Annexure 16
Environmental Standards for Industries

[1][SCHEDULE – VI]

(See rule 3A)

GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART-A : EFFLUENTS

S. No.	Parameter	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.
[2]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

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1 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.

2 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.	Parameter	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1	2	3			
		(a)	(b)	(c)	(d)
7.	Oil and grease mg/l Max.	10	20	10	20
8.	Total residual chlorin mg/l Max.	1.0	--	--	1.0
9.	Ammonical nitrogen (as N), mg/l Max.	50	50	--	50
10.	Total Kjeldahl Nitrogen (as NH_3) mg/l, Max.	100	--	--	100
11.	Free ammonia (as NH_3) mg/l, Max.	5.0	--	--	5.0
12.	Biochemical Oxygen demand [1][3 days at 27°C] mg/l max.	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

[1] Substituted by Rule2 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.

S. No.	Parameter	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1	2	3			
		(a)	(b)	(c)	(d)
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
[1]24.	* * *	*	*	*	*
[1]25.	* * *	*	*	*	*
[1]26.	* * *	*	*	*	*
27.	Cyanide (as CN) mg/l Max.	0.2	2.0	0.2	0.2
[1]28.	* * *	*	*	*	*
29.	Fluoride (as F) mg/l Max.	2.0	15	--	15
30.	Dissolved Phosphates (as P), mg/l Max.	5.0	--	--	--
[2]31.	* * *	*	*	*	*
32.	Sulphide (as S) mg/l Max.	2.0	--	--	5.0
33.	Phenoile compounds (as C_6H_5OH) mg/l, Max.	1.0	5.0	--	5.0

[1] 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.	Parameter	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1	2	3			
		(a)	(b)	(c)	(d)
34.	Radioactive materials :				
	(a) Alpha emitter micro curie/ml.	10^{-7}	10^{-7}	10^{-8}	10^{-7}
	(b) Beta emitter micro curie/ml.	10^{-6}	10^{-6}	10^{-7}	10^{-6}
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
[1]40.	* * *	*	*	*	*

[1] 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

S.No.	Industry	Quantum
1.	Integrated Iron & Steel	16 m^3/tonne of finished steel
2.	Sugar	0.4 m^3/tonne of cane crushed
3.	Pulp & Paper Industries	
	(a) Larger pulp & paper	
	(i) Pulp & Paper	175 m^3/tonne of paper produced
	(ii) Viscose Staple Fibre	150 m^3/tonne of product
	(iii) Viscose Filament Yarn	500 m^3/tonne of product
	(b) Small Pulp & Paper :	
	(i) Agro residue based	150 m^3/tonne of paper produced
	(ii) Waste paper based	50 m^3/tonne of paper produced
4.	Fermentation Industries :	
	(a) Maltry	3.5 m^3/tonne of grain produced
	(b) Brewery	0,.25 m^3/KL of beer produced
	(c) Distillery	12 m^3/KL of alcohol produced
5.	Caustic Soda	
	(a) Membrane cell process	1 m^3/tonne of caustic soda produced excluding cooling tower blowdown
	(b) Mercury cell process	4 m^3/tonne of caustic soda produced (mercury bearing) 10% blowdown permitted for cooling tower
6.	Textile Industries : Man-made Fibre	
	(i) Nylon & Polyster	120 m^3/tonne of fibre produced
	(ii) Vixcose rayon	150 m^3/tonne of product
7.	Tanneries	28 m^3/tonne of raw hide
8.	Starch. Glucose and related products	8 m^3/tonne of maize crushed
9.	Dairy	3 m^3/KL of Milk

10.	Natural rubber processing industry	4 m^3/tonne of rubber
11.	Fertilizer	
	(a) Straight nitrogenous fertilizer	5 m^3/tonne of urea or equivalent produced
	(b) Straight phosphatic fertilizer (SSP & TSP) excluding manufacture of any acid	0.5 m^3/tonne of SSP/TSP
	(c) Complex fertilizer	Standards of nitrogenous and phosphatic fertilizers are applicable depending on the primary product

LOAD BASED STANDARDS - PART-C

[1][1. Petroleum Oil Refinery:

Parameter 1	Standard 2
	Quantum limit in Kg/l 1,000 tonne of crude processed
1. Oil & Grease	2.0
2. $BOD_{3\ days,\ 27^{o}C}$	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

[1] Substituted by Rule 2(ii)(a) of the Environment (Protection) Amendment Rules, 2008 notified by G.S.R.186(E), dated 18.3.2008

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 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^3/1000 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^3/1000 tonne of crude processed].

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

Parameter	Quantum
Total Organic Chloride (TOCl)	2 kg/tonne of product.

GENERAL EMISSION STANDARDS - PART-D

I. Concentration Based Standards

Sl. No.	Parameter	Standard Concentration not to exceed (in mg/Nm^3)
1.	Particulate Matter (PM)	150
2.	Total Fluoride	25
3.	Asbestos	4 Fibres/cc and dust should not be more than 2 mg/Nm^3

4.	Mercury	0.2
5.	Chlrine	15
6.	Hydrochloric acid vapour and mist	35
[1]7.	* * *	*
8.	Sulphuric acid mist	50
9.	Carbon monoxide	1% max. (v/v)
[1]10.	* * *	*
11.	Lead	10 mg/Nm^3
[1]12.	* * *	*

II. Equipment based Standards

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

Sl. 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 $H=14(Q)^{0.3}$	

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

2 Substituted by Rule 2(h)(i), ibid.

Note : H – Physical height of the stack in metre
Q – Emission rate of SO_2 in kg/hr.

III. Load/Mass based Standards

Sl. 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	
2.	Copper, Lead and Zinc Smelter/converter	Sulphur dioxide	4 kg/tonne of concentrated (100% acid produced	
3.	Nitric Acid	Oxides of Nitrogen	3 kg/tonne of weak acid (before concentration) produced	
[1][4.	Sulphuric Acid Plant		Quantum Limit in kg/tonne Plant capacity for 100% concentration of	
			Existing Unit	New Unit
		Sulphuric Acid (tonne/day)		
		Sulphur dioxide (SO_2) Upto 300	2.5	2.0
		Above 100	2.0	1.5]
5.	Coke Oven	Carbon Monoxide	3 kg/tonne of coke produced.	
[2][6.	Petroleum Oil Refinery (Sulphur Recovery)	Installed Capacity of SRU* (tonne/day)	Kg/tonne of sulphur in the feed to SRU Existing SRU	New SRU
	Sulphur Dioxide	Above 20	26	10
		5 to 20	80	40
		Upto 5	120	80

* SRU – Sulphur Recovery Unit]

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1 Substituted by Rule 2(ii) of the Environment (Protection) Third Amendment Rules, 2008 notified by G.S.R.344(E), dated 7.5.2008.

2 Substituted by Rule 2 of the Environment (Protection) Fifth Amendment Rules, 2009 notified by G.S.R.595(E), dated 21.8.2009.

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

Note : 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

*NOISE STANDARDS - PART-E

A. 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 upto 4 MT	85
(d) Passenger or Commercial vehicles above 4 MT and upto 12 MT	89
(e) Passenger or Commercial vehicles exceeding 12MT	91

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

[1][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)
1.	**Two wheeler**		1st January,2003
	Displacement upto 80 cm^3	75	
	Displacement more than 80 cm^3 but upto 175 cm^3	77	
	Displacement more than 175 cm^3	80	
2.	**Three wheeler**		1st January,2003
	Displacement upto 175 cm^3	77	
	Displacement more than 175 cm^3	80	
3.	**Passenger Car**	75	1st January, 2003
4.	**Passenger or Commercial Vehicles**		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	**Two wheelers**	
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	**Three wheelers**	
2.1	Displacement upto 175 cc	77
2.2	Displacement more than 175 cc	80
3.0	**Vehicles used for the carriage of passengers and capable of having not more than nine seats, including the driver's seat**	74

[1] Substituted by Rule 2 of the Environment (Protection) Fourth Amendment Rules, 2002 notified vide Notificat6ion G.S.R.849(E), dated 30.12.2002 (Earlier 'AA – Noise limits for vehicles w.e.f. 1st January 2003' inserted by Rule 2 (2) of the Environment (Protection) Amendment Rules, 2000 notified vide Notification G.S.R. 742(E), dated 25.9.2000.)

4.0	**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**	
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	**Vehicles used for the carriage of passengers having more than nine seats, including the driver's seat : vehicles used for the carriage of goods.**	
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	**Vehicles used for the transport of goods with a maximum GVW exceeding 3.5 tonnes.**	
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]

[1][Provided that for vehicles mentioned at serial numbers 3.0 to 6.3, the noise limits for the following States shall be applicable on and from the date specified against that State,-

(i) Himachal Pradesh with effect from 1st October, 2005
(ii) Jammu and Kashmir with effect from 1st October, 2005
(iii) Madhya Pradesh with effect from 1st September, 2005
(iv) Punjab with effect from 1st October, 2005
(v) Rajasthan with effect from 1st June, 2005
(vi) Uttar Pradesh (Mathura, Kannauj, Muzaffarnagar, Aligarh, Farukkabad, Saharanpur, Badaun, Barreily, Moradabad, Hathras, Rampur, Bijnor, Agra, Pilibhit, J.P. Nagar, Mainpuri, Lalitpur, Hardio, Ferozabad, Jhansi, Shahjahanpur, Etawah, Jalon, Lakhimpur, Kheri, Etah, Mahoba, and Sitapur) with effect from 1st June, 2005.
(vii) Uttranchal with effect from 1st July, 2005.]

B. Domestic appliances and construction equipments at the manufacturing stage to be achieved by 31st December,1993.

(a) Window Air Conditioners of 1 ton to 1.5 ton	68
(b) Air Coolers	60
(c) Refrigerators	46
[2][(d) * * * ……	…]
(e) Compactors (rollers),Front Loaders,Concrete mixers,Cranes(moveable),Vibrators and Saws	75

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1 Inserted by the Environment (Protection) Amendment Rules, 2005 notified vide Notification G.S.R.272 (E), dated 5.5.2005.

2 Entry (d) relating to 'Diesel Generator of Domestic Purposes……85 – 90' omitted by Rule 3 of the Environment (Protection) Second Amendment, Rules, 2002 notified vide Notification G.S.R. 371(E), dated 17.5.2002.

ANNEXURE-I

(For the purposes of Parts – A, B and C)

The State Boards shall following guide-lines in enforcing the standards specified under the schedule VI :

(1) the waste waters and gases are to be treated with the best available technology (BAT) in order to achieve the prescribed standards.

(2) the industries need to be encouraged for recycling and reuse, of waste materials as far as practicable in order to minimize the discharge of wastes into the environments.

(3) the industries are to be encouraged for recovery of biogas, energy and reusable materials.

(4) while permitting the discharge of effluent and emission into the environment, State Boards have to take into account the assimilative capacities of the receiving bodies, especially water bodies so that quality of the intended use of the receiving waters is not affected. Where such quality is likely to be effected discharges should not be allowed into water bodies.

(5) the Central and State Boards shall put emphasis on the implementation of clean technologies by the industries in order to increase fuel efficiency and reduce the generation of environmental pollutants.

(6) All efforts should be made to remove colour and unpleasant odour as far as practicable.

(7) The standards mentioned in the Schedule shall also apply to all other effluents discharged such as industrial mining, and mineral processing activities and sewage.

(8) the limit given for the total concentration of mercury in the final effluent of caustic soda industry, is for the combined effluent from (a) Cell house, (b) Brine Plant, (c) Chlorine handling, (d) hydrogen handling and (e) hydro choleric acid plant.

(9) [1][(a)….(f)]

(10) All effluents discharge including from the industries such as cotton textile, composite woolen mills, synthetic rubber, small pulp & paper, natural rubber, petro-chemicals, tanneries, point dyes,

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[1] Omitted by Rule 4 of the Environment (Protection) Rules, 1996 notified by notification G.S.R. 176(E), dated 2.4.1996.

slaughter houses, food & fruit processing and diary industries into surface waters shall conform to be BOD limit specified above, namely 30 mg/l. For discharge an effluent having a BOD more than 30 mg./l, the standards shall conform to those given, above for other receiving bodies, namely, sewers, coastal waters, and land for irrigation.

(11) [1][***.....]

(12) In case of fertilizer industry the limits in respect of chromium and fluoride shall be complied with at the outlet of chromium and fluoride removal units respectively.

(13) In case of pesticides :

(a) The limits should be complied with at the end of the treatment plant before dilution.

(b) Bio-assay test should be carried out with the available species of fish in the receiving water, the COD limits to be specified in the consent conditions should be correlated with the BOD limits.

(c) In case metabolites and isomers of the Pesticides in the given list are found in significant concentration, standards should be prescribed for these also in the same concentration as the individual pesticides.

(d) Industries are required to analyze pesticides in waste water by advanced analytical methods such as GLC/HPLC.

([2]14) The chemical oxygen demands (COD) concentration in a treated effluent, if observed to be persistently greater than 250 mg/l before disposal to any receiving body (public sewer, land for irrigation, inland surface water and marine coastal areas), such industrial units are required to identify chemicals causing the same. In case these are found to be toxic as defined in the Schedule I of the Hazardous Rules 1989 the State Board in such cases shall direct the industries to install tertiary treatment stipulating time limit.

(15) Standards specified in Part A of Schedule – VI for discharge of effluent into the public sewer shall be applicable only if such sewer leads to a secondary treatment including biological treatment system, otherwise the discharge into sewers shall be treated as discharge into inland surface waters].

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1 Omitted by Rule, 2(k) (vii) of the Environment (Protection) Third amendment Rules, 1993 vide G.S.R. 801 (E), dated 31.12.1993.

2 Inserted by rule 2(k) (ix), ibid.

ANNEXURE-II

(For the purpose of Part-D)

The State Boards shall follow the following guidelines in enforcing the standards specified under Schedule VI:

(a) In case of cement plants, the total dust (from all sections) shall be within 400 mg/Nm^3 and 250 mg/Nm^3 for the plants upto 200 t/d and more than 200 t/d capacities respectively.

(b) In respect of calcinations process (e.g. Aluminum Plants) Kilns. and step Grate Bagasse fired-Boilers. Particulate Matter (PM) emissions shall be within 250 mg/Nm^3.

(c) In case of thermal power plants commissioned prior to 01.01.1982 and having generation capacity less than 62.5 MW, the PM emission shall be within 350 mg/Nm^3.

(d) In case of Lime Kilns of capacity more than 5 t/day and upto 40 t/day, the PM emission shall be within 500 mg/Nm^3.

(e) In case of horse shoe/pulsating Grate and Spreader Stroker Bagasse-fired-Boilders, the PM emission shall be within 500 (12% CO_2) and 800 (12% CO_2) mg/Nm^3 respectively. In respect of these boilers, if more than attached to a single stack, the emission standards shall be fixed, based on added capacity of all the boilers connected with the stack.

(f) In case of asbestos dust, the same shall not exceed 2mg/Nm^3.

(g) In case of the urea plants commissioned after 01.01.92, coke ovens and lead glass units, the PM emission shall be within 50 mg/Nm^3.

(h) In case of small boilers of capacity less than 2 tons/hour and between 2 to 5 tons/ hour, the PM emissions shall be within 1000 and 1200 mg/Nm^3.

(i) In case of integrated Iron and Steel Plants, PM emission upto 400 mg/Nm^3 shall be allowed during oxygen lancing.

(j) In case of stone crushing units, the suspended PM contribution value at a distance of 40 meters from a controlled, isolated as well as from a unit located in cluster should be less than 600 micrograms/Nm^3. [1][* * *] These units must also adopt the following pollution control measures :

(i) Dust containment cum suppression system for the equipment;

(ii) Construction of wind breaking walls;

(iii) Construction of the metalled roads within the premises;

(iv) Regular cleaning and wetting of the ground within the premises;

(v) Growing of a green belt along with periphery.

(k) In case of Ceramic industry, from the other sources of pollution, such as basic raw materials and processing operations, heat recovery dryers, mechanical finishing operation, all possible preventive measures should be taken to control PM emission as far as practicable.

2. The total fluoride emission in respect of Glass and Phosphatic Fertilizers shall not exceed 5 mg/Nm^3 and 25 mg/Nm^3 respectively.

[2]3. [In case of copper, lead and zinc smelting, the off-gases may, as far as possible, be utilized for manufacturing sulphuric acid]

[3]4. [In case of cupolas (Foundries) having capacity (melting rate) less than 3 tonne/hour, the particulate matter emission shall be within 450 mg/Nm^3. In these cases it is essential that stack is constructed over the cupolas beyond the charging door and the emissions are directed through the stack, which should be at least six times the diameter of cupola. In respect of Arc Furnaces and Induction Furnaces, provision has to be made for collecting the fumes before discharging the emissions through the stack].

[No. Q-15017/24/89-CPW]
MUKUL SANWAL, Jt. Secy.

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1 Omitted by Rule 2(i)(iii) of the Environment (Protection) Third Amendment Rules, 1993, vide G.S.R. 801(E) dated 31.12.1993.

2 Substituted by Rule 2(1)(i); Ibid.

3 Added by Rule 2(1)(ii), Ibid.

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 30th March, 2012

G.S.R. 266(E).—In exercise of the powers conferred by sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:-

1. (1) These rules may be called the Environment (Protection) (Second Amendment) Rules, 2012.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Environment (Protection) Rules, 1986, in Schedule I, for serial number 9 relating to "Electroplating Industry" and entries relating thereto, the following serial number and entries shall be substituted, namely:-

S. No.	Industry	Parameter	Standard
(1)	(2)	(3)	(4)
"9.	Electroplating, Anodizing Industry	**A.- Effluent Standards**	
			Limiting concentration in mg/l, except for pH and Temperature
		(i) Compulsory Parameters	
		pH	6.0 to 9.0
		Temperature	shall not exceed 5°C above the ambient temperature of the receiving body
		Oil & Grease	10
		Suspended Solids	100
		Total Metal*	10
		Trichloroethane	0.1
		Trichloroethylene	0.1
		(ii) Specific Parameter as per process	
		a. Nickel and Chrome plating	
		Ammonical Nitrogen, as N	50
		Nickel, as Ni	3
		Hexavalent Chromium, as Cr	0.1
		Total Chromium, as Cr	2
		Sulphides,as S	2
		Sulphates, as SO_4^{2-}	400
		Phosphates, as P	5
		Copper as Cu	3
		b. Zinc plating	

(1)	(2)	(3)	(4)
		Cyanides, (as CN^-)	0.2
		Ammonical Nitrogen, as N	50
		Total Residual Chlorine, as Cl	1
		Hexavalent Chromium, as Cr	0.1
		Total Chromium, as Cr	2
		Zinc, as Zn	5
		Lead, as Pb	0.1
		Iron, as Fe	3
		c. Cadmium plating	
		Cyanides, (as CN^-)	0.2
		Ammonical Nitrogen, as N	50
		Total Residual Chlorine, as Cl	1
		Hexavalent Chromium, as Cr	0.1
		Total Chromium, as Cr	2
		Cadmium, as Cd	2
		d. Anodizing	
		Ammonical Nitrogen, as N	50
		Total Residual Chlorine, as Cl	1
		Aluminium	5
		Flourides, as F	15
		Sulphates, as SO_4^{2-}	400
		Phosphates, as P	5
		e. Copper, Tin plating	
		Cyanides, (as CN^-)	0.2
		Copper, as Cu	3
		Tin	2
		f. Precious Metal plating	
		Cyanides, (as CN^-)	0.2
		Total Residual Chlorine, as Cl	1
		B.- Emission Standards+	
			Limiting concentration in mg/m^3, unless stated
		(i) Compulsory parameters	
		Acid mist (HCl & H_2SO_4)**	50
		(ii) Specific parameters as per process	
		a. Nickel & Chromium plating	
		Nickel**	5
		Hexavalent Chromium**	0.5
		b. Zinc, Copper or Cadmium plating	
		Lead**	10
		Cyanides, (Total)**	5
		* 'Total Metal' shall account for combined concentration of Zn+Cu+Ni+Al+Fe+Cr+Cd+Pb+Sn+Ag in the effluent.	
		+ Emission standards shall be applicable to electroplating units having water consumption atleast 5 m^3/day. These units shall	

(1)	(2)	(3)	(4)
		channelize their emission through a stack or chimney having height at least 10 metres above ground level or 3 metres above top of shed or building of the unit, whichever is more. ** The existing units shall comply with the norms of asterisked pollutants by 1st January 2013. However, new units shall comply with the norms with effect from commissioning of plant.	
		C. Stormwater	
		Note: (i) Stormwater for a unit (having plot size atleast 200 square metres) shall not be allowed to mix with scrubber water, effluent and/or floor washings. (ii) Stormwater within the battery limits of a unit shall be channelized through separate drain/pipe passing through a High Density Polyethylene (HDPE) lined pit having holding capacity of ten minutes (hourly average) of rainfall.".	

[F. No. Q-15017/44/2009-CPW]
RAJNEESH DUBE, Jt. Secy.

Note :- The principal rules were published in the Gazette of India vide number S.O. 844 (E), 19th November, 1986; subsequently amended vide S.O. 433 (E), dated 18th April 1987; G.S.R. 512 (E), dated the 9th July, 2009;G.S.R. 543 (E), dated the 22nd July, 2009; G.S.R. 595 (E), dated the 21st August, 2009; G.S.R. 794 (E), dated the 4th November, 2009; G.S.R. 826 (E), dated the 16th November, 2009; G.S.R. 01 (E), dated the 1st January, 2010; G.S.R, 61 (E), dated 5th February, 2010; G.S.R. 485 (E), dated 9th June, 2010; G.S.R. 608 (E) ,dated 21st July, 2010 ; G.S.R. 739 (E), dated the 9th September, 2010 ; and G.S.R. 809(E), dated, 4th October, 2010, G.S.R. 215 (E), dated, the 15th March, 2011; G.S.R. 221(E), dated, the 18th March, 2011; G.S.R. 354 (E), dated, the 2nd May , 2011; G.S.R. 424 (E), dated, the 1st June, 2011; G.S.R. 446 (E),13th June, 2011; and GSR 152 (E),dated the 16 th March, 2012.

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Sr. No.	Industry	Parameter	Standards
1	2	3	4
		Chromium as Cr Hexavalent	0.1
		Total	2.0
		Copper as Cu	2.0
		Nickle as Ni	2.0
		Zinc as Zn	5.0
		Total heavy metals	7.0
43.	**INORGANIC CHEMICAL INDUSTRY (WASTE WATER DISCHARGE)**	**EFFLUENTS**	
	part I (metal compounds of Chromium, Manganese, Nickel, Copper, Zinc, Cadmium, Lead and Mercury)	pH	6.0 – 8.5
		Chromium as Cr Hexavalent	0.1
		Total	2.0
		Manganese as Mn	2.0
		Nickel as Ni	2.0
		Copper as Cu	2.0
		Zinc as Zn	5.0
		Cadmium as Cd	0.2
		Lead as Pb	0.1
		Mercury as Hg	.01
		Cynide as CN	0.2
		Oil & Grease	10.0
		Suspended Solids	30.0
		In addition to the above, total heavy metals are to be limited to 7 mg/l.	

Sr. No.	Industry	Parameter	Standards	
1	2	3	4	
[1]56.	**DAIRY**	**EFFLUENTS**	Concentration in mg/l except pH	Quantum per product processed
		pH	6.5 – 8.5	-
		*BOD [2][3 days at 27°C]	100	-
		** Suspended Solids	150	-
		Oil and Grease	10	-
		Waste Water generation	-	$3m^3$/Kl of milk

Note :*BOD may be made stringent upto 30 mg/l if the recipient fresh water body is a source for drinking water supply. BOD shall be upto 350 mg/l for the chilling plant effluent for applying on land provided the land is designed and operated as a secondary treatment system with suitable monitoring facilities. The drainage water from the land after secondary treatment has to satisfy a limit of 30 mg/l of BOD and 10 mg/l of nitrate expressed as 'N'. The net addition to the groundwater quality should not be more than 3 mg/l of BOD and 3 mg/l of nitrate expressed as 'N'. This limit for applying on land is allowed subject to the availability of adequate land for discharge under the control of industry, BOD value is relaxable upto 350 mg/l, provided the wastewater is discharged into a town sewer leading to secondary treatment of the sewage.

** Suspended solids limit is relaxable upto 450 mg/l, provided the wastewater is discharged into town sewer leading to secondary treatment of the sewage.

57.	**TANNERIES**	**EFFLUENTS**	Concentration in mg/l except pH	Quantum per raw hide processed
		pH	6.5 – 9.0	-
		*BOD [2][3 days at 27°C]	100	-
		Suspended Solids	100	-
		Sulphides (as S)	1	-
		Tototal Chromium (as Cr)	2	
		Oil and Grease	10	-
		Waste Water generation	-	28 m^3/T

* For effluent discharge into inland surface waters BOD limit shall be made stricter to 30 mg/l by the concerned State Pollution Control Board.

[1] Sl. No. 56 to 61 and entries relating thereto inserted vide GSR 475(E) dated 5.5.92 published in the Gazette No. 202 dated. 5.5.92.

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

Annexure 16e

Standards laid by Ministry of Environment and Forests, Government of India for Common Effluent Treatment Plants as per, (Environment Protection Rules, 1986)

A. Primary Treatment

Parameters for Inlet Effluent Quality of CETP	**Standard (Concentration in mg/l)**
pH	5.5-9.0
Temperature ^{0}C	45
Oil & Grease	20
Phenolic Compounds (as C_6H_5OH)	5.0
Ammonical Nitrogen (as N)	50
Cyanide (as N)	2.0
Chromium Hexavalent (as Cr^{+6})	2.0
Chromium Total (as Cr)	2.0
Copper (as Cu)	3.0
Lead (as Pb)	1.0
Nickel (as Ni)	3.0
Zinc (as Zn)	15
Arsenic (as As)	0.2
Mercury (as Hg)	0.01
Cadmium (as Cd)	1.0
Selenium (as Se)	0.05
Fluoride (as F)	15
Boron (as B)	2.0
Radioactive Materials	
Alpha Emitters, Hc/mL	10-7
Beta Emitters, He/ml	10-8

Note :

1. These standards apply to the small scale industries, i.e. total discharge upto 25 KL/Day
2. For each CETP and its constituent units, the State Board will prescribed standards as per the local needs and conditions; these can be more stringent than those prescribed above. However, in case of cluster units, the State Board with the concurrence of CPCB in writing may prescribed suitable limits.

B. Treated Effluent Quality of Common Effluent treatment Plant
[Concentration in mg/l except pH & Temperature]

pH	5.5-9.0	5.5-9.0	5.5-9.9
BOD [3days at 27 °C]	30	100	100
Oil & Grease	10	10	20
Temperature	Shall not exceed 40 °C in any section of the stream within 15 meters down steam from the effluent outlet	-	45 °C at the point of discharge
Suspended Solids	100	200	(a) For process waste water-100
			(b) For cooling water effluent 10 percent above total suspended matter of effluent cooling water
Dissolved Solids (inorganic)	2100	2100	-
Total residue chlorine	1.0	-	1.0
Ammonical nitrogen(As N)	50	-	50
Total Kjeldahl nitrogen(as N)	100	-	100
Chemical Oxygen Demand	250	-	250
Arsenic (as As)	0.2	0.2	0.2
Mercury (as Hg)	0.01	-	0.01
Lead (as Pb)	0.1	-	1.0
Cadmium (as Cd)	1.0	-	2.0
Total Cadmium (as Cr)	2.0	-	2.0
Copper (as Cu)	3.0	-	3.0
Zinc (as Zn)	5.0	-	15
Selenium (as Se)	0.05	-	0.05
Nickel (as Ni)	3.0	-	5.0
Boron (as B)	2.0	2.0	-
Percent Sodium	-	60	-
Cynide (as CN)	0.2	0.2	0.2
Chloride (as Cl)	1000	600	-
Fluoride (as F)	2.0	-	15
Sulphate (as SO_4)	1000	1000	-
Sulphide (as S)	2.8	-	5.0
Pesticides	Absent	Absent	Absent
Phenolic compounds (as C_6H_5OH)	1.0	-	5.0

Note: All efforts should be made to remove colour and unpleasant odour as far as possible.