzo-p-dioxin, 1, 2, 645. Trichloromethane sulphenyl
 3, 7, 8(TCDD) chloride
 606. Tetraethyl lead 646. Trichloronate
 607. Tetrafluoriethyne 647. Trichlorophenol 2, 3, 6
 608. Tetramethylene disulphotetramine 648. Trichlorophenol 2, 4, 5
 609. Thallic oxide 649. Trichlorophenyl silane
 610. Thallium carbonate 650. Trichlorophon
 611. Thallium sulphate 651. Triethoxy silane
 612. Thallous chloride 652. Triethylamine
 613. Thallous malonate 653. Triethylene melamine
 614. Thallous sulphate 654. Trimethyl chlorosilane
 615. Thiocarbazide 655. Trimethyl propane phosphite
 616. Thiocynamicacid, 656. Trimethyl tin chloride
 2(Benzothiazolyethio) methyl 657. Trinitro aniline
 617. Thiofamox 658. Trinitro benzene

748	659.	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>		
		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 creysyl phosphate	677.	Vinyledene 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.	Zink phosphide
	670.	Vinyl acetate mononer	684.Zirconium & compounds	
	671.	Vinyl bromide		
	672.	Vinyl chloride		

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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.

750	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>	
S.No	Chemicals	Threshold Quantities (tonnes) 1[For application of 2[For application of

rules 4,5,7 to 9 and rule 10 to 12]

13 to 15

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,	50	300

paragraph (b) (i)

3[7.	Extremely flammable liquids as defined in	5000	50,000]
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Schedule 1, paragraph (b) (ii)

8.	Liquid oxygen	200	2000
9.	Sodium chlorate	25	250
10.	Sulphur dioxide	20	500
11.	Sulphur trioxide	15	100
4[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

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

2Substituted by Rule 10(i) (b), *ibid*;

3Substituted entry 7 by Rule 10(ii), *ibid* ;

4 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	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>	751
	Chemicals	Threshold Quantities (tonnes) 1[For application of 2[For application of

rules 4,5,7 to 9 and rule 10 to 12]

13 to 15

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]
1[28.	Very highly flammable liquids as defined in	7,000	7,000]

Schedule 1, paragraph (b) (iii)

29.	Highly flammable liquids as defined in	10,000	10,000
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Schedule 1, paragraph (b) (iv)

30.	Flammable liquids as defined in Schedule -	15,000	1,00,000]
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1, paragraph (b) (v)

(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).

1 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.

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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.

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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)
GROUP 1-TOXIC SUBSTANCES				
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.	Arseinc 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.	Chlorethion				100 kg		470-90-6			
18.	4-(Chloroformyl) morpholine				1 kg		15159-40-7			
19.	Chloromethyl methyl ether				1 kg		107-30-2			
20.	<table><tr><td>Cobalt</td><td>(metal,</td><td>oxide,</td><td>carbonates,</td></tr></table> sulphides, as powders)	Cobalt	(metal,	oxide,	carbonates,			1 t		
Cobalt	(metal,	oxide,	carbonates,							
21.	Crimidine				100 kg		535-89-7			
22.	Cythoate				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			

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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-isopropylthiomethyl 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.	Fluometil	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.	Hexmethylphosphoramide	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

The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 755

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.	<table><tr><td>Paraxon</td><td>(Diethyl</td><td>4-nitrophenyl</td></tr></table> phosphate)	Paraxon	(Diethyl	4-nitrophenyl			100 kg		311-45-5
Paraxon	(Diethyl	4-nitrophenyl							
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.	<table><tr><td>Promurit</td><td>(1-(3,4</td><td>dichlorophenyl)-3-</td></tr></table> triazenthio-carboxamide)	Promurit	(1-(3,4	dichlorophenyl)-3-			100 kg		5836-73-7
Promurit	(1-(3,4	dichlorophenyl)-3-							
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

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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			
GROUP -2 TOXIC SUBSTANCES									
100	Acetone cyanohydrin (2-Cyanopropan-2-ol			200 t		75-86-5			
101	101 Acrolein (2-Propenal)			20 t	1[200t]	107-02-8			
102	Acrylonitrile			20 t	200t	107-13-1			
103	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	1[500t]	7726-95-6			
107	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	1[200t]	101-68-8			
110	<table><tr><td>Ethylene</td><td>dibromide</td><td>(1,2-</td></tr></table> Dibromoethane)			Ethylene	dibromide	(1,2-	5 t	1[50t]	106-93-4
Ethylene	dibromide	(1,2-							
111	111 Ethyleneimine			5 t		151-56-4			
112	Formaldehyde (concentration <90%)			5 t	1[50t]	50-00-0			
113	113 Hydrogen chloride (liquified gas)			25 t	250t	7647-01-0			
114	114 Hydrogen cyanide			5 t	20t	74-90-8			

115	115 Hydrogen fluoride	5 t	50t	7664-39-3
116	116 Hydrogen sulphide	5 t	50t	7783-06-4
117	117 Methyl bromide (Bromomethane)	20 t	1[200 t]	74-83-9
118	118 Nitrogen oxides	50 t		11104-93-1
119	119 Propyleneimine	50 t		75-55-8
120	120 Sulphur dioxide	20 t	250t	7446-09-5
121	121 Sulphur trioxide	15 t	75t	7446-11-9
122	122 Tetraethyl lead	5 t	2[200t]	78-00-2
123	123 Tetra methyl lead	5 t	1[100t]	75-74-1
124	124 Toluene di-isocyanate (TDI)	10 t		584-84-9

1Inserted by Rule14 (a to h) of MSIHC (Amendment) Rules, 1994 notified vide notification S.O.2882, dated 3.10.1994. 2Inserted by Rule14 (a to h) of MSIHC (Amendment) Rules, 1994 notified vide notification S.O.2882, dated 3.10.1994.

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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)
GROUP 3-HIGHLY REACTIVE SUBSTANCES						
125	125 Acetylene (ethyne)		5 t			74-86-2
126	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 proxyacetate (concentration ≤70%)			5 t		107-71-1		
130	<table><tr><td>tert-Butyle</td><td>peroxy</td><td>isobutyrate</td></tr></table> (concentration >80%)	tert-Butyle	peroxy	isobutyrate		5 t		109-13-7
tert-Butyle	peroxy	isobutyrate						
131	<table><tr><td>Tert-Butyl</td><td>peroxy</td><td>isopropyl</td></tr></table> carbonate (concentration ≥80%)	Tert-Butyl	peroxy	isopropyl		5 t		2372-21-6
Tert-Butyl	peroxy	isopropyl						
132	132 Tert-Butyl peroxyaleate (concentration ≥80%)			5 t		1931-62-0		
133	133 Tert-Butyl peroxyaleate (concentration ≥77%)			50 t		927-07-1		
134	134 Dibenzyl peroxydicarbonate (concentration≥90%)			5 t		2144-45-8		
135	135 Di-sec-butyl peroxydicarbonate (concentration ≥80%)			5 t		19910-65-7		
136	136 Diethyl peroxydicarbonate (concentration ≥30%)			50 t		14666-78-5		
137	137 2,2-dihydroperoxypropane (concentration≥30%)			5 t		2614-76-08		
138	138 di-isobutyl peroxide (concentration ≥50%)			50 t		3437-84-1		
139	139 Di-n-propyl peroxydicarbonate (concentration≥80%)			5 t		16066-38-9		
140	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 $\geq 75\%$)	50 t		22397-33-7
143	Hydrogen	2 t	50 t	1333-74-0

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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	144 Liquid Oxygen	200 t	1[2000t]	7782-41-7
145	145 Methyl ethyl ketone peroxide (concentration $\geq 60\%$)	5 t		1338-23-4
146	Methyl isobutyl ketone peroxide (concentration $\geq 60\%$)	50 t		37206-20-5
147	147 Peracetic acid (concentration $\geq 60\%$)	50 t		79-21-0
148	148 Propylene oxide	5 t	1[50t]	75-56-9
149	149 Sodium chlorate	25 t		7775-09-9
GROUP 4-EXPLOSIVE SUBSTANCES				
150	150 Barium azide	1[100] kg		18810-58-7
151	151 Bis(2,4,6 -trinitrophenyl) amine	50 t		131-073-7
152	152 Chlorotrinitro benzene	50 t		28260-61-9
153	153 Cellulose nitrate (containing 12.6% Nitrogen)	50 t		9004-70-0
154	Cyclotetramethyleneteraniramine	50 t		2691-41-0
155	155 Cyclotrimethylenetiraniramine	50 t		121-82-1

156	156 Diazodinitrophenol	10 t		7008-81-3					
157	157 Diethylene glycol dinitrate	10 t		693-21-0					
158	158 Dinitrophenol, salts	50 t							
159	159 Ethylene glycol dinitrate	10 t		628-96-6					
160	1-Gyanyl-4-nitrosaminoguanyl-1-tetrazene	1[100 kg]		109-27-3					
161	161 2, 2, 4, 4, 6, 6, -Hexanitrositibene	50 t		20062-22-0					
162	162 Hydrazine nitrate	50 t		13464-97-6					
163	Lead azide	1[100 kg]		13424-46-9					
164	<table border="1"> <tr> <td>Lead</td><td>Styphnate</td><td>(</td><td>Lead</td><td>2,4,6-</td></tr> </table> trinitroresorcinoxide)	Lead	Styphnate	(	Lead	2,4,6-	50 t		15245-44-0
Lead	Styphnate	(	Lead	2,4,6-					
165	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	167 Nitroglycerine	10 t	10t	55-63-0					
168	168 Pentacrythritol tetra nitrate	50 t		78-11-5					

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

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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	170 Sodium picramate		50 t			831-52-7

171	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	173 Trinitroaniline-	50 t		26952-42-1
174	174 2,4,6-Trinitroanisole	50 t		606-35-9
175	175 Trinitrobenze	50 t		25377-32-6
176	176 Trinitrobenzoic acid	50 t		35860-50-5 129-66-8
177	177 Trinitrocresol	50 t		28905-71-7
178	178 2,4,6-Trinitrophenitole	50 t		4732-4-3
179	179 2,4,6-Trinitrotoluene	50 t	50 t	118-96-7

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1[PART II

CLASSES OF SUBSTANCES AS DEFINED IN PART – I, SCHEDULE –1

AND NOT SPECIFICALLY NAMED IN PART –I OF THIS SCHEDULE

1	2	3	4
GROUP 5 - Flammable substances			
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
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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).

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

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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, 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.

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

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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 [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.

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

S. No.	Authority(ies) with legal backing				Duties and corresponding Rule
	(1)	(2)	(3)	(4)	
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 1[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 2[***] 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.	3[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		

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

2Omitted by Rule 13(iii), *ibid*;

3Substituted by Rule 13(iv), *ibid*.

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S. No.	Authority(ies)	with	legal	Duties and corresponding Rule
	backing			
(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 1[(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]; 2[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.]

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1Substituted by Rule 15 of the MSIHC (Amendment) Rules, 1994, notified vide S.O.2882, dated 3.10.1994.
 2Inserted by Rule 13 (v) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

S. No.	Authority(ies)withlegal			Duties and corresponding Rule
	backing			
(1)	(2)			(3)
9.	District Collector or District Emergency Authority designated by the State Government			Preparation of off-site emergency plans as per Rule 14
1[10.	2[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]

1Substituted by Rule 13(vi), of the MSIHC (Amendment) Rules, 2000 notified vide S.O.No.57(E), dated 19.1.2000. 2Inserted by G.S.R.584(E), dated 9th June, 1990.

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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.

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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	☐

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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.

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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
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quantity liable to be on the site of each

dangerous	substance	for	which
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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)	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>	769
	the conditions or the	

events which could be significant in brining 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
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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.

770 *The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989*

PART -II

Particulars to be included regarding pipeline-

1. The names and address of the

persons	making	the
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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
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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.

The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 771

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,		explosion
(b)	construction design,		
(c)	protection	zones	

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
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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,
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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.

772 The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989

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
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consequences,

8.	(e)	safety systems,		or
	(f)	known accident history.		
	Description	of	information	

organizational systems used to carry on the industrial activity safety, namely-

(a)	maintenance	and	inspection
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schedules,

- (b) guidelines for the training of personnel,

- (c) allocation and delegation of responsibility for plant safety,

(d)	implementation	of	safety
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procedure.

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

(a)	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>				773
	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,		containing
(b)	alarm systems,		
(c)	emergency	plan	

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.

774 The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989

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.:
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Regulated	Shipping Name	Hazchem No.:
Identification	Codes/Lable	

_____ Hazardous Waste
I.D. No.:

Hazardous Ingredients	C.A.S. No. Hazardous Ingredients	C.A.S No.:
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_____ 1. 3.

2. 4.

2. PHYSICAL AND CHEMICAL DATA

_____ Boiling Range/Point oC

Physical State Appearance

_____ Melting/Freezing Point

oC Vapour Pressure Odour

@ 35 oC mm/Hg

_____ Vapour Density

Solubility in Water at 30oC Others

(Air=1)

Specific Gravity pH

Water =1

The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 775

3. FIRE AND EXPLOSION HAZARD DATA

_____ Flammability Yes/No

LEL % Flash Point oC Auto ignition

Temperature oC _____ TDG

Flammability

UEL % Flash Point oC _____

Hazardous

Explosion Sensitivity	Explosion Sensitivity	Combustion
to Impact	to Static Electricity	Products

Polymerisation

Combustible Liquid	Explosive	Corrosive
	Material	Material

Flammable Material	Oxidiser	Others
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Organic Peroxide

DATA

Stability

With other Material

Products

Chemical

Incompatibility

Reactivity

Hazardous Reaction

DATA

Entry

Exposure/Symptoms

Treatment

Routes of

Effects of

Emergency

TLV(ACGIH)	ppm	mg/m3 STEL	ppm	mg/m3
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776 The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989

Exposure Limits ppm mg/m3 Odour threshold ppm mg/m3

LD50

LD50

Health Flammability Stability Special Signals

Permissible

NEPA Hazard

MEASURES

Protective

Personnel

4. REACTIVITY

5. HEALTH HAZARD

6. PREVENTIVE

Equipment

Handling and

Storage

Precautions

7. EMERGENCY AND

FIRST AID MEASURE

Fire Extinguishing

Media

FIRE

Special Procedures

Unusual Hazards

EXPOSURE

First Aid Measures

Antidotes/Dosages

SPILLS

Steps to be taken

Waste Disposal Method

8.

ADDITIONAL

INFORMATION

/

REFERENCES

The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 777

9. MANUFACTURER / SUPPLIER DATA

Name of Firm

Mailing Address

Contact Person in Emergency

Local Bodies Involved

Telephone/Telex Nos. Standard Packing

Telegraphic Address

Tremcard Details/Ref

Other.

DISCLAIMER

10.

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

778 The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989

1[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
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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

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

6.	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>		779
	Details about the site:		
	(a)	Location of dangerous	

substances

(b) Seat of key personnel

(c) Emergency control

room

7.	Description	of	hazardous
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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 out

side.

10. Details regarding:

(i) Warning, alarm and safety

and security systems.

780	(ii)	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>		
		alarm	and	hazard

control plans in line

with disaster control

and	hazard	control
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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.	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>	781
	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.

1[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
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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
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telephones, radios and standby methods.

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

782	Special	<i>The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</i>			
8.		equipment	including	fire	

fighting materials, damage control and repair items.

9.	Details	of	emergency	response
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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.