

<sup>1</sup>[SCHEDULE – VI]  
(See rule 3A)

**GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS**

**PART A: EFFLUENTS**

S. No.	Parameters	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1	2	3			
		(a)	(b)	(c)	(d)
1.	Colour and odour	See 6 of Annexure-I	--	See 6 of Annexure-I	See 6 of Annexure-I
2.	Suspended solids mg/l, Max.	100	600	200	(a) For process waste water-100
					(b) For cooling water effluent 10 percent above total suspended matter of influent.
3.	Particulate size of suspended solids	Shall pass 850 micron IS Sieve	--	--	(a) Floatable solids, max. 3 mm.
					(b) Settleable solids, max. 850 microns
<sup>2</sup> [4.	***	*	--	***	--
5.	pH Value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6.	Temperature	shall not exceed 5 °C above the receiving water temperature	--	--	shall not exceed 5 °C above the receiving water temperature
7.	Oil and grease mg/l Max.	10	20	10	<sup>1</sup> [10]
8.	Total residual chlorine mg/l Max.	1.0	--	--	1.0
9.	Ammonical nitrogen (as N), mg/l Max.	50	50	--	50
10.	Total Kjeldahl Nitrogen (as NH <sub>3</sub> ) mg/l, Max.	100	--	--	100
11.	Free ammonia	5.0	--	--	5.0

<sup>1</sup> Schedule VI inserted by Rule 2(d) of the Environment (Protection) Second Amendment Rules, 1993 notified vide G.S.R. 422(E) dated 19.05.1993, published in the Gazette No. 174 dated 19.05.1993.

<sup>2</sup> Omitted by Rule 2(d)(i) of the Environment (Protection) Third Amendment Rules, 1993 vide Notification No.G.S.R.801(E), dated 31.12.1993.

S. No.	Parameters	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1	2	3			
		(a)	(b)	(c)	(d)
	(as NH <sub>3</sub> ) mg/l, Max.				
12.	Biochemical Oxygen Demand <sup>1</sup> [3 days at 27 °C] mg/l	30	350	100	100
13.	Chemical Oxygen Demand, mg/l, max.	250	--	--	250
14.	Arsenic (as As), mg/l, max.	0.2	0.2	0.2	0.2
15.	Mercury (as Hg), mg/l, Max.	0.01	0.01	--	0.01
16.	Lead (as Pb) mg/l, Max.	0.1	1.0	--	2.0
17.	Cadmium (as Cd) mg/l, Max.	2.0	1.0	--	2.0
18.	Hexavalent Chromium (as Cr+6), mg/l max.	0.1	2.0	--	1.0
19.	Total chromium (as Cr.) mg/l, Max.	2.0	2.0	--	2.0
20.	Copper (as Cu) mg/l, Max.	3.0	3.0	--	3.0
21.	Zinc (As Zn.) mg/l, Max.	5.0	15	--	15
22.	Selenium (as Se.) mg/l, Max.	0.05	0.05	--	0.05
23.	Nickel (as Ni) mg/l, Max.	3.0	3.0	--	5.0
<sup>2</sup> [24.	***	*	*	*	*
25.	***	*	*	*	*
26.	***	*	*	*	*]
27.	Cyanide (as	0.2	2.0	0.2	0.2

<sup>1</sup> Substituted by Rule 2 of the Environment (Protection) Amendment Rules, 1996 notified by G.S.R. 176, dated 2.4.1996 may be read as BOD (3 days at 27 °C) wherever BOD 5 days 20 °C occurred.

<sup>2</sup> Omitted by Rule 2(d)(i) of the Environment (Protection) Third Amendment Rules, 1993 vide Notification No.G.S.R.801(E), dated 31.12.1993.

S. No.	Parameters	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1	2	3			
		(a)	(b)	(c)	(d)
	CN) mg/l Max.				
<sup>1</sup> [28.	***	*	*	*	*]
29.	Fluoride (as F) mg/l Max.	2.0	15	--	15
30.	Dissolved Phosphates (as P), mg/l Max.	5.0	--	--	--
<sup>1</sup> [31.	***	*	*	*	*]
32.	Sulphide (as S) mg/l Max.	2.0	--	--	5.0
33.	Phenoile compounds (as C <sub>6</sub> H <sub>5</sub> OH) mg/l, Max.	1.0	5.0	--	5.0
34.	Radioactive materials:				
	Alpha emitter micro curie/ml.	10 <sup>-7</sup>	10 <sup>-7</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>
	Beta emitter micro curie/ml.	10 <sup>-6</sup>	10 <sup>-6</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>
35.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
36.	Manganese (as Mn)	2 mg/l	2 mg/l	--	2 mg/l
37.	Iron (as Fe)	3 mg/l	3 mg/l	--	3 mg/l
38.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	--	0.2 mg/l
39.	Nitrate Nitrogen	10 mg/l	--	--	20 mg/l
<sup>1</sup> [40.	***	*	*	*	*

<sup>1</sup> Omitted by Rule 2(d)(i) of the Environment (Protection) Third Amendment Rules, 1993 vide Notification No. G.S.R. 801(E) dated 31.12.1993.

**WASTE WATER GENERATION STANDARDS - PART-B**

<b>S. No.</b>	<b>Industry</b>	<b>Quantum</b>
1.	Integrated Iron & Steel	16 m <sup>3</sup> /tonne of finished steel
2.	Sugar	0.4 m <sup>3</sup> /tonne of cane crushed
3.	Pulp & Paper Industries	
	(a) Larger pulp & paper	
	(i) Pulp & Paper	175 m <sup>3</sup> /tonne of paper produced
	(ii) Viscose Staple Fibre	150 m <sup>3</sup> /tonne of product
	(iii) Viscose Filament Yarn	500 m <sup>3</sup> /tonne of product
	(b) Small Pulp & Paper:	
	(i) Agro residue based	150 m <sup>3</sup> /tonne of paper produced
	(ii) Waste paper based	50 m <sup>3</sup> /tonne of paper produced
4.	Fermentation Industries:	
	(a) Maltry	3.5 m <sup>3</sup> /tonne of grain produced
	(b) Brewery	0, .25 m <sup>3</sup> /KL of beer produced
	(c) Distillery	12 m <sup>3</sup> /KL of alcohol produced
5.	Caustic Soda	
	(a) Membrane cell process	1 m <sup>3</sup> /tonne of caustic soda produced excluding cooling tower blowdown
	(b) Mercury cell process	4 m <sup>3</sup> /tonne of caustic soda produced (mercury bearing) 10% blowdown permitted for cooling tower
<sup>1</sup> [6.	Man-made Fibre	
	(a) Viscous Staple Fibre (VSF) Plant	75 m <sup>3</sup> /tonne of fibre
	(b) Viscous Filament Yarn (VFY) Plant	150 m <sup>3</sup> /tonne of fibre
	(c) Nylon Polyester	10 m <sup>3</sup> /tonne of fibre
	(d) Acrylic-	
	(i) Wet Process	25 m <sup>3</sup> /tonne of fibre
	(ii) Dry Process	10 m <sup>3</sup> /tonne of fibre.];
7.	Tanneries	28 m <sup>3</sup> /tonne of raw hide
8.	Starch, Glucose and related products	8 m <sup>3</sup> /tonne of maize crushed
9.	Dairy	3 m <sup>3</sup> /KL of Milk
10.	Natural rubber processing industry	4 m <sup>3</sup> /tonne of rubber

<sup>1</sup> Substituted by G.S.R. 1095 (E), dated 9.11.2018

S. No.	Industry		Quantum
<sup>1</sup> [11]	Fertilizer Industry	Naphtha, Natural Gas & Mixed Feedstock (Naphtha + Natural Gas) Based (Straight Nitrogenous Fertiliser)	3.0 m <sup>3</sup> /tonne of Urea or equivalent produced
		Straight Phosphatic Fertilizer (Single Super Phosphate (SSP) & Triple Super Phosphate (TSP) excluding manufacturing of any acid	0.4 m <sup>3</sup> /tonne of SSP or TSP
		Complex Fertilizer	Standards of nitrogenous and Phosphatic fertiliser are applicable depending on the primary product.]
<sup>2</sup> [12]	Natural Rubber Processing Industry: Centrifuging and Creaming Units and Craps and Crumb Units		
	– 5 m <sup>3</sup> /tonne of product in Centrifuge units;		
	– 8 m <sup>3</sup> /tonne of product in Creaming units; and		
	– 40 m <sup>3</sup> /tonne of product in Craps and Crumb units.]		

### LOAD BASED STANDARDS - PART-C

#### <sup>3</sup>[1. Petroleum Oil Refinery:

Parameter	Standard
1	2
	Quantum limit in Kg/1,000 tonne of crude processed
1. Oil & Grease	2.0
2. BOD <sub>3 days, 27 oC</sub>	6.0
3. COD	50
4. Suspended Solids	8.0
5. Phenols	0.14
6. Sulphides	0.2
7. CN	0.08
8. Ammonia as N	6.0
9. TKN	16
10. P	1.2
11. Cr (Hexavalent )	0.04
12. Cr (Total)	0.8
13. Pb	0.04
14. Hg	0.004
15. Zn	2.0
16. Ni	0.4
17. Cu	0.4
18. V	0.8
19. Benzene	0.04
20. Benzo (a) – Pyrene	0.08

#### Notes:

- (i) Quantum limit shall be applicable for discharge of total effluent (process effluent, cooling water blow down including sea cooling water blow down, washings, etc.) to receiving environment (excluding direct application on land for irrigation/horticulture purposes

<sup>1</sup> Substituted by G.S.R. 1607 (E), dated 29.12.2017

<sup>2</sup> Substituted by G.S.R. 221 (E), dated 18.03.2011

<sup>3</sup> Substituted by Rule 2(ii)(a) of the Environment (Protection) Amendment Rules, 2008 notified by G.S.R.186(E), dated 18.3.2008

within the premises of refinery).

- (ii) In order to measure the quantity of effluent (separately for discharge to receiving environment, application for irrigation/horticulture purposes within the premises of refinery & blow-down of cooling systems), appropriate flow measuring devices (e.g. V-notch, flow meters) shall be provided with.
- (iii) Quantum of pollutants shall be calculated on the basis of daily average of concentration values (one 24-hourly composite sample or average of three grab samples, as the case may be), average flow of effluent during the day and crude throughput capacity of the refinery.
- (iv) Limit for quantity of effluent discharged (excluding blow-down from seawater cooling) shall be 400 m<sup>3</sup>/1000 tonne of crude processed. However, for refineries located in high rain fall area, limit of quantity of effluent only during rainy days shall be 700 m<sup>3</sup>/1000 tonne of crude processed].

2. Large Pulp & Paper, News Print/ Rayon grade Plants of capacity above 24000 tonne/ Annum

Parameters	Standards
Total Organic Chloride (TOCI)	1 kg/tonne of product.

<sup>1</sup>[3. Natural Rubber Processing and Rubber Product Industry: Centrifuging and Creaming Units, Craps and Crumb Units.

Parameters	Standards: Quantum limit in kg/100 tonne of finished Products
(1)	(2)
Oil & Grease	15
BOD, 3 days, 27 °C	200
Suspended Solids	200
Total Chromium	0.10
Lead	0.15]

### GENERAL EMISSION STANDARDS - PART-D

#### I. Concentration Based Standards

S. No.	Parameters	Standards
		Concentration not to exceed (in mg/Nm <sup>3</sup> )
1.	Particulate Matter (PM)	150
2.	Total Fluoride	25
3.	Asbestos	4 Fibres/cc and dust should not be more than 2 mg/Nm <sup>3</sup>
4.	Mercury	0.2
5.	Chlorine	15
6.	Hydrochloric acid vapour and mist	35
7.	***	*
8.	Sulphuric acid mist	50
9.	Carbon monoxide	1% max. (v/v)

<sup>1</sup> Inserted by G.S.R. 221 (E), dated 18.03.2011

S. No.	Parameters	Standards
		Concentration not to exceed (in mg/Nm <sup>3</sup> )
10.	***	*
11.	Lead	10 mg/Nm <sup>3</sup>
<sup>1</sup> [12.	***	*

## II. Equipment based Standards

<sup>2</sup>[For dispersal of sulphur dioxide, in minimum stack height limit is accordingly prescribed as below]

S. No.	Parameter	Standard
1.	Sulphur dioxide	Stack-height limit in metre
	(i) Power generation capacity:	
	- 500 MW and more	275
	- 200/210 MW and above to less than 500 MW	220
	- less than 200/210 MW	H=14(Q) 0.3
	(ii) Steam generation capacity	
	- Less than 2 tonne/h	Less than 8.5 MT      9
	- 2 to 5 tonne/h	8.5 to 21 MT      12
	- 5 to 10 tonne/h	21 to 42 MT      15
	- 10 to 15 tonne/h	42 to 64 MT      18
	- 15 to 20 tonne/h	64 to 104 MT      21
	- 20 to 25 tonne/h	104 to 105 MT      24
	- 25 to 30 tonne/h	105 to 126 MT      27
	- More than 30 tonne/h	More than 126 MT      30 or using the formula H=14(Q)0.3

### Note:

H – Physical height of the stack in metre  
Q – Emission rate of SO<sub>2</sub> in kg/hr.

<sup>1</sup> Omitted by Rule 2 (g) (iv) of the Environment (Protection) Third Amendment Rules, 1993 vide G.S.R. 801(E) dated 31.12.1993.

<sup>2</sup> Substituted by Rule 2(h)(i), of the Environment (Protection) Third Amendment Rules, 1993 vide G.S.R. 801(E) dated 31.12.1993

## III. Load/Mass based Standards

S. No.	Industry	Parameter	Standard		
1.	Fertiliser (Urea)				
	Commissioned Prior to 1.1.82	Particulate Matter (PM)	2 kg/tonne of product		
	Commissioned after 1.1.82	Particulate Matter (PM)	0.5 kg/tonne of product		
<sup>1</sup> [2.	Copper, Lead or Zinc Smelting Plant	Sulphur Dioxide (SO <sub>2</sub> )	Quantum Limit in kg/tonne		
			Plant capacity for 100% concentration of Sulphuric Acid (tonne/day)	Existing Unit	New Unit
			Upto 300	2.5	2.0
			Above 100	2.0	1.5].
3.	Nitric Acid	Oxides of Nitrogen	3 kg/tonne of weak acid (before concentration) produced		
<sup>2</sup> [4.	Sulphuric Acid Plant	Sulphur Dioxide (SO <sub>2</sub> )	Quantum Limit in kg/tonne		
			Plant capacity for 100% concentration of Sulphuric Acid (tonne/day)	Existing Unit	New Unit
			Up to 300	2.5	2.0
			Above 100	2.0	1.5]
<sup>3</sup> [5.	Integrated Iron and Steel Plant	Carbon Monoxide in coke oven	3 Kg/tonne of coke produced		
		Particulate matter during coke pushing in coke oven	5 gramme/tonne of coke produced		
		Particulate matter for quenching operation in Coke Oven	50 gramme/tonne of coke produced.]		
<sup>4</sup> [6.	Petroleum Oil Refinery (Sulphur Recovery)	Sulphur Dioxide	Installed Capacity of SRU* (tonne/day)	kg/tonne of Sulphur in the feed to SRU	
				Existing SRU	New SRU
			Above 20	26	10
			5 to 20	80	40
			Upto 5	120	80
* SRU – Sulphur Recovery Unit]					

<sup>1</sup> Substituted by G.S.R.354(E), dated 02.05.2011<sup>2</sup> Substituted by Rule 2(ii) of the Environment (Protection) Third Amendment Rules, 2008 notified by G.S.R.344(E), dated 7.5.2008.<sup>3</sup> Inserted by G.S.R 277 (E), dated 31.03.2012<sup>4</sup> Substituted by Rule 2 of the Environment (Protection) Fifth Amendment Rules, 2009 notified by G.S.R.595(E), dated 21.8.2009.



S. No.	Industry	Parameter	Standard	
7.	Aluminium Plants			
	(i) Anode Bake Oven	Total Fluoride	0.3 kg/MT of Aluminium	
	(ii) Pot room			
	(a) VSS	-do-	4.7 kg/MT of Aluminium	
	(b) HSS	-do-	6 kg/MT of Aluminium	
	(c) PBSW	-do-	2.5 kg/MT of Aluminium	
	(d) PBCW	-do-	1.0 kg/MT of Aluminium	
	<b>Note:</b> VSS - Vertical Stud Soderberg, HSS - Horizontal Stud Soderberg PBSW - Pre Backed Side Work, PBCW - Pre Backed Centre Work			
8.	Glass Industry:			
	(a) Furnace Capacity			
	(i) Up in the product draw capacity of 60 MTD/Day	Particulate matter	2 kg/hr ca	
	(ii) Product draw capacity more than 60 MT/Day	-do-	0.8 kg/MT of Product drawn	
<sup>1</sup> [9]	Petrochemicals (Basic and Intermediates)		Source	Quantum limit in gm/hour for New /Expansion Plants (gm/hr)
		Organic Particulate	Phthalic anhydride (PA), Maleic anhydride (MA), Toluene Di-isocyanate (TDI) plants - process emission	100
		VOC-HAPs (TDI +MDI)	(Toluene Di-isocyanate) TDI, Methylene diphenyl Di-isocyanate (MDI) Plants - Process emission	0.5
		VOC-HAPs (Benzene + Butadiene)	Benzene, Butadiene Plants - Process emission	25.0
		VOC-HAPs (EO, VCM, EDC, ACN + PO)	EO, VCM, EDC, ACN, PO Plants - Process emission	50.0
<b>Abbreviations:</b> EG - Ethylene Glycol, PG - Propylene Glycol, EO - Ethylene Oxide, VCM – Vinyl Chloride Monomer, EDC - Ethylene Di Chloride, ACN - Acrylonitrile, PO - Propylene Oxide, HCN Hydrogen Cyanide."				
<sup>2</sup> [10]	Cement Plants (without coprocessing)	Rotary kiln based plants (Particulate Matter from raw mill, kiln and pre-calciner system put together).	0.125 kg/ tonne of clinker (with effect from 01.01.2017)	

<sup>1</sup> Inserted by GSR 820 (E) dated 09.11.2012

<sup>2</sup> Inserted by G.S.R 612 (E), dated 25.08.2014

S. No.	Industry	Parameter	Standard
		Vertical shaft kiln based plants (Particulate Matter from raw mill and kiln put together)	0.50 kg/ tonne of clinker (with effect from 01.01.2017).]
<sup>1</sup> [10 A	Cement Plants (with co-processing)	Rotary kiln based plants (Particulate Matter from raw mill, kiln and pre-calciner system put together).	0.125 kg/ tonne of clinker.]
<sup>2</sup> [11	Manmade Fibre	A. Emission Standards	
	(a) Viscous Staple Fibre (VSF)	Carbon Disulphide	95 kg/tonne of VSF
		Hydrogen Sulphide	30 kg/tonne of VSF
	(b) Viscous Filament Yarn (VFY)	Carbon Disulphide	200 kg/tonne of VFY
		Hydrogen Sulphide	30 kg/tonne of VFY
	(c) Rayon, Polyester and Nylon fabric (Dipping process Plant only)	Ammonia	0.3 kg/tonne of dipped Fabric].

**\*NOISE STANDARDS - PART-E**

Noise limits for Automobiles (Free Field Distance at 7.5 Metre in dB(A) at the manufacturing Stage

(a) Motorcycle, Scooters & Three-wheelers	80
(b) Passenger Cars	82
(c) Passenger or Commercial vehicles up to 4 MT	85
(d) Passenger or Commercial vehicles above 4 MT and up to 12 MT	89
(e) Passenger or Commercial vehicles exceeding 12 MT	91

<sup>3</sup>[AA. **Noise limits for vehicles at manufacturing stage**

The test method to be followed shall be IS:3028-1998.

**(1) Noise limits for vehicles applicable at manufacturing stage from the year 2003**

Serial Number	Type of vehicle	Noise limits dB(A)	Date of implementation
(1)	(2)	(3)	(4)

<sup>1</sup> Inserted by G.S.R 497 (E), dated 10.05.2016

<sup>2</sup> Inserted by G.S.R. 1095 (E), dated 9.11.2018

\* Standards notified at S. No. 46 may also be referred.

<sup>3</sup> Substituted by Rule 2 of the Environment (Protection) Fourth Amendment Rules, 2002 notified vide Notification G.S.R.849(E), dated 30.12.2002

1.	<b>Two wheeler</b>		1st January, 2003
	Displacement upto 80 cm <sup>3</sup>	75	
	Displacement more than 80 cm <sup>3</sup> but upto 175 cm <sup>3</sup>	77	
	Displacement more than 175 cm <sup>3</sup>	80	
2.	<b>Three wheeler</b>		1st January, 2003
	Displacement upto 175 cm <sup>3</sup>	77	
	Displacement more than 175 cm <sup>3</sup>	80	
3.	<b>Passenger Car</b>	75	1st January, 2003
4.	<b>Passenger or Commercial Vehicles</b>		1st July, 2003
	Gross vehicle weight upto 4 tonnes	80	
	Gross vehicle weight more than 4 tonnes but upto 12 tonnes.	83	
	Gross vehicle weight more than 12 tonnes.	85	

**(2) Noise limits for vehicles at manufacturing stage applicable on and from 1st April, 2005**

Serial Number	Type of vehicles	Noise limits dB(A)
1.0	<b>Two wheelers</b>	
1.1	Displacement upto 80 cc	75
1.2	Displacement more than 80 cc but upto 175 cc	77
1.3	Displacement more than 175 cc	80
2.0	<b>Three wheelers</b>	
2.1	Displacement upto 175 cc	77
2.2	Displacement more than 175 cc	80
3.0	<b>Vehicles used for the carriage of passengers and capable of having not more than nine seats, including the driver's seat</b>	74
4.0	<b>Vehicles used for the carriage of passengers having more than nine seats, including the driver's seat, and a maximum Gross Vehicle Weight (GVW) of more than 3.5 tonnes</b>	
4.1	With an engine power less than 150 KW	78
4.2	With an engine power of 150 KW or above.	80
5.0	<b>Vehicles used for the carriage of passengers having more than nine seats, including the driver's seat: vehicles used for the carriage of goods.</b>	
5.1	With a maximum GVW not exceeding 2 tonnes	76
5.2	With a maximum GVW greater than 3 tonnes but not exceeding 3.5 tonnes	77
6.0	<b>Vehicles used for the transport of goods with a maximum GVW exceeding 3.5 tonnes.</b>	
6.1	With an engine power less than 75 KW	77
6.2	With an engine power of 75 KW or above but less than 150 KW.	78
6.3	With an engine power of 150 KW or above.	80]