STANDARDS FOR EMISSION OR DISCHARGE OF ENVIRONMENTAL POLLUTANTS

[1]Schedule –I (See Rule 3)

S. No.	Industry	Parameter	Standards
1	**2**	**3**	**4**
1.	**Caustic Soda Industry**		Concentration not to exceed, milligramme per lit. (except for pH and flow)
		Total concentration of mercury in the final effluent*	0.01
		Mercury bearing waste-water generation (flow)	10 kilolitres/ tonne of caustic soda produced.
		pH	5.5 to 9.0
		*Final effluent is the combined effluent from (a) cell house, (b) brine plant, (c) chlorine handling (d) hydrogen handling (e) hydrochloric acid plant.	

S. No.	Industry	Parameter	Standards		
1	**2**	**3**	**4**		
	Environmental Standards for Man-Made Fibre Industry				
[2]2.	**Man-Made Fibre**	**A. Effluent Standards**			
			Concentration not to exceed, (in mg/l except for pH and recovery of Sodium Sulphate)		
			Inland surface Water	**Land for Irrigation**	**Marine Discharge**
		pH	6.0-8.5	6.0-8.5	6.0-8.5
		Suspended Solids (SS)	100	100	100
		Biochemical Oxygen Demand (BOD - 3 days at 27 °C)	30	100	100
		Zinc	5	5	15
		Note: The Recovery of Sodium Sulphate shall not be less than 60% in Viscose Staple Fibre and Viscose Filament Yarn units.			
		B. Emission Standards			
				Concentration not to exceed, (in mg/Nm^3)	
		Volatile Organic Compounds including Dimethyl Formamide and Acrylonitrile (applicable for Acrylic fibre units only)		50	
	Note: (a) The concentration of Carbon Disulphide (CS_2) and Hydrogen Sulphide (H_2S) in work environment shall not exceed 10 ppm, individually. (b) The stack height shall be calculated H= 11 Q $^{0.41}$ -3 VsDU, Where Q - Emission rate of Carbon Disulphide, kg/hr; Vs - stack exit velocity, m/sec; D - diameter of stack, m;				

[1] The Environment (Protection) Rules, 1986 are referred to as principal rules in all subsequent Notifications beginning with S.O. 32(E) dated 16.02.1987 published in the Gazette No. 66 dated, 16.02.1987. The Schedule to be principle rules was renumbered as Schedule-I vide S.O. 32(E) Supra.

[2] Substituted by Rule 2 of the Environment (Protection) Rules, 1996 notified by G.S.R. 1095(E) dated 09.11.2018

	U - Annual average wind speed at top of stack, m/sec (c) For new plants built after 31st December, 1998, minimum of 80% of total emission shall pass through stacks and if the calculated stack height is less than 30 metres, a minimum height of 30 metres shall be provided, and in case there are more than one stack existing in the plant, following conditions may be met: - (i) the required height of all stacks shall be based on the maximum emission rate in any of the stacks i.e. the stacks emitting CS_2 emission shall be of same heights (based on the maximum emission rate); (ii) number of stacks shall not be increased as existing on 31st December, 1998, however, the number of stacks may be reduced by the industry; (iii) the distance between two nearest stacks should be at least three times of height of taller stack, in metres and if distance between two stacks is less, emission being emitted through such two stacks shall be considered as a single point source and height of the stacks shall be calculated considering emissions are being emitted through one stack; (iv) the industry shall install three air quality monitoring stations on the periphery (within boundary limits) of plant so as to monitor concentration of CS_2 and H_2S in ambient air and the location of these stations shall be decided in consultation with concerned State Pollution Control Board, however in any case levels of CS_2 and H_2S (24 hours daily average) shall not exceed 100 µg/m^3 and 150 µg/m^3 respectively.];

S. No.	Industry	Parameter	Standards
1	2	3	4
[1][3.	**Petroleum Oil Refinery**	**A. Effluent**	
			Limiting value for concentration (mg/l except for pH
		1. pH	6.0-8.5
		2. Oil & Grease	5.0
		3. BOD, 3 days, 27 oC	15.0
		4. COD	125.0
		5. Suspended Solids	20.0
		6. Phenols	0.35
		7. Sulphides	0.5
		8. CN	0.20
		9. Ammonia as N	15.0
		10. TKN	40.0
		11. P	3.0
		12. Cr (Hexavalent)	0.1
		13. Cr (Total)	2.0
		14. Pb	0.1
		15. Hg	0.01
		16. Zn	5.0
		17. Ni	1.0
		18. Cu	1.0
		19. V	0.2
		20. Benzene	0.1
		21. Benzo (a)-Pyrene	0.2

[1] Substituted by Ruled 2(i) of the Environment (Protection) Amendment Rules, 2008 notified by G.S.R. 186(E) dated 18.03.2008.

Notes: -

(i) Concentration limits shall be complied with at the outlet, discharging effluent (excluding discharge from sea water cooling systems) to receiving environment (surface water bodies, marine systems or public sewers). In case of application of treated effluent directly for irrigation/horticulture purposes (within or outside the premises of refinery), make-up water for cooling systems, fire fighting, etc., the concentration limits shall also be complied with at the outlet before taking the effluent for such application. However, any use in the process such as use of sour water in desalter is excluded for the purpose of compliance.

(ii) In case of circulating seawater cooling, the blow-down from cooling systems shall be monitored for pH and oil & grease (also hexavalent & total chromium, if chromate treatment is given to cooling water) and shall conform to the concentration limits for these parameters. In case of reuse of treated effluent as cooling water make-up, all the parameters (as applicable for treated effluent) shall be monitored and conform to the prescribed standards.

(iii) In case of once through cooling with seawater, the oil & grease content in the effluent from cooling water shall not exceed 1.0 mg/l.

S. No.	**Industry**	**Parameter**	**Standards**		
1	**2**	**3**	**4**		
B. Emissions					
			Limiting concentration in mg/Nm^3, unless stated		
	(Furnace, Boiler and Captive Power Plant)		**Fuel Type**	**Existing refineries**	**New Refinery /Furnace/ Boiler**
		Sulphur Dioxide (SO_2)	Gas	50	50
			Liquid	1700	850
		Oxides of Nitrogen (NO_X)	Gas	350	250
			Liquid	450	350
		Particulate Matter (PM)	Gas	10	5
			Liquid	100	50
		Carbon Monoxide (CO)	Gas	150	100
			Liquid	200	150
		Nickel and Vanadium (Ni + V)	Liquid	5	5
		Hydrogen Sulphide (H_2S) in fuel gas	Liquid/ Gas	150	150
		Sulphur content in liquid fuel, weight %	Liquid/ Gas	1.0	0.5

Notes: -

(i) In case of mixed fuel (gas and liquid) use, the limit shall be computed based on heat supplied by gas and liquid fuels.

(ii) All the furnaces/boilers with heat input of 10 million kilo calories/hour or more shall have continuous systems for monitoring of SO_2 and NO_x. Manual monitoring for all the emission parameters in such furnaces or boilers shall be carried out once in two months.

(iii) All the emission parameters in furnaces/boilers having heat input less than 10 million kilo calories/hour will be monitored once in three months.

(iv) In case of continuous monitoring, one hourly average concentration values shall be complied with 98% of the time in a month. Any concentration value obtained through manual monitoring, if exceeds the limiting concentration value, shall be considered as non-compliance.

(v) Data on Nickel and Vanadium content in the liquid fuel (in ppm) shall be reported. Nickel and Vanadium in the liquid fuel shall be monitored at least once in six months, if liquid fuel source & quality are not changed. In case of changes, measurement is necessary after every change.

S. No.	Industry	Parameter	Standards		
1	2	3	4		
	(FCC Regenerators)		Limiting concentration in mg/Nm^3, unless stated		
			Existing refineries		New Refinery /FCC Commissioned
			hydro processed FCC feed	Other than Hydro processed FCC feed	
		Sulphur Dioxide (SO_2)	500	1700	500 (for hydro-processed feed) 850 (for other feed)
		Oxides of Nitrogen (NOx)	400	450	350
		Particulate Matter (PM)	100	100	50
		Carbon Monoxide (CO)	400	400	300
		Nickel and Vanadium (Ni + V)	2	5	2
		Opacity, %	30	30	30

Notes: -

(i) In case part feed is hydro-processed, the emission values shall be calculated proportional to the feed rates of untreated and treated feeds.

(ii) FCC regenerators shall have continuous systems for monitoring of SO_2 and NOx. One hourly average concentration values shall be complied with 98% of the time in a month, in case of continuous monitoring. Manual monitoring for all the emission parameters shall be carried out once in two months.

(iii) Any concentration value obtained through manual monitoring, if exceeds the limiting concentration value, shall be considered as non-compliance.

(iv) Data on Sulphur (weight in %), Nickel (PPM) and Vanadium (PPM) content in the feed to FCC shall be separated regularly.

(v) Limit of Carbon Monoxide emissions shall be complied with except during annual shut down of CO boiler for statutory maintenance.

S. No.	Industry	Parameter	Standards		
1	2	3	4		
	{Sulphur, Recovery Units (SRU)}		Plant Capacity (Tonnes/day)	Existing SRU	New SRU or Refinery Commissioned
		Sulphur recovery, %	Above 20	98.7	99.5
		H_2S, mg/Nm^3		15	10
		Sulphur recovery, %	5-20	96	98
		Sulphur recovery, %	1-5	94	96
		Oxides of Nitrogen (NOx), mg/Nm^3	All capacity	350	250
		Carbon Monoxide (CO), mg/Nm^3	All capacity	150	100

Notes: -

(i) Sulphur recovery units having capacity above 20 tonnes per day shall have continuous systems for monitoring of SO_2. Manual monitoring for all the emission parameters shall be carried out once in a month.

(ii) Data on Sulphur Dioxide emissions (mg/Nm^3) shall be reported regularly.

(iii) Sulphur recovery efficiency shall be calculated on monthly basis, using quantity of sulphur in the feed to SRU and quantity of sulphur recovered.

C-Fugitive Emission

Storage of Volatile Liquids: General Petroleum Products

(1) Storage tanks with capacity between 4 to $75m^3$ and total vapour Pressure (TVP) of more than 10 kpa should have Fixed Roof Tank (FRT) with pressure valve vent.

(2) Storage tank with the capacity between 75 to 500 m^3 and total vapour Pressure (TVP) of 10 to 76 kpa should have Internal Floating Root Tank (IFRT) of External Floating Root Tank (EFRT) or Fixed Roof Tank with vapour control or vapour balancing system.

(3) Storage tanks with the capacity of more than 500 m^3 and total vapour Pressure (TVP) of 10 to 76 kpa should have Internal Floating Roof Tank or External Floating Roof Tank or Fixed Roof Tank with vapour control system.

(4) The tanks with the capacity of more than 75 m^3 and total vapour Pressure (TVP) of more than 76 kpa should have Fixed Root Tank with vapour control system.

(5) Requirement for seals in Floating Roof Tanks:

(i) (a) IFRT and EFRT shall be provided with double seals with minimum vapour recovery of 96%.

(b) Primary seal shall be liquid or shoe mounted for EFRT and vapour mounted for IFRT. Maximum seal gap width will be 4 cm and maximum gap area will be 200 cm^2/m of tank diameter.

(c) Secondary seal shall be rim mounted. Maximum seal gap width will be 1.3 cm and maximum gap area will be 20 cm^2/m of tank diameter.

(d) Material of seal and construction shall ensure high performance and durability.

(ii) Fixed Roof Tanks shall have vapour control efficiency of 95% and vapour balancing efficiency of 90%.

(iii) Inspection and maintenance of storage tanks shall be carried out under strict control. For the inspection, API RP 575 may be adopted. In-service inspection with regard seal gap should be carried out once in every six months and repair to be implemented in short time. In future, possibility of on-stream repair of both seals shall be examined.

Storage of Volatile Liquids: Benzene Storage

(1) FRT with vapour to incineration with 99.9% of removal efficiency for volatile organic compounds (VOC) shall be provided.

(2) IFRT/EFRT with double seals, emission-reducing roof fitting and fitted with fixed roof with vapour removal efficiency of at least 99% shall be provided.

Solvents for Lube-Base Oil production (Furfural, NMP, MEK, Toulene and MIBK)

IFRT with double seals and inert gas blanketing with vapour removal efficiency of at least 97% shall be provided.

Emission control for Road tank truck/Rail Tank wagon loading			
	Loading of Volatile Products	Gasoline and Naphtha: (i) VOC reduction, % (ii) Emission, gm/m^3	 (i) 99.5 (ii) 5
		Benzene: (i) VOC reduction, % (ii) Emission, mg/m^3	 (i) 99.99 (ii) 20
		Toluene/Xylene: (i) VOC reduction, % (ii) Emission, mg/m^3	 (i) 99.98 (ii) 150
		Note: (i) It shall be applicable for Gasoline, Naphtha, Benzene, Toluene and Xylene loading (ii) Road tank Truck shall have Bottom loading and Rail tank wagon shall have Top submerged loading. (iii) Annual leak testing for vapour collection shall be done.	

Standards for Equipment Leaks

(1) Approach: Approach for controlling fugitive emissions from equipment leaks shall have proper selection, installation and maintenance of non-leaking or lea-tight equipment. Following initial testing after commissioning, the monitoring for leak detection is to be carried out as a permanent on-going Leak Detection and Repair (LDAR) programme. Finally detected leaks are to be repaired within allowable time frame.

(2) Components to be Covered: Components that shall be covered under LDAR programme include (i) Block Valves; (ii) Control Valves; (iii) Pump seals; (iv) Compressor seals; (v) Pressure relief valves; (vi) Flanges - Heat Exchangers; (vii) Flanges - Piping; (viii) Connectors - Piping; (ix) Open ended lines; and (x) Sampling connections. Equipment and line sizes more than 1.875 cm or ¾ inch are to be covered.

(3) Applicability: LDAR programme would be applicable to components (given at 2 above) for following products/compounds: (i) hydrocarbon gases; (ii) Light liquid with vapour pressure @ 20 ºC > 1.0 kPa; and (iii) Heavy liquid with vapour pressure @ 20 ºC between 0.3 to 1.0 kPa.

(4) While LDAR will not be applicable for heavy liquids with vapour pressure < 0.3 kPa, it will be desirable to check for liquid dripping as indication of leak.

(5) Definition of Leak: A leak is defined as the detection of VOC concentration more than the values (in ppm) specified below at the emission source using a hydrocarbon analyser according to measurement protocol (US EPA-453/R-95-017, 1995 Protocol for equipment leak emission estimates may be referred to:

Component	**General Hydrocarbon (ppm)**		**Benzene (ppm)**	
	Till 31st Dec. 2008	w.e.f. January 01, 2009	Till 31st Dec., 2008	w.e.f. January 01, 2009
Pump/Compressor	10000	5000	3000	2000
Valves/Flanges	10000	3000	2000	1000
Other components	10000	3000	2000	1000

(6) In addition, any component observed to be leaking by sight, sound or smell, regardless of concentration (liquid dripping, visible vapour leak) or presence of bubbles using soap solution should be considered as leak.

(7) Monitoring Requirements and Repair Schedule: Following frequency of monitoring of leaks and schedule for repair of leaks shall be followed:

Component	**Frequency of monitoring**	**Repair schedule**
	Quarterly (semi-annual after two consecutive periods with < 2% leaks and annual after 5 periods with < 2% leaks)	Repair will be started within 5 working days and shall be completed within 15 working days after detection of leak for general hydrocarbons. In case of benzene, the leak shall be attended immediately for repair.
Pump seals	Quarterly	
Compressor seals	Quarterly	
Pressure relief devices	Quarterly	
Pressure relief devices (after venting)	Within 24 hours	
Heat Exchangers	Quarterly	
Process drains	Annually	
Components that are difficult to monitor	Annually	
Pump seals with visible liquid dripping	Immediately	Immediately
Any component with visible leaks	Immediately	Immediately
Any component after repair/replacement	Within five days	-

(8) The percentage leaking components should not be more than 2% for any group of components~~,~~ monitored excluding pumps/compressor. In case of pumps/compressors~~,~~ it should be less than 10% of the total number of pumps/compressors or three pumps and compressor, whichever is greater.

(9) Emission Inventory: Refinery shall prepare on inventory of equipment components in the plant. After the instrumental measurement of leaks, emission from the components will be calculated using stratified emission factors (USEPA) or any other superior factors. The total fugitive emission will be established.

(10) Monitoring following types of monitoring methods may be judiciously employed for detection of leaks: (i) instrumental method of measurement of leaks; (ii) Audio, visual and olfactory (AVO) leak detection; and (iii) Soap bubble method.

(11) Data on time of measurement and concentration value for leak detection; time of repair of leak; and time of measurement & concentration value after repair of leak should be documented for all the components.

(12) Pressure relief and blow down systems should discharge to a vapour collection and recovery system or to flare.

(13) Open-ended lines should be closed by a blind flange or plugged.

(14) Totally closed-loop should be used in all routine samples.

(15) Low emission packing should be used for valves.

(16) High integrity sealing materials should be used for flanges.

D. Emission Standards for VOC from Wastewater Collection and Treatment

(1) All contaminated and odorous wastewater streams shall be handled in closed systems from the source to the primary treatment stages (oil-water separator and equalization tanks).

(2) The collection system shall be covered with water seals (traps) on sewers and drains and gas tight covers on junction boxes.

(3) Oil-water separators and equalization tanks shall be provided with floating/fixed covers. The off-gas generated shall be treated to remove at least 90% of VOC and eliminate odour. The system design shall ensure safety (Prevention of formation of explosive mixture, possible detonation and reduce the impact) by dilution with air/inert gas, installing LEL detector including control devices, seal drums, detonation arrestors, etc. The system shall be designed and operated for safe maintenance of the collection and primary treatment systems.

(4) Wastewater from aromatics plants (benzene and xylene plants) shall be treated to remove benzene & total aromatics to a level of 10, 20 ppm respectively before discharge to effluent treatment system without dilution.]

S. No.	Industry	Parameter	Standards
1	2	3	4
[1][4.	**Sugar Industry**	**Effluents**	**All concentration values are in milligramme per litre except for pH**
		pH	5.5-8.5
		Total Suspended Solids (TSS), milligramme per litre	100 (for disposal on land) 30 (for disposal in surface waters)
		Biological Oxygen Demand, BOD [3 days at 27 °C], milligramme per litre	100 (for disposal on land) 30 (for disposal in surface waters)
		Oil & Grease, milligramme per litre	10
		Total Dissolved Solids (TDS), milligramme per litre	2100
		Final wastewater discharge limit	200 litre per tonne of cane crushed
		(Final treated effluent discharge restricted to 100 litre per tonne of cane crushed and Waste water from spray pond overflow or cooling tower blow down to be restricted to 100 litre per tonne of cane crushed and only single outlet point from unit is allowed.)	
		EMISSIONS	
		The particulate matter emissions from the stack shall be less than 150 milligramme per normal cubic metre	

4(1) treated effluent Irrigation protocol and waste water conservation or waste water management in Sugar industries

(i) Loading rates for different soil textures.

S. No.	Soil Texture	Loading rate in m^3/Ha/Day
1	Sandy	225 to 280
2	Sandy loam	170 to 225
3	Loam	110 to 170
4	Clay loam	55 to 110
5	Clay	35 to 55

(ii) Waste water conservation and pollution control management

1) Establishment of cooling arrangement and polishing tank for recycling the excess condensate water to process or utilities or allied units.

2) Effluent Treatment Plant to be stabilized one month prior to the start of the crushing season and continue to operate one month after the crushing season.

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1 Subs. By G.S.R. 35(E), dated 14th January, 2016

3) During no demand period for irrigation, the treated effluent to be stored in a seepage proof lined pond having 15 days holding capacity only.

4) Flow meter to be installed in all water abstraction points and usage of fresh water to be minimized.

5) Suitable Air pollution control devices to be installed to meet the particulate matter emissions standard.]

S. No.	Industry	Parameter	Standards
1	2	3	4
5.	**Thermal Power Plants**		Maximum limiting concentration, milligrams per litre (except for pH and temperature)
	Condenser Cooling waters (once through cooling system)	pH	6.5-8.5
		Temperature	Not more than 5 ^{0}C higher than the intake water temperature
		Free available chlorine	0.5
	Boiler blow down	Suspended Solids	100
		Oil and Grease	20
		Copper (total)	1.0
		Iron (total)	1.0
	Cooling tower blow down	Free available chlorine	0.5
		Zinc	1.0
		Chromium (total)	0.2
		Phosphate	5.0
		Other corrosion inhibiting material	Limit to be established on case by case basis by Central Board in case of Union territories and State Board in case of States.
	Ash pond effluent	pH	6.5-8.5
		Suspended solids	100
		Oil and Grease	20
[1][5A.	**Thermal Power Plant (Water Consumption Limit)**	**Water consumption**	I. All Plants with Once Through Cooling (OTC) shall install Cooling Tower (CT) and achieve specific water consumption upto maximum of 3.5m^3/MWh within a period of two years from the date of publication of this notification. II. All existing CT-based plants reduce specific water consumption upto maximum of 3.5m^3/MWh within a period of two years from date of publication of this notification. [2]{III. Specific water consumption shall not exceed maximum of 3.0 m^3/MWh for new plants installed after the 1st January, 2017 and these plants shall also achieve zero waste water discharged}.

[1] Inserted by S.O. 3305(E), dated 07th December, 2015 serial no. 5A and their entries relating thereto

[2] Substitute by G.S.R. 593(E), dated 28th June, 2018

[1][5B.	**Thermal Power Plant (water consumption limit) using sea water**	**Water Consumption**	Items I to III in column 4 in serial number 5A above shall not be applicable to the Thermal Power Plants using sea water]

STANDARDS FOR DISCHARGE OF EFFLUENTS FROM TEXTILE INDUSTRY

S. No.	**Industry**	**Parameter**	**Standards** (applicable for all modes of disposal*)
1	**2**	**3**	**4**
[2][6	All Integrated textile units, units of Cotton/Woollen /Carpets/Polyester, Units having Printing/ Dyeing/Bleaching process or manufacturing and Garment units.	**Treated Effluents**	Maximum concentration values in mg/l except for pH, colour, and SAR
		pH	6.5 to 8.5
		Suspended Solids	100
		Colour, P.C.U. (Platinum Cobalt Units)	150
		Bio-Chemical Oxygen Demand [3 days at 27 °C] (BOD_3)	30
		Oil and Grease	10
		Chemical Oxygen Demand (COD)	250
		Total Chromium as (Cr)	2.0
		Sulphide (as S)	2.0
		Phenolic Compounds (as C_6H_5OH)	1.0
		Total Dissolved Solids, Inorganic (TDS)	2100**
		Sodium Absorption Ratio (SAR)	26**
		Ammonical Nitrogen (as N)	50

Notes:

1. *In case of direst disposal into rivers and lakes, the Central Pollution Control Board (CPCB) or State Pollution Control Board/Pollution Control Committees (SPCBs/PCCs) may specify more stringent standards depending upon the quality of the recipient system.
2. **Standards for TDS and SAR shall not be applicable in case of marine disposal through proper marine outfall.
3. The treated effluent shall be allowed to be discharged in the ambient environment only after exhausting options for reuse in industrial process/irrigation in order to minimise freshwater usage.
4. Any textile unit attached with the Common Effluent Treatment Plant (CETP) shall achieve the inlet and treated effluent quality standards as specified in serial number 55 of Schedule-I to the Environment (Protection) Rules, 1986 and shall also be jointly and severally responsible for ensuring compliance.
5. The standalone Micro, Small and Medium Enterprises (MSMEs) as per the MSME Development Act, 2006 shall meet the values specified above.

[1] Inserted by G.S.R. 593(E) dated 28th June, 2018 serial no. 5A and their entries relating thereto

[2] Subs. By G.S.R. 978(E) dated 10th October, 2016 for Serial No. 6 and their entries relating thereto

	6. The standalone large scale units shall meet the values specified above; however, CPCB or SPCBs/PCCs with the approval of CPCB, may mandate Zero Liquid Discharge in Large scale units in environmentally sensitive/critical areas. 7. The TDS value with respect to treated effluent shall be 2100 milligramme per litre; however, in case where TDS in intake water is above 1100 milligramme per litre, a maximum contribution up to 1000 milligramme per litre shall be permitted provided the maximum value of 3100 milligramme per litre is not exceeded in the treated effluent].

[1][7. Composite Woolen Mills*]**

S. No.	Industry	Parameter	Standards		
1	2	3	4		
[2][8.	**Dye and Dye Intermediate Industry**	**A. Emission Standards (Process)**			
			Limiting concentration in milligramme/Normal cubic metre (mg/Nm^3), unless otherwise stated		
		Oxides of Sulphur (SO_x)	200		
		HCl (Acid Mist)	35		
		Ammonia (NH_3)	30		
		Chlorine (Cl_2)	15		
		Note: All process vents shall have chimney height of atleast two metres above the shed or building where equipment is installed.			
		B. Effluent Standards			
			Limiting concentration not to exceed in milligramme/litre (mg/l), except for pH, Temperature, Colour and Bioassay.		
			disposal in surface water	**marine disposal**	**on land for irrigation**
		pH	6.0 to 8.5	5.5-9.0	5.5-9.0
		Suspended Solids	100	-	200
		Biochemical Oxygen Demand - BOD (3 days, 27 °C)	30	100	100
		Chemical Oxygen Demand (COD)	250	250	-
		Ammonical Nitrogen as N	50	50	-
		Temperature	Shall not exceed 5 °C above the receiving water		-
		Colour (Hazen unit)	400	-	-
		Mercury (Hg)	0.01	0.01	-
		Hexavalent Chromium (Cr^{+6})	0.1	1.0	-
		Total Chromium (Cr)	2.0	2.0	-
		Copper (Cu)	2.0	3.0	-
		Zinc (Zn)	5.0	15.0	-
		Nickel (Ni)	3.0	5.0	-
		Lead (Pb)	0.1	2.0	-
		Manganese (Mn)	2.0	2.0	-
		Cadmium (Cd)	0.2	2.0	-
		Chloride (Cl^-)	1000	-	-
		Sulphate (SO_4^{2-})	1000	-	-

[1] Serial No. 7 relating to "Composite Woollen Mills: and entries relating thereto omitted by G.S.R. 978(E), dated 10th October, 2016

[2] Subs. By G.S.R. 325(E) dated 07th May, 2014

		Phenolic Compounds as C_6H_5OH	1.0	5.0	-
		Oil & Grease	10.0	10.0	10.0
		Bio-assay Test (with 1:8 dilution of effluents)	90% survival of Test animals after 96 hours* in 100% effluent	-	-
		*The Bioassay test shall be conducted as per IS: 6582:1971. **Note:** (i) In case of disposal of effluent on land by industry directly or through a CETP, the industry or, CETP as the case may be, shall be required to install piezometers for monitoring of groundwater. Atleast, two piezometers for three hectares shall be installed for a plot size above 10 hectares with a minimum of 16 piezometers. It shall be one per hectare within a minimum of six piezometers for a plot of size smaller than 10 hectares, in consultation with the concerned State Pollution Control Board for sitting of piezometers. (ii) The standards for Chloride and Sulphate shall be applicable only for discharge of treated effluent into inland surface water courses. However, when discharged on land for irrigation, the norms for Chloride shall not be more than 600 mg/l over and above the contents of raw water and the Sodium Absorption Ratio (SAR) shall not exceed 26. (iii) Treated / untreated effluent shall be stored in holding tank(s) in such a manner, which would not cause pollution of groundwater.			
		C. Emission Standards for Captive Incinerator			
			Limiting concentration in mg/Nm^3, unless otherwise stated	Sampling Duration in minutes unless otherwise stated	
		Particulate Matter	50	30 or more (for sampling of 300 litres of emission)	
		HCl (Acid Mist)	50	30	
		SO_2	200	30	
		Carbon Monoxide	100	daily average	
		Total Organic Carbon	20	30	
		Total Dioxins And Furans	0.1 ng TEQ/Nm^3	8 hours	
		Sb+As+Pb+Cr+Co+Cu+ Mn+Ni+V+Cd+Th+Hg and their compounds	1.5	2 hours	
		Note: i. All monitored values shall be corrected to 11% oxygen on dry basis. ii. The CO_2 concentration in tail gas shall not be less than 7%. iii. In case, halogenated organic waste is less than 1% by weight in input waste, all the facilities in twin chamber incinerator shall be designed so as to achieve a minimum temperature of 850 ± 25 °C in primary chamber and 950 °C in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than two seconds. or			

		All the facilities in single chamber incinerator for gaseous hazardous waste shall be designed so as to achieve a minimum temperature of 950 °C in the combustion chamber with a gas residence time not less than two seconds. iv. In case halogenated organic waste is more than 1% by weight in input waste, waste shall be incinerated only in twin chamber incinerators and all the facilities shall be designed to achieve a minimum temperature of 850 ± 25 °C in primary chamber and 1100 °C in secondary combustion chamber with a gas residence time in secondary combustion chamber not less than two seconds. v. Scrubber meant for scrubbing emissions from incinerator shall not be used as quencher. vi. Incineration plants shall be operated, (i.e. combustion chambers) with such temperature, retention time and turbulence, as to achieve Total Organic Carbon (TOC) content in the incineration ash and residue less than 3% and the loss on ignition for ash and residue is less than 5% of the dry weight. In case of non-conformity, ash and residue, as the case may be shall be re-incinerated. vii. The incinerator shall have a chimney of at least thirty metres height.
		D. Effluent Standards for Incinerator.
		Note: (i) Effluent from scrubber(s) and floor washing shall flow through closed conduit or pipe network and be treated to comply with the effluent standards mention at 'B' above. (ii) The built up in Total Dissolved Solids (TDS) in wastewater of floor washings shall not exceed 1000 mg/l over and above the TDS of raw water used.
		E. Stormwater
		Note: (i) Stormwater shall not be allowed to mix with scrubber water and/or floor washings. (ii) Stormwater shall be channelized through separate drains passing through a HDPE lined pit having holding capacity of 10 minutes (hourly average) of rainfall.]

S. No.	Industry	Parameter	Standards
1	**2**	**3**	**4**
[1][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

[1] Subs. by G.S.R. 266 (E) dated 30th March, 2012

		Trichloroethylene	0.1
		(ii) Specific Parameters 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	
		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
		Fluorides, 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 $5m^3$/day. These units shall channelize their emission through a stack or chimney having height at least 10 meters above ground level or 3 meters 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].

S. No.	Industry	Parameter	Standards		
1	2	3	4		
[1][2]10.	Cement Plant (without coprocessing), Standalone Clinker Grinding Plant or, Blending Plant	**A - Emission Standards**			
		(i) Rotary Kiln - without coprocessing			
			Date of Commissioning	**Location**	**concentration not to exceed, in mg/Nm³**
			(a)	**(b)**	**(c)**
		Particulate Matter	on or after the date of notification	anywhere in the country	30 (with effect from 01.01.2016)
			before the date of notification	critically polluted area of urban centres with population above 1.0 lakh or within its periphery of 5.0 kilometre radius	50 (with effect from 01.06.2015)
					30 (with effect from 01.06.2016)
				other than critically polluted area or urban centres	100 (with effect from 01.01.2015)
					30 (with effect from 01.01.2016)

[1] Substituted by Rule 2(1) of the Environment (Protection) First Amendment Rules, 2006 notified by G.S.R. 46(E), dated 3.2.2006

[2] Substituted vide Notification No. G.S.R. 612(E), dated 25.08.2014

		[1]{Sulphur Dioxide (SO_2) in mg/Nm^3	Irrespective of date of commissioning	Anywhere in the country	100, 700, 1000 when pyritic sulphur in the limestone is less than 0.25%, 0.25 to 0.5% and more than 0.5% respectively.
		Oxides of Nitrogen (NOx) in mg/Nm^3	After the date of notification (25.8.2014)	Anywhere in the country	(1) 600
			Before the date of notification (25.8.2014)	Anywhere in the country	(2) 800 for rotary kiln with In line Calciner (ILC) technology (3) 1000 for rotary kiln using mixed stream of ILC, Separate Line Calciner (SLC) and suspension pre-heater technology or SLC technology alone or without calciner.
		(i) The timeline for implementation of emission standards for all the parameters i.e. Sulphur Dioxide (SO_2), Oxides of Nitrogen (NOx) and Particulate Matter (PM), with respect to Rotary Kiln without coprocessing shall be up to the 31st March, 2017. (ii) The emission standards for Sulphur Dioxide (SO2) shall be reviewed after a period of five years from the date of notification of these rules. (iii) The word 'NO_2' shall be substituted by 'NOx' wherever it occurs in the notification vide G.S.R. 612(E) dated 25th August, 2014.}.			
		(ii) Vertical Shaft Kiln – (without coprocessing)			
		Particulate matter (PM)	on or after the date of notification	anywhere in the country	50 (with effect from 01.01.2016)

[1] Substituted by vide Notification No. 496(E), dated 09.05.2016

			before the date of notification	critically polluted area or urban Centres with population above 1.0 lakh or within its periphery of 5 kilometre radius	100 (with effect from 01.06.2015)
					75 (with effect from 01.06.2016)
				other than critically polluted area or urban centres	150 (with effect from 01.01.2015)
		Sulphur Dioxide (SO_2)	-	-	200 (with effect from 01.01.2016)
		Nitrogen Dioxide (NO_2)	-	-	500 (with effect from 01.01.2016)
		Note: - a. The height of each stack including Clinker Grinding Plant, Coal Mill, Raw Mill, Grinding, Packaging Section, etc. shall be of a minimum of 30 metres or, as per the formula $H=14(Q)^{0.3}$ whichever is more, where "H" is the height of stack in metres and "Q" is the maximum quantity of SO_2 expected to be emitted in kg/hr through the stack at 100 percent rated capacity of the plant and calculated as per the norms of gaseous emission. b. Above norms shall be applicable even if pet-coke is mixed with coal or, used alone for clinker making in kiln provided, pet-coke has been notified as 'approved fuel' by the concerned State Pollution Control Board/ Pollution Control Committee under the Air (Prevention and Control of Pollution) Act, 1981. c. All monitored values for SO_2 and NO_2 shall be corrected to 10% Oxygen, on dry basis. The norms for SO_2 and NO_2 shall be applicable to stacks attached to kiln. d. Scrubber meant for scrubbing emissions shall not be used as quencher. Plants having separate stack for gaseous emission for the scrubbing unit, the height of this stack shall be atleast equal to the main stack.			
		B. - Service wastewater - (without coprocessing)			
		All efforts shall be made by the industry for 'zero discharge' of service wastewater. In case, the industry prefers to discharge service wastewater, the following norms shall be complied with:			
			Concentration not to exceed, milligramme per litre (except pH and temperature)		
		pH	5.5 to 9.0		
		Suspended Solids	100		
		Oil and Grease	10		
		Temperature	not more than 5 °C higher than the intake water temperature		
		C. - Stormwater			

		(I) Stormwater shall not be allowed to mix with effluent, treated sewage, scrubber water and or floor washings. (II) Stormwater within battery limits of industry shall be channelized through separate drain(s) as per natural gradient passing through high-density polyethylene lined pit(s) each having holding capacity of 10 minutes (hourly average) of rainfall for its catchment area.]			
S. No.	**Industry**	**Parameter**	**Standards**		
1	**2**	**3**	**4**		
[1][10A	**Cement Plant with co-processing of wastes**	**A. Emission Standards**			
		Rotary Kiln - with co-processing of Wastes			
			Date of Commissioning	**Location**	**Concentration not to exceed, in mg/Nm^3**
			(a)	**(b)**	**(c)**
		Particulate Matter (PM)*	on or after the date of notification (25.8.2014)	anywhere in the country	30
			before the date of notification (25.8.2014)	critically polluted area or urban centres with population above 1.0 lakh or within its periphery of 5.0 kilometre radius	30
				other than critically polluted area or urban centres	30
		SO_2*	irrespective of date of commissioning	anywhere in the country	100, 700 and 1000 when pyritic sulphur in the limestone is less than 0.25%, 0.25 to 0.5% and more than 0.5% respectively.
		NOx*	After the date of notification (25.08.2014)	anywhere in the country	(1) 600
			Before the date of notification (25.08.2014)	anywhere in the country	(2) 800 for rotary kiln with In Line Calciner (ILC) technology.

[1] Ins. By G.S.R. 497(E), dated 10th May, 2016 after serial no. 10 and their entries relating thereto (w.e.f. 10.05.2016)

					(3) 1000 for rotary kiln using mixed stream of ILC, Separate Line Calciner (SLC) and suspension pre-heater technology or SLC technology alone or without calciner.
		HCl		10 mg/Nm^3	
		HF		1 mg/Nm^3	
		TOC		10 mg/Nm^3**	
		Hg and its compounds		0.05 mg/Nm^3	
		Cd+TI and their compounds		0.05 mg/Nm^3	
		Sb+As+Pb+Co+Cr+Cu+Mn+Ni+V and their compounds		0.5 mg/Nm^3	
		Dioxins and Furans		0.1 ngTEQ/Nm^3	
		Note: The abbreviations used in the Table shall mean as under: SO_2 - Sulphur Dioxide; NOx - Oxides of Nitrogen; HCI - Hydrogen Chloride; HF - Hydrogen Fluoride; TOC - Total Organic Carbon; Hg - Mercury; Cd - Cadmium; Tl - Thallium; Sb - Antimony; As - Arsenic; Pb - Lead, Co - Cobalt; Cr -Chromium; Cu - Copper; Mn - Manganese; Ni - Nickel; and V -Vanadium". *The concentration values and timeline for implementation in respect of PM, SO_2 and NOx shall be governed in accordance with the provisions under notification published vide GSR No. 612(E), dated the 25th August, 2014 and amended from time to time. **Permitting authority may prescribe separate standards on case to case basis, if Total Organic Carbon (TOC) does not result from the co-processing of waste. (a) The height of each individual stack connected to Kiln, Clinker Cooler, Cement Mills, Coal Mill, Raw Mill, Packaging Section, etc. shall be of a minimum of 30 meters or, as per the formula $H=14(Q1)^{0.3}$ and $H=74(Q2)^{0.27}$ whichever is more, where "H" is the height of stack in metres and "Q1" is the maximum quantity of SO_2 expected to be emitted in kg/hr and "Q2" is the maximum quantity of PM expected to be emitted in tonnes/hr through the stack at 100 percent rated capacity of the plant; (b) The monitored values of SO_2, NOx, HCl, HF, TOC, Metals and Dioxins and Furans at main kiln stack shall be corrected to 10% Oxygen, on dry basis and the norms for SO_2, NOx, HCl, HF, TOC, Metals and Dioxins and Furans shall be applicable to main kiln stack and the norms for Particulate Matter (PM) shall be applicable to all the stacks in the plant. PM, SO_2, NOx shall be monitored continuously, HCl, HF, TOC, Metals and Dioxins and Furans shall be monitored once in a year; (c) Scrubber meant for scrubbing emissions shall not be used as quencher and plants having separate stack for gaseous emission for the scrubbing unit, the height of this stack shall be at least equal to the main stack.			

		B.- Service waste water (with co-processing of wastes)	
		All efforts shall be made by the industry for 'zero discharge' of service wastewater and in case, the industry prefers to discharge service wastewater, the following norms shall be complied with:	
			Concentration not to exceed, milligram per litre (except pH and temperature)
		pH	5.5 to 9.0
		Suspended Solids	100
		Oil and Grease	10
		Temperature	not more than 5 °C higher than the intake water temperature
		C – Storm water (I) Storm-water shall not be allowed to mix with effluent, treated sewage, scrubber water and or floor washings. (II) Storm-water within battery limits of industry shall be channelized through separate drain(s)].	

Sr. No.	Industry	Parameter	Standards
1	2	3	4
#[1]11.	**Stone Crushing Unit**	Suspended Particulate Matter	The suspended particulate matter measured between 3 metres and 10 metres from any process equipment of a stone crushing unit shall not exceed 600 microgrammes per cubic metre.

[2][12 Coke Ovens *]**

S. No.	Industry	Parameter	Standards	
1	2	3	4	
[3][13	**Rubber Processing And Rubber Product Industry**	**A. Effluent Standards** **(i) Natural Rubber Processing: Centrifuging and Creaming Units** Limiting value for concentration in mg/l, except for pH		
			Inland Surface Water	Land for Irrigation/Public Sewer
		pH	6.0-8.5	6.0-8.5
		Suspended Solids	100	200
		BOD, 3 days at 27 °C	30	100
		COD	250	-
		Oil & Grease	10	10
		Total Kjeldahi Nitrogen, as N	100	*
		Free Ammonia	5	*
		Ammonical Nitrogen, as N	50	*
		Sulphides, as S	2	*

Standard notified at Sl. No. 37 may also be referred.

1 S. No. 11 and entries relating thereto inserted vide SO 443(E) dt., 18.04.87 published in the Gazette No. 206 dt. 18.04.87.

2 Serial No. 12 relating to "Coke Ovens" and entries relating thereto omitted by G.S.R. 277(E), dated 31st March, 2012

3 Subs. By G.S.R. 221(E), dated 18th March, 2011. Serial No. 13 and their entries relating thereto (w.e.f. 18.03.2011)

		Total Dissolved Solids	2100	2100
		(ii) Natural Rubber Processing: Craps and Crumb Units		
		pH	6.0-8.5	6.0-8.5
		Suspended Solids	100	*
		Colour	Colourless	*
		Odour	Absent	*
		BOD, 3 days at 27 °C	30	100
		COD	250	*
		Oil & Grease	10	10
		Total Kjeldahi Nitrogen, as N	50	*
		Ammonical Nitrogen, as N	25	*
		Sulphides, as S	2	*
		Total Dissolved Solids	2100	2100
		(iii) Rubber Products (Moulded, Extruded or Calendared /Fabricated/Rubber Reclamation Unit Latex based Unit)		
		pH	6.0-8.5	6.0-8.5
		Suspended Solids	50	100
		Oil & Grease	10	10
		BOD, 3 days at 27 °C	50	*
		Lead*	0.1	*
		Zinc as Zn*	5	*
		Total Chromium	0-05	*
		(iv) Tyre and Tube Industry		
		pH	6.0-8.5	6.0-8.5
		Suspended Solids	50	*
		Oil & Grease	10	10
		(v) Synthetic Rubber Industry		
		pH	6.0-8.5	6.0-8.5
		Colour	Absent	*
		Odour	Absent	*
		BOD, 3 days at 27 °C	50	*
		COD	250	*
		Oil & Grease	10	10

*Norms for these parameters shall be prescribed by the concerned State Pollution Control Board/Pollution Control Committee on case basis.

B. Emission Standards *(Rubber Product Industry i.e. Moulded, Extruded or Calendared/Fabricated/Rubber Reclamation Unit/Latex/based Units

			Concentration not to exceed in mg/Nm^3
		Particulate Matter	150
		Volatile Organic Compounds	50

*These emission standards shall not be applicable to SSI Units.

Note: All rubber units shall channelize their fugitive emission through a stack having height of 12 meters or 2 meters above roof top of shed/building/whichever is more.]

S. No.	Industry		Parameter	Standards
1	2		3	4
14.	**Small Pulp and Paper Industry**			Concentration not be exceed mg/l (except for pH and sodium absorption ratio)
		*Discharge into inland surface water	pH	5.5-9.0
			Suspended Solids	100
			BOD	30
			pH	5.5-9.0

		Disposal on land	Suspended Solids	100
			BOD	100
			Sodium Absorption Ratio	26
			[1][Absorbable Organic Halogens (AOX) in effluent discharge	3.0 kg/ton of paper produced with effect from the date of publication of this notification. 2.0 kg/ton of paper produced with effect from the 1st day of March, 2006.

Explanation: - These standards shall apply to all small scale Pulp and Paper Mills having capacity below 24, 000 MT per annum]

S. No.	Industry	Parameter	Standards
1	2	3	4
[2][15.	**Fermentation Industry (Distilleries, Maltries and Breweries)**		Concentration in the effluents not to exceed milligramme per litre (except for pH and colour & odour)
		pH	5.5 – 9.0
		Colour & Odour	All efforts should be made to remove colour and unpleasant odour as far as practicable.
		Suspended Solids	100
		[3][BOD (3 days at 27 °C)]	
		[4][-disposal into inland surface waters or river/ streams]	30
		- disposal on land or for irrigation]	100
		**[(2)….(7)]	
	Note: [5][(1)] *Wastewater generation shall not exceed 250 metre cube per tonne of paper produced.		
		[6][(2)…….(7)]	

[7][**16. Leather Tanneries****]

1 Inserted by Rule 2(i) of the Environment (Protection) Third Amendments Rules, 2005 notified vide Notification G.S.R. 546(E), dated 30.08.2005.

2 Entries relating to S. No. 15 corrected in terms of SO 12(E), dt. 8.1.90 published in the Gazette no. 10 dt. 8.1.1990

3 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 27oC) wherever BOD 5 days 20oC occurred. 4

4 Substituted vide Rule 3(a) of the Environment (Protection) (Amendments) Rules, 1996 notified vide G.S.R.186(E), dated 2.4.1996

5 Renumbered as (1) by Notification No. S.O. 12(E), dated 8.1.1990

6 Notes 2 to 7 inserted by Notification S.O. 12(E), dated 8.1.1990 and omitted by G.S.R.176(E), dated 2.4.1996 w.e.f. 3.4.1996

7 Omitted by G.S.R. 47(E), dated 24th January, 2020

S. No.	Industry	Parameter	Standards	
1	**2**	**3**	**4**	
		A. - Effluents Standards		
[1][17.	**Fertilizer Industry**	**(i) Straight Nitrogenous Fertilizer Plant/Ammonia (Urea Plant), Calcium Ammonium Nitrate and Ammonium Nitrate Fertilizers**		
			Limiting concentration not to exceed milligram/litre (mg/l), except for pH	
		pH	6.5-8.5	
		Suspended Solids	100	
		Oil and Grease	10	
		Ammonical Nitrogen as N	50	
		Total Kjeldahl Nitrogen (TKN) as N	75	
		Free Ammonical Nitrogen as N	2.0	
		CN concentration	0.1	
		Nitrate Nitrogen as N	Urea Plant	10
			Other than Urea Plant	20
		(ii) Straight Phosphatic Fertilizer Plant		
		pH	6.5 to 8.5	
		Suspended Solids	100	
		Oil and Grease	10	
		Fluoride	10	
		Dissolved Phosphate as P	5.0	
		(iii) Complex Fertilizer Plant and / or NP/NPK (N-Nitrogen, P-Phosphorus and K-Potassium)		
		pH	6.5 to 8.5	
		Suspended Solids	100	
		Oil and Grease	10	
		Ammonical Nitrogen as N	50	
		Total Kjeldhal Nitrogen (TKN) as N	75	
		Free Ammoniacal Nitrogen as N	4.0	
		Nitrate Nitrogen as N	20	
		Dissolved Phosphate as P	5.0	
		Fluoride as F^-	10	
		Note: (i) Chromium salt shall not be used in cooling tower as algaecide. (ii) The effluent shall be analysed for Vanadium and Arsenic once in a year and analysis report shall be submitted to the concerned State Pollution Control Board / Pollution Control Committee.		
		B .- Emission Standards		
		(i) Straight Nitrogenous		
		(a) Ammonia Plant- Reformer		
		Oxides of Nitrogen (as NO_2)	400 mg/Nm^3	
		(b) Urea Plant – Prilling Tower		
		Particulate matter	Pre 1982 units	150 mg/Nm^3
			Post 1982 units	50 mg/Nm^3 **
		(ii) Ammonium Nitrate/ Calcium Ammonium Nitrate/NPK plant		
		Particulate Matter	Existing Plant	150 mg/Nm^3
			New Plant	100 mg/ Nm^3

1 The principal rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i) vide number S.O. 844 (E), dated the 19th November, 1986 and subsequently amended vide the notification G.S.R. 1607 (E), dated the 29th December, 2017.

		Ammonium as NH_3	Existing Plant	300 mg/Nm^3
			New Plant	150 mg/Nm^3
		Total Fluoride as F-	<10 mg/Nm^3 (only for NPK plant)	
		(iii) Phosphatic Fertilizer Plants – Phosphoric Acid Plants/Rock grinding and Acidulation SSP Plants		
		Particulate Matter	125 mg/Nm^3	
		Total Fluoride as F^-	20 mg/Nm^3	
		(iv) Nitric Acid Plant		
		Oxides of Nitrogen (as NO_2)	400 mg/Nm^3	
		*Values to be reported at 3% O_2 ** Total emission of 0.5 kg/ tonne of product. **Note**: i. Fluoride norms shall be applicable only for NPK plant. ii. Plant commissioned on or after the date of notification, shall be treated as "New Plant". iii. The height of the stack emitting Sulphur Dioxide, Oxides of Nitrogen or Oxides of Phosphorus or acid mist shall be a minimum of 30 metres or as per the formula $H=14\ (Q)^{0.3}$, whichever is more, where "H" is the height of stack in metres and "Q" is the maximum quantity of SO_2 NO_x or P_2O_5 equivalent expected to be emitted in kg/hr through the stack at 100 percent rated capacity of the tail gas plant(s) and calculated as per the norms of gaseous emission. iv. Tail Gas plants having more than one stream or unit of Sulphuric Acid, Nitric Acid or Phosphoric Acid at one location, the combined capacity of all the streams or units for a particular acid shall be taken into consideration for determining the stack height and applicability of emission standards individually. v. Tail gas plants having separate stack for gaseous emission for the scrubbing unit, the height of this stack shall be equal to main stack or 30 metres, whichever is higher.]		

[1][18 Iron Ore Mining and Ore Processing*]**

S. No.	Industry	Parameter	Standards
1	**2**	**3**	**4**
19.	**Calcium Carbide**	Particulate Matter Emission	
		-Kiln	250 milligramme per normal cubic metre.
		-Arc Furnace	150 milligramme per normal cubic metre
20.	**Carbon Black**	Particulate Matter Emission	150 milligramme per normal cubic metre

[1] S. No.18 relating to "Aluminum" and entries relating thereto omitted by Rule 2(II) of the Environment (Protection) First Amendment Rules, 2006 notified by G.S.R. 46(E), dated 3.2.2006

S. No.	Industry	Parameter	Standards		
1	2	3	4		
[1][21	Copper, Lead or Zinc Smelting Plant	**Emission standards**			
		Particulate Matter (mg/Nm^3)	a. Concentrator	Existing Unit	New Unit
				100	75
			b. Sulphur Dioxide Recovery Unit Limiting Concentration in mg/Nm^3 Plant capacity for 100% convertible concentration of Sulphuric Acid (tonne/day)	Existing Unit	New Unit
		Sulphur Dioxide (SO_2)	Upto 300	1370	1250
			Above 300	1250	950
		Acid Mist/ Sulphur Trioxide	Upto 300	90	70
			Above 300	70	50
		Note: 1. Capacity in above stipulation means the installed capacity of Sulphuric Acid plant. 2. Scrubbing units shall have on-line pH meters with auto recording facility. 3. Plant commissioned on or after the date of notification, shall be termed as 'New Unit'. 4. The height of the Stack emitting Sulphur Dioxide or acid mist shall be a minimum of 30 meters or as per the formula $H=14\ (Q)^{0.3}$ (whichever is more), where 'H' is the height of stack in meters; and 'Q' is the maximum quantity of SO_2 in kg/hr, expected to be emitted through the stack at 110 percent rated capacity of the Tail Gas plant(s) and calculated as per the norms of gaseous emission. 5. Tail Gas plants having more than one stream or unit of Sulphuric Acid at one location, the combined capacity of all the streams or units shall be taken into consideration for determining the stack height and applicability of emission standards. 6. Tail Gas plants having separate stack for gaseous emission for the scrubbing unit, the height of this stack shall be equal to main stack or 30 metres, whichever is higher].		

S. No.	Industry	Parameter	Standards
1	2	3	4
22.	**Nitric Acid (Emission Oxides of Nitrogen)**	Emission of Oxides of Nitrogen	3 kilogramme of oxides of nitrogen per tonne of weak acid (before concentration) produced.

[1] Subs by G.S.R. 354(E), dated 2nd May, 2011.

S. No.	Industry	Parameter	Standards		
1	2	3	4		
[1][23	**Sulphuric Acid Plant**		**Emission Standards**		
			Limiting Concentration in mg/Nm^3, unless stated		
			Plant capacity for 100% concentration of Sulphuric Acid (tonne/day)	Existing Unit	New Unit
		Sulphur dioxide (SO_2)	upto 300	1370	1250
			Above 300	1250	950
		Acid Mist/ Sulphur Trioxide	Upto 300	90	70
			Above 300	70	50
	Note: i. Scrubbing units shall have on-line pH meters with auto recording facility. ii. The height of the stack emitting sulphur dioxide or acid mist shall be of minimum of 30 metre or as per the formula $H=14(Q)^{(0.3)}$ (whichever is more). Where "H" is the height of stack in metre; and "Q" is the maximum quantity of SO_2 expected to be emitted through the stack at 110 percent rated capacity of the plants and calculated as per the norms of gaseous emission. iii. Plants having more than one stream or unit of sulphuric acid at one location, the combined capacity of all the streams and units shall be taken into consideration for determining the stack height and applicability of emission standards. iv. Plants having separate stack for gaseous emission for the scrubbing unit, the height of this stack shall be equal to main stack.]				

S. No.	Industry	Parameter	Standards		
1	2	3	4		
[2][24.	**Integrated Iron and Steel Plant**	**A. Coke oven (by-product type)**			
		a. Effluent Standards			
			Limiting concentration in mg/l. except for pH		
		pH	6.0-8.50		
		Suspended solids	100		
		BOD, 3 days at 27 ºC	30		
		COD	250		
		Oil and Grease	10		
		Ammonical nitrogen, as N	50		
		Cyanide (as CN^-)	0.2		
		Phenol	1.0		
		b. Emission Standards			
			New Batteries (at green field site)	Rebuild Batteries	Existing Batteries
		(i) Fugitive Visible Emissions			
		Leakage from door	5(PLD)*	10(PLD)*	10(PLD)*

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

[2] Subs. By G.S.R. 277(E), dated 31st March, 2012 serial no. 24 and their entries relating thereto (w.e.f. 31.03.2012)

		Leakage from charging lids	1(PLL)**	1(PLL)**	1(PLL)**
		Leakage from AP Covers	4(PLO)↑	4(PLO)↑	4(PLO)↑
		Charging emission (Second/Charge)	16 (with HPLA)#	50 (with HPLA)#	75
		*** PLD- Percent leaking doors; ** PLL Percent leaking lids;**			
		↑PLO-Percent Leaking off takes and #HPLA - Aspiration though high pressure liquor injection in gooseneck.			
		(ii) Stack Emission Standards			
		SO_2 (mg/Nm^3)	800	800	800
		NOx (mg/Nm^3)	500	500	500
		Particulate matter (mg/Nm^3)	50	50	50
		Particulate matter during charging of stamp charging batteries (mg/Nm^3)	25	25	25
		Sulphur in Coke Oven gas used for heating (mg/Nm^3)	800	-	-
		(iii) Fugitive Emissions: Benzo(a) Pyrene (BaP)			
		Battery area (top of the battery) (µg/m^3)	5	5	5
		Other units in coke oven plant (µg/m^3)	2	2	2
		B- Sintering Plant			
		a. Effluent Standards			
			Limiting concentration in mg/l, except for pH		
		pH	6.0-8.50		
		Suspended solids	100		
		Oil and Grease	10		
		b. Emission Standards			
		Particulate matter (mg/Nm^3)	150		
		C- Blast Furnace			
		a. Effluent Standards			
			Limiting concentration in mg/l, except for pH		
		pH	6.0-8.5		
		Suspended solids (mg/l)	50		
		Oil and Grease (mg/l)	10		
		Cyanide as CN^- (mg/l)	0.2		
		Ammonical Nitrogen, as NH_3-N (mg/l)	50		
		b. Emission Standards			
		(i) Stack Emissions			
			Existing Units	New Units	
			BF Stove		
		Particulate matter (mg/Nm^3)	50	30	
		SO_2 (mg/Nm^3)	250	200	
		NOx (mg/Nm^3)	150	150	
		CO (vol/vol)	1% (max.)	1% (max.)	
		(ii) Space Dedusting /Other Stacks of BF area			
		Particulate matter (mg/Nm^3)	100	50	
		(iii) Fugitive Emission			
			Existing Units	New Units	

		Particulate matter (Size less than 10 microns) PM_{10} ($\mu g/m^3$)	4000	3000
		SO_2 ($\mu g/m^3$)	200	150
		NOx ($\mu g/m^3$)	150	120
		Carbon monoxide ($\mu g/m^3$) - 8 hours - 1 hour	 5000 10,000	 5000 10,000
		Lead, as Pb in fugitive dust ($\mu g/m^3$) at Cast House	2	2
		D. - Steel Making Shop-Basic Oxygen Furnace		
		a. Effluent Standards		
		pH	6.0-8.5	
		Suspended solids (mg/l)	100	
		Oil and Grease (mg/l)	10	
		(i) Stack Emissions		
			Existing Units	New Units
		• Converters		
		Particulate matter (mg/Nm^3)		
		-Blowing /Lancing operation	300	Should be with gas recovery
		-Normal operation	150	Should be with gas recovery
		**Secondary Emission Stack: De-dusting of de-sulphurisation, Secondary refining etc.,		
		Particulate matter (mg/Nm^3)	100	50
		(ii) Fugitive Emissions		
			Existing Units	New Units
		Particulate matter (Size less than 10 microns) PM_{10} ($\mu g/m^3$)	4000	3000
		SO_2 ($\mu g/m^3$)	200	150
		NOx ($\mu g/m^3$)	150	150
		CO ($\mu g/m^3$) -8 hours 1 hour	5,000 10,000	5,000 10,000
		Lead, as Pb in dust at Convertor floor ($\mu g/m^3$)	2	2
		E. - Rolling Mills		
		a. Effluent Standards		
		pH	6.0-9.0	
		Suspended solids (mg/l)	100	
		Oil and Grease (mg/l)	10	
		b. Emission Standards		
		Particulate matter (mg/Nm^3)	150	
		Re-Heating (Reverberatory) Furnaces		
			Sensitive Area	Other Area
		Particulate matter (mg/Nm^3)	150	250
		F-Arc Furnaces		
		Emission Standards		
		Particulate matter (mg/Nm^3)	150	

		G. - Induction Furnaces		
		Emission Standards		
		Particulate matter (mg/Nm^3)	150	
		H. - Cupola Foundry		
		Emission Standards		
			melting capacity less than 3 tonne/hr	melting capacity 3 tonne/hr and above
		Particulate matter (mg/Nm^3)	450	150
		SO_2 (mg/Nm^3)	300, corrected at 12% CO_2	
		I. - Calcination Plant/Lime Kiln/Dolomite Kiln		
		Emission Standards		
			Capacity upto 40t/day	Capacity above 40t/day
		Particulate matter (mg/Nm^3)	500	150
		J. - Refractory Unit		
		Emission Standards		
		Particulate matter (mg/Nm^3)	150	
		Note: 1. The height of the each process stack shall be a minimum of 30 metres or as per the formula $H=14(Q)^{0.3}$ (whichever is more), *where "H" is the height of stack in metre; and "Q" is the maximum quantity of SO_2 in kg/hr expected to be emitted through the stack at rated capacity of the plant(s) and calculated as per the norms of gaseous emission.* 2. The plants having separate stack for gaseous emission for the scrubbing unit, the height of this stack shall be equal to main stack of the plant or 30 metres, whichever is higher. 3. It is essential that stack constructed over the cupola beyond the charging door and emissions shall be directed through the stack which should be at least six times the diameter of cupola. 4. In respect of Arc Furnaces and Induction Furnaces provision shall be made for collecting the fumes before discharging the emission through the stack. 5. Foundries shall install scrubber, followed by a stack of height atleast six times the diameter of the Cupola beyond the charging door. 6. Recovery type converters shall be installed in new plants or expansion projects.		
		Stormwater		
		Note: i. Stormwater shall not be allowed to mix with effluent, scrubber water and/or floor washings. ii. Stormwater shall be channelized through separate drains as per natural gradient, passing through High Density Polyethylene (HDPE) lined pits, each having holding capacity of 10 minutes (hourly average) of rainfall].		

S. No.	Industry	Parameter	Standards
1	2	3	4
[1][25.	**Thermal Power Plant**	**TPPs (units) installed before 31st December, 2003***	
		Particulate Matter	100 mg/Nm^3
		Sulphur Dioxide (SO_2)	600 mg/Nm^3 (Units Smaller than 500 MW capacity units) 200 mg/Nm^3 (for units having capacity of 500 MW and above)
		Oxides of Nitrogen (NOx)	600 mg/Nm^3
		Mercury (Hg)	0.03 mg/Nm^3 (for units having capacity of 500 MW and above)
		TPPs (units) installed after 1st January, 2003, upto 31st December, 2016*	
		Particulate Matter	50 mg/Nm^3
		Sulphur Dioxide (SO_2)	600 mg/Nm^3 (Units Smaller than 500 MW capacity units) 200 mg/Nm^3 (for units having capacity of 500 MW and above)
		Oxides of Nitrogen (NOx)	[2][450 mg/Nm^3]
		Mercury (Hg)	0.03 mg/Nm^3
		TPPs (units) to be installed from 1st January, 2017**	
		Particulate Matter	30 mg/Nm^3
		Sulphur Dioxide (SO_2)	100 mg/Nm^3
		Oxides of Nitrogen (NOx)	100 mg/Nm^3
		Mercury (Hg)	0.03 mg/Nm^3
		[3][**Note**: All monitored values for SO_2, NOx and Particulate Matter shall be corrected to 6% Oxygen, on dry basis.]	

[4][*(i) A task force shall be constituted by Central Pollution Control Board (CPCB) comprising of representative from Ministry of Environment and Forest and Climate Change, Ministry of Power, Central Electricity Authority (CEA) and CPCB to categorise thermal power plants in three categories as specified in the Table-I on the basis of their location to comply with the emission norms within the time limit as specified in column (4) of the Table-I, namely: -

Table-I

Sl. No.	Category	Location/area	Timelines for compliance	
			Non retiring units	Retiring units
(1)	(2)	(3)	(4)	(5)
1	Category A	Within 10 km radius of National Capital Region or cities having million plus population[1].	Upto 31st December 2022	Upto 31st December 2022

[1] As per **2011** census of India.

[1] Subs. by S.O. 3305(E), dated 07th December, 2015 serial no. 25 and their entries relating thereto (w.e.f. 07.12.2015) earlier it serial no. 25 and 26 and entries relating thereto inserted vide S.O. 8(E), dated 03.01.1989.

[2] Subs. by G.S.R. 662(E), dated 19th October, 2020

[3] Inserted by G.S.R. 593(E), dated 28th June, 2018

[4] Subs. for letters, brackets and words [*TPPs (units) shall meet the limits within two years from date of publication of this notification] by G.S.R. 243(E), dated 31st March, 2021,

Sl. No.	Category	Location/area	Timelines for compliance	
			Non retiring units	Retiring units
(1)	(2)	(3)	(4)	
2	Category B	Within 10 km radius of Critically Polluted Areas[2] or Non-attainment cities[2]	Upto 31st December 2023	Upto 31st December 2025
3	Category C	Other than those included in category A and B	Upto 31st December 2024	Upto 31st December 2025

[2] As defined by CPCB.

(ii) the thermal power plant declared to retire before the date as specified in column **(5)** of Table-I shall not berequired to meet the specified norms in case such plants submit an undertaking to CPCB and CEA for exemption on ground of retirement of such plant:

Provided that such plants shall be levied environment compensation at the rate of rupees **0.20** per unit electricity generated in case their operation is continued beyond the date as specified in the Undertaking;

(iii) there shall be levied environment compensation on the non-retiring thermal power plant, after the date as specified in column (4) of Table-I, as per the rates specified in the Table-II, namely: -

Table-II

Non-Compliant operation beyond the Timeline	Environmental Compensation (Rs. per unit electricity generated)		
	Category A	**Category B**	**Category C**
0-180 days	0.10	0.07	0.05
181-365 days	0.15	0.10	0.075
366 days and beyond	0.20	0.15	0.10.]

** Includes all the TPPs (units) which have been accorded environmental clearance and are under construction.]

[1][26. Natural Rubber Industry*]**

S. No.	Industry	Parameter	Standards
1	**2**	**3**	**4**
[2][27.	**Asbestos Manufacturing Units (including all processes involving the use of Asbestos)**	-Pure Asbestos material	[3]{0.5 fibre */cc for one year from the date of notification 0.2 fibre */cc after one year from the date of notification}
		-Total Dust	2 mg/m^3 (normal)]

[1] Serial No. 26 relating to "Natural Rubber Industry" and entries relating thereto omitted by G.S.R. 221(E), dated 18th March, 2011

[2] S.No. 27 to 31 and entries relating thereto inserted vide GSR 913(E) dt. 24.10.89 published in the Gazette No. 554 dt. 24.10.89

[3] Standards mentioned at Sl. No. 27 amended by Rule 2(III) of the Environment (Protection) First Amendment Rules, 2006 notified vide Notification G.S.R. 46(E), dated 3.2.2006.

28.	**Chlor Alkali (Caustic Soda)**	**Emissions**	Concentration in mg/m^3 (normal)
	(a) Mercury Cell	Mercury (from hydrogen gas holder stack)	0.2
	(b) All processes	Chlorine (from hypo tower)	15.0
	(c) All processes	Hydro chloric acid vapours and mist (from hydro chloric acid plant)	35.0
29.	**Large Pulp And Paper**	**Emissions**	Concentration in mg/m^3 (normal)
		Particulate matter	250**
		H_2S	10
	** This standard of 250 mg/m^3 (normal) shall apply only for a period of 3 years with effect from the date on which the Environment (Protection) Second Amendment Rules, 1989 came into force. After three years the standard to be applicable is 15 mg/m^3 (normal).		
[1][**30.**	**Integrated Iron and Steel Plants****]**		
31.	**Re-Heating (Reverberatory) Furnaces**	**Emissions**	Concentration in mg/m^3 (normal)
		Capacity : All sizes	
		Sensitive area — Particulate matter	150
		Other area — Particulate matter	450

[2][**32.**	**Foundries**	**Emissions**		
	(a) Cupola Capacity (Melting Rate):	Less than 3 mt./hr.	Particulate Matter	450
		3 mt./ hr. and above	Particulate Matter	150
	Note: It is essential that stack is constructed over the cupola beyond the charging door and emissions are directed through the stack which should be at least six times the diameter of cupola.			
	(b) Arc Furnaces:	Capacity: All sizes	Particulate Matter	150
	(c) Induction Furnace	Capacity: All sizes	Particulate Matter	150
	Note: In respect of Arc Furnaces and Induction Furnaces provision has to be made for collecting the fumes before discharging the emissions through the stack.			

S. No.	Industry	Parameter	Standards
1	**2**	**3**	**4**
33.	**Thermal Power Plants**	Stack Height/Limit in Meters*	
		Power Generation Capacity:	
		– 500 MW and above	275
		– 200 MW/210 MW and above to less than 500 MW	220

[1] Serial No. 30 relating to "Integrated Iron & Steel Plants" and entries relating thereto omitted by G.S.R. 277(E), date 31st March, 2012.

[2] S. No. 32 entry relating thereon inserted vide G.S.R. 742(E), date 30.08.90 published in the Gazette No. 365 dated 30.08.90.

		– Less than 200 MW/210 MW	H-14(Q)$^{0.3}$ where Q is emission rate of SO_2 in *kg/hr. and *H Stack Height in metres.
		Steam Generation capacity: – Less than 2 ton/hr.	½ times the neighbouring building height or 9 metres (whichever is more)
		– More than 2 ton/hr. to 5 ton/hr.	12
		– More than 5 ton/hr. to 10 ton/hr.	15
		– More than 10 ton/hr.	18
		– More than 15 ton/hr. to 20 ton/hr.	*21
		– More than 20 ton/hr. to 25 ton/hr.	24
		– More than 25 ton/hr. to 30 ton/hr.	27
		– More than 30 ton/hr.	30 or using formula H-14(Q)$^{0.3}$ (whoever is more) Q is emission rate of SO_2 in kg/hr and *H-Stack height in meters.
	* Correction have been made as per Corrigendum Notification no. S.O. 8(E) dt.31.12.1990		

S. No.	Industry	Parameter	Standards	
1	2	3	4	
[1][33A.	Thermal Power Plants with wet Flue Gas Desulphurization (FGD)	Stack Height/Limit in Meters	Power Generation Capacity:	
			-100 MW and above	H = 6.902(QX0.277)$^{0.555}$ or 100 m minimum
			-Less than 100 MW	H = 6.902(QX0.277)$^{0.555}$ or 30 m whichever is more"
			Q = Emission rate of SO_2 in kg/hr* H = Physical stack height in meter *total of the all Unit's connected to stack **Note**: These standards shall apply to coal/lignite based Thermal Power Plants].	
34.	**Small Boilers**	**Emissions***		
		Capacity of Boiler	Particulate matter	
		- Less than 2 ton/hr.		1600
		- 2 to 5 ton/hr		1200
		- More than 15 ton/hr		150
		*All emissions normalized to 12 percent carbon dioxide.		

[1] Inserted by G.S.R. (E) 593, dated 28th June, 2018 serial no. 33A and their entries relating thereto

S. No.	Industry	Parameter	Standards
1	2	3	4
[1][35.	**Coffee Industry**	**Instant /Dry Processing**	
			Limiting value for concentration in mg/l except for pH
		pH	6.5-8.5
		BOD 3 days 27 °C	100 (for discharge on land for irrigation)
		Wet/Parchment Coffee Processing	
		pH	6.5-8.5
		BOD 3 days 27 °C A. For storage in lined lagoons B. For discharge on land for irrigation	 1000 100
		Note: (i) Raw, treated and / or diluted effluent shall not be discharged into surface water body or used for recharging ground water under any circumstances what so ever. (ii) The non-permeable lining system shall be constructed by using well graded, highly impervious clay or geosynthetic liners such as Geosynthetic Clay Liners (GCL), High-Density Polyethylene (HDPE) or a combination of both and shall achieve an in-situ coefficient of permeability of less than $1x10^{-7}$ cm/sec. The compacted clay liner must have a minimum thickness of 300 mm (or two compacted layers of 150 mm minimum thickness each). The finished lining must be tested to ensure that it meets the permeability criteria. (iii) The effluent storage facilities/lagoons/solar evaporation ponds shall be located above high flood level mark of the nearby stream, rivulet, etc. with below mentioned free board and away from any water body/stream at a distance. Free Board (cm) 60 Distance (m) 100 (iv) The liner system specification and lagoon specification to be achieved in one year].	

S. No.	Industry	Parameter	Standards
1	2	3	4
36.	**Aluminium Plants**	**Emissions**	
	(a) Aluminia Plant:		
	(i) Raw Material Handling	Primary and Secondary Crusher Particulate Matter	150
	(ii) Precipitation area		
	-Calcination	Particulate matter	250
		Carbon Monoxide	1% max.
		Stack Height	$H=14(Q)^{0.3}$ Where Q is emission rate of SO_2 in kg/hr and H-Stack height in meters.
	(b) Smelter Plant	Particulate matter	
	(i) Green Anode Shop	Particulate matter	150

[1] Inserted by G.S.R. 48(E), dated the 24th January, 2020

	[1][(ii) Anode Bake Oven	Particulate matter	50 mg/Nm^3
		Total Fluoride (F)	0.3 kg/MT of Aluminium
	(iii) Pot room	Particulate matter	150
		Total Fluoride For Soderberg* Technology	2.8 kg/ton by 31st December, 2006
		For Pre-baked Technology	0.8 kg/t by 31st December, 2006
	[2][(c) Standards for forage fluoride		
		Twelve consecutive months average	40 ppm
		Two consecutive months average	60 ppm
		-One month average	-80 ppm]
* Separate Standards for VSS, HSS, PBSW & PBCW as given in column 4 stands abolished			

S. No.	Industry	Parameter	Standards
1	**2**	**3**	**4**
***37.**	**Stone Crushing Unit**	Suspended Particulate Matter (SPM)	The Standards consist of two paras: **(i) Implementation of the following Pollution Control measures:** (a) Dust containment cum suppression system for the equipment. (b) Construction of wind breaking walls. (c) Construction of the metalled roads within the premises. (d) Regular cleaning and wetting of the ground within the premises. (e) Growing of a green belt along the periphery. **(ii) Quantitative standard for SPM:** **[measured between three meters and ten meters from any processes equipment of a stone crushing unit shall not exceed 600 microgrammes per cubic metre] from a controlled isolated as well as from a unit located in a cluster should be less than 600 mg/Nm^3 [3][xxx….]

[1] Substituted by Rule 23(iv)(a) amended by Rule 2(IV)(a) of the Environment (Protection) First Amendment Rules, 2006 notified vide Notification G.S.R. 46(E), dated 3.2.2006.

[2] Inserted by Rule 2(IV)(b) of the Environment (Protection) First Amendment Rules, 2006 notified by G.S.R. 46(E), dated 3.2.2006.

* Standards notified at Sl. No. 11 may also be referred.

** Corrections have been made as per CORRIGENDUM Notification No. S.O.8 (E), dated 31.12.1990.

[3] The sentence 'The measurements are to be conducted at least twice a month for all the 12 month in a year' deleted as per CORRIGENDUM Notification S.O. 8(E), dated 31.12.1990.

S. No.	Industry	Parameter	Standards
1	2	3	4
38.	**Petrochemicals (Basic & Intermediates)**	**[1][A. Effluents]**	
		pH	6.5-8.5
		*BOD [2][3days at 27°C)]	50
		**Phenol	5
		Sulphide(as S)	2
		COD	250
		Cyanide (as CN)	0.2
		***Fluoride (as F)	15
		Total Suspended Solids	[3][100]
		Hexavalent Chromium [1][(as Cr)]	0.1
		**** Total Chromium [1][(as Cr)]	2.0

* State Board may prescribe the BOD value of 30 mg/l if the recipient system so demands.

** The limit for phenol shall be conformed to at the outlet of effluent treatment of phenol plant. However, at the final disposal point, the limit shall be less than 1 mg/l.

*** The limit for fluoride shall be confirmed to at the outlet of the chrome removal unit. However, at the disposal point fluoride concentration shall be lower than 5 mg/l.

**** The Limits for total and hexavalent chromium shall be conformed to at the outlet of the chromate removal. This implies that in the final treated effluent, total and hexavalent chromium shall be lower than prescribed herein.

S. No.	Industry	Parameter	Standards		
1	2	3	4		
	[4][(Furnace, Boiler, Heater, Vaporiser)	**B. Emission from Chimney/Stack**			
			Limiting concentration in mg/Nm^3, unless stated		
			Fuel Type	**Existing Plants**	**New Plants/ Expansion of Existing Plant**
		Sulphur Dioxide (SO_2)	Gas Liquid	50 1700	50 850
		Oxides of Nitrogen (NO_X)	Gas Liquid	350 450	250 350
		Particulate Matter (PM)	Gas Liquid	10 100	05 50
		Carbon Monoxide (CO)	Gas Liquid	150 200	100 150
		Note: - (i) All value shall be corrected 3% Oxygen. (ii) Wet scrubber shall necessarily be operated at the time of decoking.			

[1] Subs. By G.S.R. 820(E), dated 9th November, 2012 after Serial No. 38 entries under Column No. 2, for "Effluent" (w.e.f. 09.11.2012)

[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° occurred.

[3] Corrected as per Corrigendum Notification S.O.8 (E), dated 31.12.1990

[4] Inserted by G.S.R. 820(E), dated 9th November, 2012 (w.e.f. 09.11.2012)

(iii) Norms for CO shall be monitored only in case of Phthalic Anhydride (PA), Maleic Anhydride (MA), Terephthalic Acid (PTA) and Dimethyl Terephthalate (DMT) Plants. Norms for CO emissions shall not be applicable to PA/MA manufacturing standalone existing plants with an installed capacity of less than 30,000 metric tonnes per annum, provided that such units have a chimney/stack of minimum 30 metres height for emitting Carbon Monoxide.

Process Emission (Specific Pollutant)

	Source	**Limiting Concentration in mg/Nm^3**	
		Existing Plants	**New Plants**
Chlorine	EDC/VCM Plant and Incinerator	10	10
Hydrochloric Acid Mist	EDC/VCM Plant and Incinerator	30	30
Ammonia	Wastewater stripper, acrylonitrile plant, caprolactum plant	75	75
Hydrogen Sulphide	Naphtha pre-treatment plant, olefin plant	05	05
Phosgene	(TDI) and (MDI) plant	01	01
Hydrogen Cyanide (HCN)	Acrylonitrile Plant	10	10
VOC (HAPs) - TDI and MDI	TDI, Methylenediphenyl Di-isocyanate (MDI) Plants	0.1	0.1
VOC (HAPs) Benzene and Butadiene	Benzene, Butadiene Plants	5.0	5.0
VOC (HAPs), EO, VCM, EDC, ACN and PO	EO, VCM, EDC, ACN, PO Plants	20.0	10.0
Organic Particulate	PA, MA and TDI Plants	50	25

Process Emission (General Pollutant)

	Source	**Limiting Concentration in mg/Nm^3**
VOC (MA, PA and Phenol)	MA, PA, Phenol Plants	20
VOC (EB, Styrene, Toluene, Xylene, Aromatics, EG and PG)	Ethyl benzene (EB), Styrene, Toluene, Xylene, Aromatics, EG, PG Plants	100
VOC (paraffin, Acetone and Olefins)	Non-methane, HC (paraffin), Acetone, Olefins Plants	150

Note: HAP - Hazardous Air Pollutants are those pollutants that cause cancer or other serious health effects, or adverse environmental and ecological effects.

Abbreviations: 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.".

C. Standards for Fugitive Emission

Storage of Volatile Liquids: General Petrochemical/Petroleum Products.

1 Storage tanks with capacity between 4 to 75m^3 and total vapour pressure (TVP) of more than 10 kpa should have Fixed Roof Tank (FRT) with pressure valve vent.

2 Storage tanks with capacity between 75 to 500 m^3 and total vapour pressure (TVP) of 10 to 76 kpa should have internal floating roof or external floating roof or fixed roof with vapour control or vapour balancing system.

3 Storage tanks with the capacity of more than 500 m^3 and total vapour pressure (TVP) of 10 to 76 kpa should have internal floating roof or external floating roof or fixed roof with vapour control system.

4 The tanks with the capacity of more than 75 m^3 and total vapour pressure (TVP) of more than 76 kpa should have fixed roof with vapour control system.

5 Requirement for seals in Floating Roof Tanks -

(i) (a) Internal Floating Roof Tank (IFRT) and External Floating Roof Tank (EFRT) shall be provided double seals with minimum vapour recovery of 96%.

(b) Primary seal shall be liquid or shoe mounted for EFRT and vapour mounted for IFRT. Maximum seal gap width will be 4 cm and maximum gap area will be 200 cm^2/m of tank diameter.

(c) Secondary seal shall be rim mounted. Maximum seal gap width will be 1.3 cm and maximum gap area will be 20 cm^2/m of tank diameter.

(d) Material of seal and construction shall ensure high performance and durability.

(ii) Fixed roof tanks shall have vapour control efficiency of 95% and vapour balancing efficiency of 90%.

(iii) (a) inspection and maintenance of storage tanks shall be carried out under strict control;

(b) for the inspection, API RP 575 may be adopted;

(c) In-service inspection with regard seal gap should be carried out once in every six months and repair to be implemented in short time; and

(d) the possibility of on-stream repair of both shall be examined.

iv. Storage tanks shall be painted with white colour shade, except for derogation of visually sensitive area.

D. Storage of Benzene, VCM and ACN

(i) FRT with vapour for incineration with 99.9% of removal efficiency for volatile organic compounds (VOC) shall be provided; or

(ii) IFRT/EFRT with double seals, emission-reducing roof fitting and fitted with fixed roof with vapour removal efficiency of at least 99% shall be provided; or

(iii) Internal floating roof and nitrogen blanketing in between fixed and floating roofs shall be provided.

(Emission control for Road tank, truck/Rail tank, wagon loading)		
Loading of Volatile Products	Naphtha: i. VOC reduction, % or	 i. ≥99.5 or

	ii. Emission, gm/m^3	ii. ≤5
	Benzene and Butadiene: i. VOC reduction, % or ii. Emission, mg/m^3	 (i) ≥99.99 or (ii) ≤20
	Toluene/Xylene: i. VOC reduction, % or ii. Emission, mg /m^3	 i. ≥99.98 or ii. ≤150.]

S. No.	Industry	Parameter	Standards	
1	2	3	4	
[1][39	**Hotel Industry**	**Effluent Standards**		
		(i) Hotel with atleast 20 bedrooms		
			Limiting concentration in mg/l Except for pH	
			Inland Surface Water	On land for Irrigation
		pH	5.5-9.0	5.5-9.0
		BOD 3 days 27 °C	30	100
		Total Suspended Solids	50	100
		Oil & Grease	10	10
		Phosphate as P	1.0	-
		(ii) Hotel with less than 20 bedrooms or a Banquet Hall with minimum floor area of 100 m^2 or a Restaurant with minimum seating capacity of 36		
		pH	5.5-9.0	5.5-9.0
		BOD 3 days 27 °C	100	100
		Total Suspended Solids	100	100
		Oil & Grease	10	10
		Notes: i. Hotels, banquet halls, restaurants, etc. located in coastal area shall also comply with the provisions of the Coastal Regulation Zone, as applicable. ii. If, the effluent is discharged into a municipal sewer leading to a Sewage Treatment Plant, the hotel or restaurant or banquet hall, as the case may be, shall provide a proper Oil and Grease Trap for effluent arising from its kitchen and laundry and shall have to comply with the 'General Standards for Discharge of Environmental Pollutants Part-A: Effluents' notified under Schedule-VI.]		

S. No.	Industry	Parameter	Standards
1	2	3	4
[2][40	**Pesticide Industry**	**A. Emission Standards**	
			Limiting concentration in mg/Nm^3
		HCl	20
		Cl_2	5
		H_2S	5

[1] Inserted by Rule of the Environment (Protection) (Sixth Amendment Rules, 2009 notified by G.S.R. 794(E), dated 4.11.2009.

[2] Subs. By G.S.R. 446(E), dated 13th June, 2011 for Serial No. 40 and their entries relating thereto (w.e.f. 13.06.2011)

		P_2O_5 as H_3PO_4		10
		NH_3		30
		Pesticides compounds in the form of particulate matter		20
		CH_3Cl		20
		HBr		5
		B. Effluent Standards		
				Limiting concentration in mg/l, except for pH and Bioassay test
		(i) Compulsory Parameters		
		pH		6.5-8.5
		BOD, 3 days 27 °C	Formulation unit	30
			Technical Grade Unit	100
		Oil and Grease		10
		Suspended Solids		100
		Bioassay Test		90 percent survival of fish after 96 hours in 100% effluent*
		(ii) Additional Parameters		
		Arsenic (as As)		0.2
		Copper		1.0
		Manganese		1.0
		Mercury		0.01
		Antimony (as Sb)		0.1
		Zinc		1.0
		Nickel, etc. (heavy metals individually)		Shall not exceed individually 5 times the drinking water standards as per Bureau of Indian Standards
		Cyanide (as CN)		0.2
		Nitrate (as NO_3)		50
		Phosphate (as P)		5.0
		Phenol & Phenolic Compounds as C_6H_5OH		1.0
		Sulphur		0.03
		Benzene Hexachloride (BHC)		0.01
		Carbonyl		0.01
		Copper Sulphate		0.05
		Copper Oxychloride		9.6
		DDT		0.01
		Dimethoate		0.45
		2,4 D		0.4
		Endosulfan		0.01
		Fenitothrion		0.01
		Malathion		0.01
		Methyl Parathion		0.01
		Paraquat		2.3
		Phenathoate		0.01
		Phorate		0.01
		Proponil		7.3
		Pyrethrums		0.01
		Ziram		1.0
		Other Pesticide (individually)		0.10

*Bioassay Test shall be carried out as per IS: 6582-1971.

Note:

(1) The concerned State Pollution Control Board / Pollution Control Committee shall prescribe limits of Total Dissolved Solids (TDS), Sulphates and Chlorides depending on the usages of recipient water body in down stream, in which effluent shall be disposed off.

(2) No limit for Chemical Oxygen Demand (COD) is prescribed but, COD in the treated effluent shall be monitored. If COD is persistently reported more than 250 mg/l, the industry units discharging such an effluent shall be required to identify chemicals causing the same. In case, these are found to be toxic, as defined in schedule I of the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989, the concerned State Pollution Control Board /Pollution Control Committee in such cases shall direct the industries to install tertiary treatment system by 31st March, 2012.

(3) Parameters listed as "Additional Parameters" shall be prescribed depending upon the process and product, on a case to case basis.

C. Emission Standards for Incinerator

	Limiting Concentration in mg/Nm^3, unless stated	Sampling Duration in minutes, unless stated	
Particulate Matter	50	30 or more (for sampling of 300 litres of emission)	
HCl	50	30	
SO_2	200	30	
CO	100	Daily average	
Total organic Carbon	20	30	
Total Dioxins and Furans*	Existing Incinerator	0.2 ngTEQ/Nm^3	8 hours
	New Incinerator	0.01 ngTEQ/Nm^3	8 hours
Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V and their compounds		1.5	2 hours

*The existing plant shall comply with norms for Dioxins and Furans as 0.1 ng TEQ/Nm^3 by 18th August, 2013.

Note:

(i) All monitored value shall be corrected to 11 % oxygen on dry basis.

(ii) The CO_2 concentration in tail gas shall not be less than 7 %

(iii) In case, halogenated organic waste is less than 1% by weight input waste, all the facilities in single chamber incinerators shall be designed so as to achieve a minimum temperature of 1100 °C in the incinerator. For fluidized bed technology based incinerator, temperature shall be maintained at 950 °C.

(iv) In case halogenated organic waste is more than 1% by weight in input waste, waste shall be incinerated only in twin chamber incinerators and all the facilities shall be designed to achieve a minimum temperature of 850±25 °C in primary chamber and 1100 °C in secondary combustion chamber with a gas residence time in secondary combustion chamber not less than two seconds.

(v) Scrubber meant for scrubbing emissions shall not be used as quencher.

		(vi) Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve Total Organic Carbon (TOC) content in the incineration ash and residue less than 3% and their loss on ignition is less than 5% of the dry weight. In case of non-conformity, ash and residue as the case may be, shall be re-incinerated. (vii) The incinerator shall have a chimney of atleast thirty metres height.
		D. Effluent from Incinerator
		Note: (i) Effluent from scrubber(s) and floor washings shall flow through closed conduit or pipe network and be treated to comply with the effluent standards mentioned at 'B' above read with Schedule VI: General Standards for Discharge of Environment Pollutions (Part A : Effluents) notified under the Environment (Protection) Rules, 1986. (ii) The build-up in TDS in wastewater or floor washings shall not exceed 1000 mg/l over and above the TDS of raw water used.
		E. Stormwater
		Note: (i) Stormwater shall be allowed to mix with scrubber water and/or floor washings. (ii) Stormwater shall be channelized through separate drains passing through a HDPE lined pit having holding capacity of 10 minutes (hourly average) of rainfall.]

[1][41 Tannery (After Primary Treatment*)**

S. No.	Industry	Parameter	Standards
1	2	3	4
[2][42.	**Paint Industry**	**A. Emission Standards**	
			Concentration not to exceed
		Particulate Matter (all process vents attached to pre-mixers and mixers	50 mg/Nm^3
		Note: - (i) All dust generating equipment or processes shall be provided with dust extraction arrangement. (ii) The bag houses, etc. shall be connected to chimneys or stacks of at least twelve metres height or at least two metres above the top most point of the building, shed or plant in the industry, which so ever is higher. (iii) The unit shall channelize shop floor or fugitive emissions through a stack of twelve metres height or at least two metres above the top most point of the building or shed or plant in the industry, which so ever is higher.	

[1] Serial No. 41 relating to "Tannery (After Primary Treatment)" and entries relating thereto omitted by S.O. 4(E), dated 1st January, 2016 (w.e.f. 01.01.2016)

[2] Substituted by Part II, Section 3, Sub-section (i) vide number S.O. 844 (E), dated the 19th November, 1986 G.S.R. 1025(E), for Serial No. 42 and their entries relating thereto (w.e.f. 9th November, 2018).

B. Effluents Standards

(i) Large scale water based plants shall meet zero liquid discharge from process section.

(ii) All Micro, Small and Medium units as per Micro, Small and Medium Enterprises Development Act, 2006 (27 of 2006) and Solvent based large scale paint units shall meet the standards given as:

Parameters	**Concentration not to exceed, (in mg/l except for pH and Bioassay)**
pH	6.5-8.5
Total Suspended solid (TSS)	100
Bio-Chemical Oxygen Demand (BOD) (3 days at 27 ºC)	30
Phenolics as C_6H_5OH	1.0
Oil and Grease	10.0
Bio-Assay Test	90% survival in 100% effluent in 96 hours
Heavy Metals*	
Lead as Pb	0.1
Chromium (Hexavalent)	0.1
Total Chromium	2.0
Copper as Cu	2.0
Nickle as Ni	2.0
Zinc as Zn	5.0
Arsenic as As**	0.2
Cobalt as Co	0.2
Total Heavy metals	7.0

C- Service Wastewater

All efforts shall be made by the industry for 'zero discharge' of service wastewater, and in case, the industry prefers to discharge service wastewater, the following norms shall be complied with:-

	Concentration not to exceed, (in mg/l except for pH and temperature)
pH	6.5 – 8.5
Suspended Solids	100
Oil and Grease	10
Temperature	Not more than 5 °C higher than the intake water temperature

D- Storm-water

(i) Storm water for a plant, a unit (having plot size at least 250 square metres) shall not be allowed to mix with scrubber water, effluent and/or floor washings.

(ii) Storm water within the battery limits of a unit shall be channelized through separate drain or pipe passing through a High Density Poly ethylene (HDPE) lines pit having holding capacity of 10 minutes (hourly average) of rainfall.

E- Guidelines for Solvent Losses

(i) the total losses of solvent should not be more than 5% of the solvent consumed, if solvent consumption less than 1000 tons/Annum; and

		(ii) the solvent loss should not be more than 3% of the solvent consumed, if solvent consumption greater than 1000 tons/Annum.

* The units shall meet the prescribed limits of heavy metals in treated effluent, however, in cases where heavy metal concentration in intake water is more than prescribed limits, State Pollution Control Boards or Pollution Control Committees may specify higher limits of heavy metals provided the maximum limits are restricted to the background limits of intake water.

** In case As is geogenic in ground water, the State Pollution Control Boards/Pollution Control Committees may relax the limit with respect to it appropriately, provided the built of As in waste water does not exceed 0.2 mg/l over and above the As in raw water and limit with respect to total heavy metals is maintained.]

S. No.	Industry	Parameter	Standards
1	2	3	4
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 Chromium	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	0.01
		Cyanide 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.	

S. No.	Industry	Parameter	Standards
1	2	3	4
44.	**Bullion Refining (Waste water discharge)**	**Effluents**	
		pH	6.5-8.5
		Cyanide as CN	0.2
		Sulphide as S	0.2
		Nitrate as N	10.0
		Free Cl_2 as Cl	1.0
		Zinc as Zn	5.0
		Copper as Cu	2.0
		Nickel as Ni	2.0
		Arsenic as As	0.1
		Cadmium as Cd	0.2
		Oil and Grease	10.0
		Suspended Solids	100

[1][45 Dye & Dye Intermediate Industry (Waste Water Discharge) *]**

[1] Serial No. 45 relating to "Dye & Dye Intermediate Industry (Waste Water Discharge)" and entries relating thereto omitted by S.O. 4(E), dated 1st January, 2016 (w.e.f. 01.01.2016)

S. No.	Category	Standards dB(A)
1	2	4
46.	**Noise Limits for Automobiles (free field) at one meter in dB(A) at the manufacturing stage to be achieved by the year 1992**	
	(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 12 MT	91
47.	**Domestic appliances and construction equipments at the manufacturing stage to be achieve by the year, 1993**	
	(a) Window Air Conditioner of 1 ton to 1.5 tons	68
	(b) Air Coolers	60
	(c) Refrigerators	46
	[1] [(d) ***……	-]
	(e) Compactors (rollers) Front Loaders, Concrete Mixers, Cranes (movable), Vibrators and Saws.	75

S. No.	Industry	Parameter	Standards
1	2	3	4
[2][48.	**Glass Industry**	**Emissions**	
	A. Sodalime & Borosilicate and other special Glass (other than Lead)		
	(a) Furnace: Capacity		
	(i) Upto a product draw capacity of 60 MT/Day	Particulate Matter	2.0 kg/hr
	(ii) Product draw capacity more than 6 MT/Day	Particulate Matter	0.8 kg/MT of product drawn
	(iii) For all capacities	Stack Height	H= $14(Q)^{0.3}$ where Q is the emission rate of SO_2 in kg/hr. & H is Stack Height in meters.
		Total Fluorides	5.0 mg/Nm^3
		NOx	Use of low NOx burners in new plants
	(b) Implementation of the following measures for fugitive emission control from other sections:		
	(i) Raw materials should be transported in leak proof containers.		
	(ii) Cullet preparation should be dust free using water spraying.		
	(iii) Batch preparation section should be covered.		
	B. Lead Glass		
	(a) Furnaces :		
	All capacities	Particulate Matter	50 mg/Nm^3
		Lead	20 mg/Nm^3
	(b) Implementation of the following measures for fugitive emission control from other sections:		
	(i) Batch mixing, proportioning section and transfer points should be covered and it should be connected to control equipment to meet the following standards:		
		Particulate Matter	50 mg/Nm^3
		Lead	20 mg/Nm^3

[1] The words and figures 'Diesel generators for domestic purposes ….85-90' omitted by Rule 2(a) of the Environment (Protection) Second Amendment Rules, 2002 published vide Notification No. G.S.R. 371(E), dated 17.5.2005

[2] S. No. 48 and entries relating thereto inserted vide G.S.R. 93(E), dated 21.2.1991 published in the Gazette No. 79 dated 27.2.91.

	(ii) Minimum Stack height should be 30 metres in lead glass units.		
	(c) Pot Furnace at Firozabad Furnace:	Particulate Matter	1200 mg/Nm^3
	Note: Depending upon local environmental conditions, State/Central Pollution Control Board can prescribe more stringent standards than those prescribed above.		
	Glass Industries (for all categories)	**Effluents**	
		pH	6.5-8.5
		Total Suspended Solids	100 mg/l
		Oil & Grease	10 mg/l

S. No.	Industry	Parameter	Standards
1	2	3	4
49.	**Lime Kiln**		
	Capacity:	Stack Height	
	Upto 5 T/day	Stack Height	A hood should be provided with a stack of 30 meter height from ground level (including kiln height).
	Above 5 T/day	Stack Height	$H=14(Q)^{0.3}$ where Q is emission rate of SO_2 in kg/hr and H=Stack Height in meters.
	More than 5 T/day and upto 40 T/day	Particulate Matter	500 mg/Nm^3
	Above 40 T/day	Particulate Matter	150 mg/Nm^3

S. No.	Industry	Parameter	Standards
1	2	3	4
[1][50.	**A. Slaughterhouses or Meat Processing Units or Both***	**Effluents**	Maximum Concentration values are in mg/l except for pH
		pH	6.5 to 8.5
		Bio-chemical Oxygen Demand (BOD) [3 days at 27 °C]	30
		Chemical Oxygen Demand (COD)	250
		Suspended Solids	50
		Oil and Grease	10
	B. Sea Food Industry*	Bio-chemical Oxygen Demand (BOD) [3 days at 27 °C]	30
		Suspended Solids	50
		Oil and Grease	10
	*The emission standards from Boiler House of Slaughterhouses or Meat Processing Units or both and Sea Food Industry shall conform to the standards prescribed vide notification No. G.S.R. 742 (E), dated 30.08.1990 as amended from time to time under the Environment (Protection) Act, 1986 **Note:** (i) For Slaughterhouses operating in local bodies/ municipalities, where the treated effluent is discharged into municipal sewers leading to full-fledged Sewage Treatment Plant, the BOD may be relaxed to 100mg/l.		

[1] Subs. By vide notification G.S.R. 1016 (E), dated 28th October, 2016.

	(ii) All Slaughterhouses/ meat processing units shall ensure safe and proper disposal of solid waste {Type I (Vegetable matter such as rumen, stomach and intestinal contents, dung, agriculture residues etc) and Type II (Animal matter such as inedible offal, tissues, meat trimmings, waste and condemned meat, bones etc.)} through suitable technology approved by SPCBs/PCCs.]

S. No.	Industry	Parameter	Standards	
1	2	3	4	
51.	**Food and Fruit Processing Industry**	**Effluents**	Concentration not to exceed- mg/l except pH	Quantum gm/MT of product
	Category			
	A. Soft Drinks			
	(a) Fruit based/ Synthetic (more than 0.4 MT/Day) bottles and tetrapack	Ph	6.5-8.5	-
		Suspended Solids	100	
		Oil and Grease	10	
		BOD [1][3 days at 27 °C]	30	
	(b) Synthetic (less than 0.4 MT/Day)		Disposal via septic Tank	-
	B. Fruit & Vegetables			
	(a) Above 0.4 MT/Day	pH	6.5-8.5	-
		Suspended Solids	50	
		Oil and Grease	10	
		BOD [2][3 days at 27 °C]	30	
	(b) 0.1-0.4 MT/Day (10MT/Day)		Disposal via septic Tank	-
	C. Bakery			
	(a) Bread and Bread & Biscuit			
	(i) Continuous process (More than 20 T/Day)	pH	6.5-8.5	-
		BOD [1][3 days at 27 °C]	200	25
	(ii) Non-continuous process (less than 20 MT/Day)	-	Disposal via Septic Tank	
	(b) Biscuit Production			
	(i) 10 T/Day & above	pH	6.5-8.5	
		BOD [1][3 days at 27 °C]	300	35
	D. Confectioneries	**Effluents**		
	(a) 4 T/Day and above	pH	6.5-8.5	-
		Suspended Solids	50	
		Oil and Grease	10	
		BOD [1][3 days at 27 °C]	30	
	(b) Below 4 T/Day		Disposal via Septic Tank	
	Note: To ascertain the category of 'unit fails' the average of daily production and waste water discharge for the preceding 30 operating days from the date of sampling shall be considered. *The emission from the boiler house shall conform to the standards already prescribed under E (P) Act, 1986 vide Notification No. G.S.R. 742(E) dated 30.8.90			

[1] 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 oC) wherever BOD 5 days 20 oC occurred.

[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.

S. No.	Industry	Parameter	Standards
1	2	3	4
52.	***Jute Processing Industry**	**Effluents**	Concentration in mg/l except pH and water consumption
		pH	5.5-9.0
		BOD [1][3 days at 27 °C]	30
		Suspended Solids	100
		Oil and Grease	10
		Water Consumption	1.60 Cum/Ton of product produced.
	Note: 1. Water Consumption for the Jute processing industry will be 1.5 Cum/Ton of product from January, 1992. 2. At the present no limit for colour is given for liquid effluent. However, as far as possible colour should be removed. * Stack emissions from boiler house shall conform to the standards already prescribed under Environment (Protection) Act, 1986, vide Notification No. G.S.R. 742(E), dated 30.08.90		
53.	**Large Pulp & Paper News Print/Rayon Grade Plants of [2][capacity above 24,000 MT per annum]**	**Effluents**	Concentration in mg/l except pH and AOX
		pH	7.0-8.5
		BOD [3][3 days at 27°C]	30
		COD	350
		Suspended Solids	500
		[2][Absorbable Organic Halogens (AOX) in effluent discharge	1.5 kg/ton of product with effect from the date of publication of this notification. 1.0 kg/ton of product with effect from the 1st day of March, 2008.]
		Flow (Total Waste Water Discharge)	
		**(i) Large Pulp & Paper	200 Cum/Ton of Paper produced
		(ii) Large Rayon Grade Newsprint	150 Cum/Ton of Paper produced

S. No.	Industry	Parameter	Standards
1	2	3	4
54.	**Small Pulp and Paper Paper Plant of Capacity upto 24000 MT/Annum**	**Effluent**	
	Category:		
	A. *-Agro-based	Total waste water discharge	200 cum/Ton of paper produced
	B **Waste paper based	Total waste water discharge	75 cum/Ton of paper produced

[1] 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.

[2] Substituted by G.S.R. 546(E), dated 30.08.2005.

[3] 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 27o C) wherever BOD 5 days 20 °C occurred.

** The Standards with respect of total waste water discharge for the large pulp and paper mills be established from 1992, will meet the standards of 100 cum/Ton of paper produced.

	*The agro based mills to be established from January, 1992 will meet the standards of 150 cum/Ton of paper produced. ** The waste-paper mills to be established from January, 1992 will meet the standards of 50 cum/Tom of paper produced.				
S. No.	**Industry**	**Parameter**	**Standards**		
1	**2**	**3**	**4**		
[1][55.	**Common Effluent Treatment Plants (CETP)**				
	A. Inlet Quality Standards	For each Common Effluent Treatment Plant (CETP), the State Board will prescribe Inlet Quality Standards for General Parameters, Ammonical-Nitrogen and Heavy metals as per design of the Common Effluent Treatment Plant (CETP) and local needs & conditions.			
	B. Treated Effluent Quality Standards		Max. permissible values (in milligram/litre except for pH and Temperature)		
			Into inland surface water	On land for irrigation	Into sea
		General Parameters			
		pH	6-9	6-9	6-9
		Biological Oxygen Demand $(BOD)_3$, 27 ^0C	30	100	100
		Chemical Oxygen Demand (COD)	250	250	250*
		Total Suspended Solids (TSS)	100	100	100
		Fixed Dissolved Solids (FDS)	2100*	2100*	NS*
		Specific Parameters			
		Temperature, ^oC	Shall not exceed more than 5 ^oC above ambient water temperature	Shall not exceed more than 5 ^oC above ambient water temperature	Shall not exceed more than 5 ^oC above ambient water temperature
		Oil & Grease	10	10	10
		Ammonical – Nitrogen	50	NS*	50
		Total Kjeldahl Nitrogen (TKN)	50	NS*	50
		Nitrate – Nitrogen	10	NS*	50
		Phosphates, as P	5	NS*	NS*
		Chlorides	1000	1000	NS*
		Sulphates, as SO_4	1000	1000	NS*
		Fluoride	2	2	15
		Sulphides, as S	2	2	5
		Phenolic Compounds (as C_6H_5OH)	1	1	5
		Total Res. Chlorine	1	1	1
		Zinc	5	15	15
		Iron	3	3	3
		Copper	3	3	3
		Trivalent Chromium	2	2	2

[1] Subs. By S.O. 4(E), dated 1st January, 2016 for Serial No. 55 and their entries relating thereto

		Manganese	2	NS*	2
		Nickel	3	NS*	3
		Arsenic	0.2	NS*	0.2
		Cyanide, as CN	0.2	NS*	0.2
		Vanadium	0.2	NS*	0.2
		Lead	0.1	NS*	0.1
		Hexavalent Chromium	0.1	NS*	0.1
		Selenium	0.05	NS*	0.05
		Cadmium	0.05	NS*	0.05
		Mercury	0.01	NS*	0.01
		Bio-assay test	As per industry specific standards	As per industry specific standards	As per industry specific standards
		*NS - Not specified **Note**: 1. *Discharge of treated effluent into sea shall be through proper marine outfall. The existing shore discharges shall be converted to marine outfalls. In case where the marine outfall provides a minimum initial dilution of 150 times at the point of discharge and a minimum dilution of 1500 times at a point 100 m away from discharge point, then, the State Board may relax the Chemical Oxygen Demand (COD) limit. Provided that the maximum permissible value for Chemical Oxygen Demand (COD) in treated effluent shall be 500 milligram/litre. 2. *Maximum permissible Fixed Dissolved Solids (FDS) contribution by constituent units of a Common Effluent Treatment Plant (CETP) shall be 1000 milligram/litre. In case where Fixed Dissolved Solids (FDS) concentration in raw water used by the constituent units is already high (i.e. it is more than 1100 milligram/litre) then the maximum permissible value for Fixed Dissolved Solids (FDS) in treated effluent shall be accordingly modified by the State Board. 3. In case of discharge of treated effluent on land for irrigation, the impact on soil and groundwater quality shall be monitored twice a year (pre- and post-monsoon) by Common Effluent Treated Plant (CETP) management. For combined discharge of treated effluent and sewage on land for irrigation, the mixing ratio with sewage shall be prescribed by State Board.			

4. Specified parameters for some important sectors, selected from sector-specified standards

Sector	Specific Parameters
Textile	Bio-assay test, Total Chromium, Sulphide, Phenolic compounds
Electroplating Industries	Oil & Grease, Ammonia-Nitrogen, Nickel, hexavalent Chromium, Total Chromium, Copper, Zinc, Lead, Iron, Cadmium, Cyanide, Fluorides, sulphides, Phosphates, Sulphates,
Tanneries	Sulphides, Total Chromium, Oil & Grease, Chlorides
Dye & Dye Intermediate	Oil & Grease, Phenolic compounds, Cadmium, Copper, Manganese, Lead, Mercury, Nickel, Zinc, Hexavalent Chromium, Total Chromium, Bio-assay test, Chlorides, Sulphates,
Organic Industry Chemicals Manufacturing	Oil & Grease, Bio-assay test, Nitrates, Arsenic, Hexavalent Chromium, Total Chromium, Lead, Cyanide, Zinc, Mercury, Copper, Nickel, Phenolic compounds, Sulphides

	Pharmaceutical Industry	Oil & Grease, Bio-assay test, Mercury, Arsenic, Hexavalent Chromium, Lead, Cyanide, Phenolic compounds, Sulphides, Phosphates.]

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

S. No.	Industry	Parameter	Standards (applicable for all modes of disposal*)
1	2	3	4
[3][57.	**Tanneries**	**Standards for Discharge of Effluent from Tannery Industry**	
		Treated Effluent	**Max. permissible values** (in mg/l, except pH)
		pH	6 to 9
		Biochemical Oxygen Demand $(BOD)_3$ at 27 °C	20
		Chemical Oxygen Demand (COD)	250
		Total Suspended Solids (TSS)	50
		Total Dissolved Solids (TSS)	2100**
		Sulphides (as S)	2.0
		Total Chromium (as Cr)	2.0
		Hexavalent Chromium (as Cr^{+6})	0.1
		Oil and Grease	10
		Notes:	

[1] Sl. No. 56 entry relating thereto inserted vide GSR 475(E) dated 5.5.1992 published in the Gazette No. 202 dated 5.5.1992.

[2] Substituted by Rule 2 of the Environment (Protection) Amendment Rules, 1996 notified by G.S.R. 1769(E), dated 2.4.1996 may be read as BOD (3 days at 27°C) wherever BOD 5 days 20°C occurred.

[3] Substituted by Part II, Section 3, Sub-section (i) vide number S.O. 844(E), dated the 19th November, 1986 and lastly amended vide notification G.S.R. 47(E), dated the 24th January, 2020.

1. *In case of direct disposal into rivers and lakes, the Central Pollution Control Board (CPCB) or State Pollution Control Boards / Pollution Control Committees (SPCBs / PCCs) may specify more stringent standards depending upon the quality of the recipient system.
2. **Standards for TDS shall not be applicable in case of marine disposal through proper marine outfall.
3. **TDS limit with respect to treated effluent shall be 2100 mg/l; however, in case where TDS in intake water is above 1100 mg/l, a maximum contribution up to 1000 mg/l shall be permitted provided the maximum limit of 3100 mg/l is not exceeded in the treated effluent.
4. Standards are equally applicable to all types of stand-alone tanneries irrespective of their scale of production.
5. Chrome tanning units shall ensure installation of 'Chrome Recovery Plant' for treatment of spent chrome liquor so as to recover chromium sulphate.
6. The tannery shall ensure salt recovery through soak liquor segregation.
7. The treated effluent shall be allowed to be discharged in the ambient environment only after exhausting options for reuse in industrial process / irrigation in order to minimize freshwater usage.
8. The standalone units shall meet prescribed discharge norms; however, SPCB / PCC shall mandate recycle / reuse of the treated water in water scarce / environmentally sensitive / critical areas.
9. In case of discharge of treated effluent on land for irrigation, the impact on soil and groundwater quality shall be monitored twice a year (pre- and post- monsoon) by the tannery unit.
10. Management, handling and disposal of Sludge and other wastes shall be undertaken as per the provisions made in the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
11. The units shall follow the guidelines prescribed by CPCB and SPCB / PCC on "Best Available Technologies for Environmentally Sound Management of the Process and Treatment of Wastes".

Maximum specific water consumption for processing hides/ skins: (monthly average values)

Raw-to-Wet blue/white	20 m^3 per ton of hides /skins
Post-tanning process	20 m3 per ton of hides /skins
Raw-to-finished	40 m^3 per ton of hides /skins

Maximum wastewater discharge= 85% of maximum water consumption.

Factors to re-calculate Finished leather into Wet blue/white and Hide:

Shoe upper leather:

15 ton of Raw hides/skins=7.84 ton of Wet blue=2.94 ton of finished leather

Upholstery leather:

15 ton of Raw hides/skins=5.08 ton of Wet blue=1.48 ton of finished leather.]

[1][58. Natural Rubber Processing Industry **]**

59.	**Bagasse-Fired Boilers**	**Emissions**	(Concentration in mg/l)
	(a) Step Grate	Particulate matter	250
	(b) Horse shoe /pulsating grate	Particulate matter	500 (12% CO_2)
	(c) Spreader Stroker	Particulate matter	800 (12% CO_2)
	Note: In the case of horse shoe and spreader stroker boilers, if more than one boiler is attached to a single stack, the Standard shall be fixed based on added capacity of all the boilers connected with the stack.		

[2][60 Man-Made Fibre Industry (Semi-Synthetic) **]**

S. No.	Industry	Parameter	Standards
1	**2**	**3**	**4**
61.	**Ceramic Industry**	**Emissions**	(Concentration in mg/Nm^3)
	A. Kilns		
	a) Tunnel, Top Hat, Chamber	Particulate Matter	150
		Fluoride	10
		Chloride	100
		Sulphur dioxide	**
	b) Down-draft	Particulate Matter	1200
		Fluoride	10
		Chloride	100
		Sulphur dioxide	**
	c) Shuttle	Particulate Matter	150
		Fluoride	10
		Chloride	100
		Sulphur dioxide	**
	d) Vertical Shaft Kiln	Particulate Matter	250
		Fluoride	10
		Sulphur dioxide	**
	e) Tank furnace	Particulate Matter	150
		Fluoride	10
		Sulphur dioxide	**
	B. Raw material handling processing and operations		
	a) Dry raw materials handling and processing operations	Particulate Matter	150
	b) Basic raw material and processing operations	Particulate Matter	*
	c) Other sources of air pollution Generation	Particulate Matter	*
	C. Automatic Spray Unit		
	a) Dryers		
	(i) Fuel fired dryers	Particulate Matter	150
	(ii) For heat recovery dryer	Particulate Matter	*
	b) Mechanical finishing operation	Particulate Matter	*

[1] Serial No. 58 relating to "Natural Rubber Processing Industry" and entries relating thereto omitted by G.S.R. 221(E), dated 18th March, 2011.

[2] Serial No. 60 relating to "Man-Made Fibre Industry (Semi-Synthetic)" and entries relating thereto omitted by G.S.R. 1095 (E), dated 9th November, 2018.

	c) Lime/Plasters of Paris manufacture		
	Capacity:		
	Upto 5T/day	Stack Height	A. Hood should be provided with a stack of 30 meter height from ground level (including Kiln height)
	Above 5T/day	-do-	H= 14(Q) $^{0.3}$ where Q is emission rate of SO_2 in kg/hr and H= Stack in meters.
	More than 5T/day	Particulate matter	500 mg/Nm^3
	and upto 40 T/day	Particulate matter	150 mg/Nm^3

Note:

Oxygen reference level for particulate matter Concentration calculations for kilns mentioned at A(c) is 18% and for those at A(b), A(d) and A(c) is 8%.

* All possible preventive measures should be taken to control pollution as for as practicable.

** The standard for sulphur dioxide in terms of stack height limits for kilns with various capacities of coal consumption shall be as indicated below:

Coal consumed per day	Stack height
Less than 8.5 MT	9 m
More than 8.5 to 21 MT	12 m
More than 21 to 42 MT	15 m
More than 42 to 64 MT	18 m
More than 64 to 104 MT	21 m
More than 104 to 105MT	24 m
More than 105 to 126 MT	27 m
More than 126 MT	30 m or using formula

H = 14(Qg) $^{0.3}$ (whichever is more)

Note: In this notification

H- Physical height of the Stack

Qg- Emission of sulphur dioxide in Kg/hr.

MT- Metric tones

m- meters

[1][62. Viscose Filament Yarn**]**

S. No.	Industry	Parameter	Standards
1	2	3	4
[2][63.	**Starch Industry** (Maize products)	**Effluents :**	
			Concentration not to exceed mg/l (except pH and waste water discharge)
		pH	6.5-8.5

[1] Serial No. 62 relating to "viscose filament yarn" and entries relating thereto omitted by G.S.R. 1095 (E), dated 9th November, 2018.

[2] Sl. No. 63 to 67 entries relating thereto inserted by Rule 3(c) of the Environment (Protection) Amendment Rules, 1996 notified by G.S.R. 176(E), dated 2.4.1996.

		BOD (3 days at 27 °C)*	100
		Suspended Solids	150
		Wastewater discharge	8 m^3/tonne of maize processed
	Note: The prescribed limits for BOD and suspended solids shall be made more stringent or less stringent depending upon the condition and local requirement a mentioned below: i. BOD shall be made stringent upto 30 mg/l if the recipient fresh water body is a source for drinking water supply. ii. BOD shall be allowed upto 350 mg/l for applying on land provided the land is designed and operated as a secondary treatment system with the requisite monitoring facilities. The drainage water from the land after secondary treatment has to satisfy a limit of 30mg/l of BOD and 10mg/l of nitrate expressed as "N". The net addition to ground water quality should not be more than 3 mg/l of BOD and 10mg/l of nitrate expressed as "N". iii. BOD shall be allowed upto 350 mg/l for discharge into a town sewer, if such sewer leads to a secondary biological treatment system. iv. Suspended solids shall be allowed upto 450 mg/l for discharge into a town sewer, if such sewer leads to a secondary biological treatment system. v. In the event of bulking of sludge, the industry shall immediately apprise the respective State Pollution Control Board.		

S. No.	Industry	Parameter	Standards
1	2	3	4
64.	**Beehive Hard Coke Oven**	**Emission :**	
	(i) New unit	Particulate matter (corrected to 6% CO_2)	150 mg/Nm^3
		Hydrocarbons	25 ppm
	(ii) Existing units	Particulate matter (corrected to 6% CO_2)	350 mg/Nm^3
	Note: For control of emission and proper dispensation of pollutants the following guidelines shall be followed: — (i) Units set up after the publication of this notification shall be treated as new units. (ii) A minimum stack height of 20 meters shall be provided by each unit. (iii) Emission from coke ovens shall be channelized through a tunnel and finally omitted through a stack. Damper adjustment techniques shall be used to have optimum heat utilization and also to control the emission of unburnt carbon particles and combustible flue gases. (iv) Wet scrubbing system or waste heat utilization for power generation or by-product recovery system should be installed preferably to achieve the prescribed standards. (v) After four years from the date of this notification, all the existing units shall comply with the standards prescribed for the new units.		
65.	**Briquette Industry (Coal)**	**Emissions :**	
	i. Units having capacity less than 10 tonnes	Particulate matter (corrected to 6% CO_2)	350 mg/Nm^3

* 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 at 20 °C occurred.

	ii. Units having capacity 10 tonnes or more	Particulate matter (corrected to 6% CO_2)	150 mg/Nm^3
	Note: For control of emission/and proper dispersal of pollutants, the following guidelines shall be followed by the industry: - (i) A minimum stack height of 20 meters shall be provided. (ii) All ovens shall be modified to single chimney multi-oven systems. (iii) Emissions from ovens shall be channelised through inbuilt draft stack. Optimum heat utilization technique shall be used. (iv) In case of units having capacity 10 tonnes and above, wet scrubbing system shall be provided to control air pollution.		
S. No.	**Industry**	**Parameter**	**Standards**
1	**2**	**3**	**4**
66.	**Soft Coke Industry**	Particulate matter (corrected to 6% CO_2)	350 mg/Nm^3
		Note: Wet scrubbing system along with by-product recovery system shall be provided.	

Guidelines for emission control to improve work zone environment (applicable for industries at serial numbers 64, 65 and 66):

(a) Water used for quenching and wet scrubbing shall be recalculated and reused through catch pits.

(b) Leakages in the oven shall be sealed by bentonite or by any suitable paste and by proper maintenance to avoid fugitive emission.

Guidelines for coal handling and crushing plant (applicable for industries at serial numbers 64, 65 and 66):

a) Unloading of coal trucks shall be carried out with proper care avoiding dropping of the materials from height. It is advisable to moist the material by sprinkling water while unloading.

b) Pulverisation of coal shall be carried out in an enclosed place and water sprinkling arrangement shall be provided at coal heaps, crushing area and on land around the crushing unit.

c) Work area surrounding the plant shall be asphalted or concreted.

d) Green belt shall be developed along the boundary of the industry.

e) Open burning of coal to manufactures soft coke shall be stopped.

S. No.	**Industry**	**Parameter**	**Standards**
1	**2**	**3**	**4**
67.	**Edible oil & Vanaspati Industry**	**Effluents :**	
		Temperature	Not more than 5 ºC above ambient temperature of the recipient waterbody
		pH	6.5-8.5
		Suspended solids	150 mg/l
		Oil & grease	20 mg/l
		BOD (3 days at 27 ºC)	100 mg/l
		COD	200 mg/l
		Wastewater Discharge	
		i. Solvent extraction	2.0 cum/tonne of product (oil)
		ii. Refinery/Vanaspati	2.0 cum/tonne of product (refined oil/Vanaspati)

		iii. Integrated unit of extraction & refinery/ Vanaspati	4.0 cum/tonne of refined Vanaspati product
		iv. Barometric cooling water/De-odorise water	15.0 cum/tonne of refined oil Vanaspati
		Note: i. The above standards shall be applicable to waste water form processes and cooling. ii. BOD shall be made stringent upto 30 mg/l if the recipient fresh water body is source of drinking water supply. iii. The standards for boiler emission shall be applicable as prescribed under Schedule I of these rules.]	
[1][68.	**Organic Chemicals Manufacturing Industry**	**A. Effluents Standards**	
			Limiting concentration in mg/l, except for pH and Bioassay test
		Compulsory parameters	
		pH	6.5-8.5
		BOD 3 days at 27 ºC	100
		Oil & Grease	10
		Bioassay test +	Minimum 90% survival after 96 hours in 100% effluent
		Additional Parameters	
		Nitrate (as N)	10
		Arsenic (as As)	0.2
		Chromium (Hexavalent)	0.1
		Chromium Total	1.0
		Lead (as Pb)	0.1
		Cyanide (as CN)	0.2
		Zinc (as Zn)	5.0
		Mercury (as Hg)	0.01
		Copper (as Cu)	2.0
		Nickel (as Ni)	2.0
		Phenolics (as C_6H_5OH)	5.0
		Sulphide	2.0
		+ The Bioassay test shall be conducted as per IS: 6582-1971 **Note:** i. Industries covered under this group includes halo aliphatics, plasticizers, aromatics (alcohols, phenols, esters, acids and salts, aldehydes and ketones), substituted aromatics, aliphatics (alcohols, esters, acids, aldehydes, ketones, amines and amides) and detergents. ii. Though norms for COD are not mentioned here but, COD shall be monitored. If the COD in treated effluent exceeds 250 mg/l, the concerned industrial units discharging such effluent shall be required to identify chemicals responsible for high COD in effluent. In case, these are found to be toxic as defined under the Manufacture, Storage and Import of Hazardous	

[1] Substituted by G.S.R. 608(E), dated 21.7.2010.

Chemicals Rules, 1989, the concerned industry shall install tertiary treatment system.

iii. The above mentioned standards shall not be applicable to small scale detergent formulating units.

B. Emission Standards for Incinerator

Limiting concentration in mg/Nm^3, unless otherwise stated		Sampling Duration in minutes unless otherwise stated
Particulate Matter	50	30 or more (for sampling about 300 litres of emission)
HCl	50	30
SO_2	200	30
CO	100	daily average
Total Organic Carbon	20	30
Total Dioxins and Furans*		
Existing Incinerator	0.2 ng TEQ/Nm^3	8 hours
New Incinerator	0.1 ng TEQ/Nm^3	8 hours
Sb+As+Pb+Cr+Co+ Cu+Mn+Ni+V+Cd+ Th +Hg and their compounds	1.5	2 hours

* The existing plant shall comply with norms for Dioxins and Furans as 0.1 ng/TEQ/Nm^3 by 1st January, 2014

Note:

(i) All monitored values shall be corrected to 11% oxygen on dry basis.

(ii) The CO_2 concentration in tail gas shall not be less than 7%.

(iii) In case, halogenated organic waste is less than 1% by weight in input waste, all the facilities in twin chamber incinerator shall be designed so as to achieve a minimum temperature of 850 ± 25 °C in primary chamber and 950 °C in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than two seconds.

or

all the facilities in single chamber incinerator for gaseous hazardous waste shall be designed so as to achieve a minimum temperature of 950 °C in the combustion chamber with a gas residence time not less than two seconds.

(iv) In case halogenated organic waste is more than 1% by weight in input waste, waste shall be incinerated only in twin chamber incinerators and all the facilities shall be designed to achieve a minimum temperature of 850 ± 25 °C in primary chamber and 1100 °C in secondary combustion chamber with a gas residence time in secondary combustion chamber not less than two seconds.

		(v) Scrubber meant for scrubbing emission shall not be used as quencher. (vi) incineration plants shall be operated (i.e. combustion chambers) with such temperature, retention time and turbulence, as to achieve Total Organic Carbon (TOC) content in the incineration ash and residence less than 3%, and their loss on ignition is less than 5% of the dry weight. In case of non-conformity, ash and residue, as the case may be shall be re-incinerated. (vii) The incinerator shall have a chimney of at least thirty meters height.
		C. Effluent Standards for Incinerator
		Note: (i) Effluent from scrubber(s) and floor washing shall flow through closed conduit or pipe network and be treated to comply with effluent standards mentioned in 'A' above. (ii) The built up in Total Dissolved Solids (TDS) in wastewater of floor washings shall not exceed 1000 mg/l over and above the TDS or raw water used.
		D. Storm water
		Note: (i) Storm water shall not be allowed to mix with scrubber water and/or floor washings. (ii) Storm water shall be channelized through separate drains passing through a HDPE lined pit having holding capacity of 10 minutes (hourly average) of rainfall.]

S. No.	Industry	Parameters	Standards	
(1)	(2)	(3)	(4)	
[1][69	**Grain Processing, Floor Mills, Paddy Processing, Pulse Making or Grinding Mills**	**A-Emission Standards**		
			Capacity (tonne per hour)	Limiting Concentration in mg/Nm^3
		Particulate matter	1 to 3	150
			More than 3	100
		Notes: - (i) All dust generating equipments or processes shall be provided with dust extraction arrangement. (ii) The bag houses, etc., shall be connected to chimneys/stacks of 12 metres height or at least 02 metres above the top most point of the building or shed or plant in the industry. (iii) The unit shall channelise shop floor/fugitive emissions through a stack of 12 metres height or at least 02 metres above the top most point of the building or shed or plant in the industry.		
		B-Effluent Standards		
			Limiting value for concentration in mg/l, except for pH	

[1] Subs. By G.S.R. 152(E), dated 16.03.2012

			Inland Surface Water	Public sewer	Land for irrigation
		pH	5.5-9.0	5.5-9.0	5.5-9.0
		Suspended Solids	100	600	200
		Oil & Grease	10	20	10
		BOD, 3 days at 27 °C	30	350	100
		COD	250	-	-
		C- Stormwater Standards			
		(i) Stormwater for a unit (having plot size atleast 250 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 HDPE lined pit having holding capacity of 10 minutes (hourly average) of rainfall			

[1][70.	**Boiler (Small)**		
		Steam generation capacity (ton/hour)	Particular matters emission (mg/Nm^3)
		less than 2	1200*
		2 to less than 10	800*
		10 to less than 15	600*
		15 to above	150**
		* to meet the respective standards, cyclone/multicyclone is recommended as control equipment with the boiler. ** to meet the standard, bag filter/ESP is recommended as control equipment with the boiler.	
		Note: (i) 12% of CO_2 correction shall be the reference value for particulate matter emission standards for all categories of boilers. (ii) These limits shall supersede the earlier limits notified under Scheduled I at serial number 34 if Environment (Protection) Act, 1986 vide notification GSR 742(E), dated 30th August, 1990. (iii) Stack Height for small Boilers. For the small boilers using cola or liquid fuels, the required stack height with the boiler shall be calculated by using the formula. $H=14\ Q^{0.3}$ Where H- Total Stack height in meters from the ground level. Q = SO_2 emission rate in kg/hr. In no case the stack height shall be less than 11 metres. Where providing all stack are not feasible using above formula the limit of 400 mg/Nm^3 for SO_2 emission shall be met by providing necessary control equipment with a minimum stack height of 11 metres.]	

[1] Sl. No. 70 entries relating thereto inserted by Rule 3(c) of the Environment (Protection) Amendment Rules, 1996 notified by G.S.R. 176(E), dated 2.4.1996.

[1][71. Pesticides Industry *]**

S. No.	Industry	Parameter	Standards
1	2	3	4
[2][72	**Oil Drilling and Gas Extraction Industry**	**A. Standards For Liquid Effluent**	
		1.0 On-Shore facilities (For Marine Disposal)	
		pH	5.5 – 9.0
		Oil & Grease	10 mg/l
		Suspended solids	100 mg/l
		BOD (3 day at 27 °C)	30 mg/l

Note:

(i) For on-shore discharge of effluents, in addition to the standards prescribed above, proper marine outfall has to be provided to achieve the individual pollutant concentration level in sea water below their toxicity limits as given below, within a distance of 50 metre from the discharge point, in order to protect the marine aquatic life:

Parameter	Toxicity limit, mg/l
Chromium as Cr	0.1
Copper, as Cu	0.05
Cyanide, as CN	0.005
Fluoride, as F	1.5
Lead, as Pb	0.05
Mercury, as Hg	0.01
Nickel, as Ni	0.1
Zinc, as Zn	0.1

(ii) Oil and gas drilling and processing facilities, situated on land and away from saline water sink, may opt either for disposal of treated water by on-shore disposal of by re-injection in abandoned well, which is allowed only below a depth of 1000 metres from the ground level. In case of re-injection in abandoned well the effluent have to comply only with respect to suspended solids and oil and grease 100 mg/l and 10 mg/l, respectively. For on-shore disposal, the permissible limits are given below.

S. No.	Parameter	On-shore discharge standards (Not to exceed)
1.	2.	3.
1.	pH	5.5 – 9.0
2.	Temperature	40 °C
3.	Suspended Solids	100 mg/l
4.	Zinc	2 mg/l
5.	BOD	30 mg/l
6.	COD	100 mg/l
7.	Chlorides	600 mg/l
8.	Sulphates	1000 mg/l
9.	TDS	2100 mg/l
10.	% Sodium	60
11.	Oil and Grease	10 mg/l
12.	Phenolics	1.2 mg/l
13.	Cyanides	0.2 mg/l
14.	Fluorides	1.5 mg/l
15.	Sulphides	2.0 mg/l

[1] Serial No. 71 relating to "Pesticide Industry" and entries relating thereto omitted by G.S.R. 446(E), dated 13th June, 2011 (w.e.f. 13.06.2011)

[2] Sl. No. 72 entries relating thereto inserted by Rule 3(c) of the Environment (Protection) Amendment Rules, 1996 notified by G.S.R. 176(E), dated 2.4.1996.

	16.	Chromium (Cr^{+6})	0.1 mg/l
	17.	Chromium (Total)	1.0 mg/l
	18.	Copper	0.2 mg/l
	19.	Lead	0.1 mg/l
	20.	Mercury	0.01 mg/l
	21.	Nickel	3.0 mg/l

2.0 Off-shore facilities:

For off-shore discharge of effluents, the oil content of the treated effluent without dilution shall not exceed 40 mg/l for 95% of the observation and shall never exceed 100 mg/l. Three 8-hourly grab samples are required to be collected daily and the average value of oil and grease content of the three samples shall comply with these standards.

B. Guidelines for Discharge of Gaseous Emission:

1.0 DG Sets

1.1 DG Sets at drill site as well as production station shall confirm with the norm notified under the Environment (Protection) Act, 1986.

2.0 Elevated/ground flares

2.1 Cold Venting of gases shall never be resorted to and all the gaseous emission are to be flared.

2.2 All flaring shall be done by elevated flares except where there is any effect on crop production in adjoining areas due to the flaring. In such cases, one may adopt ground flaring.

2.3 In case of ground flare, to minimize the effects of flaring, the flare pit at Group Gathering Station (GGS)/Oil Collecting Station (OCS) and Group Collection Station (GCS) shall be made of RCC surrounded by a permanent wall (made of refractory brick) of minimum 5m height, to reduce the radiation and glaring effects in the adjoining areas.

2.4 A green belt of 100 m width may be developed around the flare after the refractory wall in case of ground flaring.

2.5 If the ground flaring with provision of green belt is not feasible, enclosed ground flare system shall be adopted, and be designed with proper enclosure height, to meet the ground level concentration (GLC) requirement.

2.6 In case of elevated flaring, the minimum stack height shall be 30m. Height of the stack shall be such that the max. GLC never exceeds the prescribed ambient air quality limit.

3 Burning of effluent in the pits shall not be carried out at any stage.

[1]{C. Guidelines for Disposal of Solid Waste, Drill Cutting and Drilling Fluids for Offshore and Onshore Drilling Operation-

1. Disposal of Drill Cutting and Drilling Fluids for On-shore Installations:

(a) Drill Cuttings (DC) originating from on-shore or locations close to shore line and separated from Water Base Mud (WBM) should be properly washed and unusable drilling fluids (DF) such as WBM, Oil Base Mud (OBM), Synthetic Base Mud (SBM) should be disposed off

[1] Substituted "paragraph C", for "paragraph C relating to Guidelines for Disposal of Solid Waste" by Rule 2(iii) of the Environment (Protection) Third Amendments Rules, 2005 notified vide Notification No. G.S.R. 546(E), dated 30.08.2005.

in a well designed pit lined with impervious liner located off-site or on-site. The disposal pit should be provided additionally with leachate collection system.

Design aspects of the impervious waste disposal pit; capping of disposal pit should be informed by the oil industry to State Pollution Control Board (SPCB) at the time of obtaining consent.

(b) Use of diesel base mud is prohibited. Only WBM should be used for on-shore oil drilling operations.

(c) In case of any problem due to geological formation for drilling, low toxicity OBM having aromatic content < 1% should be used. If the operators intend to use such OBM to mitigate specific whole problem/SBM it should be intimated to Ministry of Environment and Forests/State Pollution Control Board.

(d) The chemical additives used for the preparation of DF should have low toxicity i.e. 96 hr LC_{50} > 30,000 mg/1 as per mysid toxicity or toxicity test conducted on locally available sensitive sea species. The chemicals used (mainly organic constituents) should be biodegradable.

(e) DC separated from OBM after washing should have oil content at < 10 gm/kg for disposal into disposal pit.

(f) The waste pit after it is filled up shall be covered with impervious liner, over which, a thick layer of native soil with proper top slope is provided.

(g) Low Toxicity OBM should be made available at installation during drilling operation.

(h) Drilling wastewater including DC wash water should be collected in the disposal pit evaporated or treated and should comply with the notified standards for on-shore disposal.

(i) Barite used in preparation of DF shall not contain Hg >1 mg/kg & Cd >3 mg/kg.

(j) Total material acquired for preparation of drill site must be restored after completion of drilling operation leaving no waste material at site. SPCB should be informed about the restoration work.

(k) In case, environmentally acceptable methods for disposal of drill waste such as (a) injection to a formation through casing annuals, if conditions allow (b) land farming at suitable location (c) bio-remediation (d) incineration or (e) solidification can be considered, in such cases oil industry is required to submit proposal to Ministry of Environment and Forests/State Pollution Control Board (MoEF/SPCB) for approval.

2. Disposal of Drill Cutting and Drilling Fluids for Off-shore Installation:

(a) Use of diesel base mud is prohibited. Only WBM is permitted for offshore drilling. If the operator intend to use low toxicity OBM or SBM to mitigate specific hole problems in the formation, it should be intimated to MoEF/SPCB. The low toxicity OBM should have aromatic content < 1%.

(b) The toxicity of chemical additives used in the DF (WBM or OBM or SBM) should be biodegradable (mainly organic constituents) and should have toxicity of 96 hr LC_{50} Value >30,000 mg/1 as per mysid toxicity or toxicity test conducted on locally available sensitive sea species.

(c) Hexavalent chromium compound should not be used in DF. Alternative chemical in place of chrome lignosulfonate should be used in DF. In case, chrome compound is used, the DF/DC should not be disposed offshore.

(d) Bulk discharge of DF in offshore is prohibited except in emergency situations.

(e) WBM/OBM/SBM should be recycled to a maximum extent. Unusable portion of OBM should not be discharge into sea and shall be brought to on-shore for treatment & disposal in an impervious waste disposal pit.

(f) Thoroughly washed DC separated from WBM/SBM & unusable portion of WBM/SBM having toxicity of 96 hr LC_{50} > 30,000 mg/l shall be discharged off-shore into sea intermittently, at an average rate of 50 bbl/hr/well from a platform so as to have proper dilution & dispersion without any adverse impact on marine environment.

(g) Drill cutting of any composition should not be discharged in sensitive areas notified by the Ministry of Environment and Forests.

(h) In case of specific hole problem, use of OBM will be restricted with zero discharge of DC. Zero discharge would include re-injection of the DC into a suitable formation or to bring to shore for proper disposal. In such a case, use of OBM for re-injection should be recorded and made available to the regulatory agency. Such low toxic OBM having aromatic content < 1% should be made available at the installation.

(i) In case, DC is associated with high oil content from hydrocarbon bearing formation, then disposal of DC should not have oil content > 10 gm/kg.

(j) The DC wash water should be treated to confirm limits notified under EPA, before disposal into Sea. The treated effluent should be monitored regularly.

(k) Discharge of DC from the installation located within 5 km away from shore should ensure that there is no adverse impact on marine Eco-system and on the shore. If, adverse impact is observed, then the industries have to bring the DC on-shore for disposal in an impervious waste disposal pit.

(l) If any, environmental friendly technology emerges for substitution of DF and disposal technology, it may be brought to the notice of MoEF and regulatory agencies. If the operator desire to adopt such environment friendly technology a prior approval from ministry of Environment and Forests is required.

(m) Barite used in preparation of DF shall not contain Hg> 1 mg/kg & CD>3 mg/kg.

(n) Oil drilling operators are required to record daily discharge of DC & DF to offshore and also to monitor daily effluent quality, and submit the compliance report once in every six-month to Ministry of Environment and Forests.}]

S. No.	Industry	Parameter	Standards
1	2	3	4
[1][73	**Pharmaceutical (Manufacturing and Formulation Industry)]**	**[1][Effluent Standards**	
		i. Compulsory Parameters	
			Limiting concentration in mg/l, expect for pH
		pH	6.0-8.5
		Oil & Grease	10
		BOD (3 days 27 °C)	100*
		Total suspended solids	100
		Bioassay Test	90% survival of fish after first 96 hours in 100% effluent **
		ii. Additional Parameters	
		Mercury	0.01

[1] Substituted by Rule 2(b) (i) of the Environment (Protection) Third Amendment Rules, 2009 notified by G.S.R. 512(E), dated 9.7.2009.

Arsenic	0.20
Chromium (Cr^{6+})	0.10
Lead	0.10
Cyanide	0.10
Phenolic (C_6H_5OH)	1.0
Sulphides (as S)	2.0
Phosphate (as P)	5.0

Note:

* The BOD and COD limits shall be 30mg/l and 250 mg/l respectively, if treated effluent is discharged directly into a fresh water body i.e., stream, canal, river or lake.

** The Bioassay Test shall be conducted as per IS: 6582-1971.

i. Parameters listed as 'Additional Parameters' shall be prescribed depending upon the process and product.

ii. Limits for total dissolved solids in effluent shall be prescribed by the concerned Pollution Control Board/Pollution Control Committee depending upon the recipient water body.]

[1][A. Emission from Incinerator

		Limiting concentration in mg/Nm^3, unless stated	Sampling duration in (minutes) unless stated
Particulate Matter		50	30 or more (for sampling about 300 litre emission)
HCl		50	30
SO_2		200	30
CO		100	daily average
Total Organic Carbon		20	30
Total Dioxins and Furans*	Existing Incinerator	0.2 ng TEQ/Nm^3	8 hours
	New Incinerator	0.1 ng TEQ/Nm^3	8 hours
Sb+As+Pb+Cr+Co+Cu+ Mn+Ni+V+Cd+Th+Hg and their compounds		1.5	2 hours

* The existing plant shall comply with norms for dioxins and furans as 0.1 ng/TEQ/m^3 within 5 years from the date of notification.

Note:

i. All monitored values shall be corrected to 11% oxygen on dry basis.

ii. The CO_2 concentration in tail gas shall not be less than 7%.

iii. In case, halogenated organic waste is less than 1% by weight in input waste,

all the facilities in twin chamber incinerator shall be designed so as to achieve a minimum temperature of 850 ± 25 °C in primary chamber and 950 °C in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than 2 (two) seconds.

or

[1] Inserted Rule 2 of the Environment (Protection) Second Amendment Rules, 2009 notified by G.S.R. 149(E), dated 4.3.2009.

		all the facilities in single chamber incinerator for gaseous hazardous waste shall be designed so as to achieve a minimum temperature of 950 °C in the combustion chamber with a gas residence time not less than 2 (two) seconds. iv. In case halogenated organic waste is more than 1% by weight in input waste, waste shall be incinerated only in twin chamber incinerators and all the facilities shall be designed to achieve a minimum temperature of 850 ± 25 °C in primary chamber and 1100 °C in secondary combustion chamber with a gas residence time in secondary combustion chamber not less than 2 (two) seconds. v. Scrubber meant for scrubbing emission shall not be used as quencher. vi. Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve Total Organic Carbon (TOC) content in the incineration ash and residue less than 3%, and their loss on ignition is less than 5% of the dry weight. In case of non-conformity, ash and/or residue shall be re-incinerated. The incinerator shall have a chimney of at least thirty metre height.
		B. Effluent from Incinerator (i) Effluent from scrubber (s) and floor washing shall flow through closed conduit/pipe network. (ii) Storm water shall not be allowed to mix with scrubber water and/or floor washings. (iii) Storm water shall be channelized through separate drains passing through HDPE lined pit having holding capacity of 10 minutes (hourly average) of rainfall. (iv) The built up in Total Dissolved Solids (TDS) in wastewater of floor washings shall not exceed 1000 mg/l over and above the TDS or raw water used. (v) Effluent shall not be stored in holding tank(s) in such manner which may cause pollution to groundwater. (vi) Effluent (scrubber water and floor washings) shall be discharged into receiving water conforming to the norms prescribed under Schedule VI: General Standards for Discharge of Environment Pollutions (Part A: Effluents) notified under the Environment (Protection) Rules, 1986].

S. No.	Industry	Parameter		Standards
1	2	3		4
[1][74	Brick Kilns	**Emission Standards**		
		(i) Bull's Trench Kiln (BTK)		
			Category*	Limiting concentration in mg/Nm^3
		Particulate matter	Small	1000
			medium	750
			large	750

[1] Subs. Rule 2 of the Environment (Protection) Fourth Amendment Rules, 2009 notified by G.S.R. 543(E), dated 22.7.2009.

			minimum (meter)	
		Stack height	small	22 or induced draft fan operating with minimum draft of 50 mm WG with 12 metre stack height.
			medium	27 or induced draft fan operating with minimum draft of 50 mm WG with 15 metre stack height.
			large	30 or induced draft fan operating with minimum draft of 50 mm WG with 17 metre stack height.
		****Category***	***Trench width (m)***	***Production (bricks/day)***
		small BTK	<4.50	Less than 15,000
		medium BTK	4.50-6.75	15,000-30,000
		large BTK	Above 6.75	above 30,000
		(ii) Down-Draft Kiln (DDK		
			Category^{++}	***Limiting concentration in mg/Nm^3***
		Particulate Matter	small/large/ medium	1200
			minimum (metre)	
		Stack height	small	12
			medium	15
			large	18
			$^{++}$Category	***Production (bricks/day)***
			small DDK	Less than 15,000
			medium DDK	15,000-30,000
			large DDK	above 30,000
		(iii) Vertical Shaft Kiln (VSK)		
			Category**	***Limiting concentration in mg/Nm^3***
		Particulate matter	small/large/ medium	250
			minimum (metre)	
		Stack height	small	11 (at least 5.5 m from loading platform)
			medium	14 (at least 7.5 m from loading platform)
			large	16 (at least 8.5 m from loading platform)
		*****Category***	***No. of shafts***	***Production (bricks/day)***
		small VSK	1-3	Less than 15,000
		medium VSK	4-6	15,000-30,000
		large VSK	7 or more	above 30,000
		Note: 1. Gravitational Settling Chamber along with fixed chimney of appropriate height shall be provided for all Bull's Trench kilns. 2. One chimney per shaft in Vertical Shaft Kiln shall be provided. The two chimneys emanating from a shaft shall either be joined (at the loading platform in case of brick chimney or at appropriate level in case of metal chimney) to from a single chimney. 3. The above standards shall be applicable for different kilns if coal, firewood and/or agricultural residence are used as fuel.]		

<table>
<tr><th>S. No.</th><th>Industry</th><th>Parameter</th><th colspan="5">Standards</th></tr>
<tr><td>1</td><td>2</td><td>3</td><td colspan="5">4</td></tr>
<tr><td rowspan="15">[1][75.</td><td rowspan="15">Soda Ash Industry</td><td></td><td colspan="5">Effluent Standards</td></tr>
<tr><td></td><td colspan="5">A. Solvay Process</td></tr>
<tr><td></td><td colspan="5">Limiting concentration in mg/l except for pH, Temperature and Bio-assay</td></tr>
<tr><td></td><td>Creek</td><td>Marine Coastal Zone</td><td>Estuary Area</td><td>Inland Surface water</td></tr>
<tr><td>Suspended Solids</td><td>500*</td><td>1000**</td><td>200</td><td>100</td></tr>
<tr><td>Ammonical Nitrogen as N</td><td>50</td><td>50</td><td>50</td><td>30</td></tr>
<tr><td>Oil & Grease</td><td>5</td><td>5</td><td>5</td><td>5</td></tr>
<tr><td>Bio-assay***</td><td colspan="4">Minimum 90% survival of fish after 96 hours in 100% effluent</td></tr>
<tr><td>pH</td><td colspan="4">6.5-9.0</td></tr>
<tr><td>Temperature</td><td colspan="4">Not to exceed 5 ºC above the temperature of the receiving water body</td></tr>
<tr><td colspan="5">* The effluent discharge point in creek shall be beyond low tide line.
** The diffuser system shall be located conformity with the Coastal Regulation Zone Notification 2011 at a minimum depth of 5 metres below low tide level with exit velocity for effluent velocity more than 3 metres/sec.
*** The Bio-assay test shall be conducted as per IS: 6582-1971</td></tr>
<tr><td colspan="5">B. Dual Process</td></tr>
<tr><td colspan="3"></td><td colspan="2">Inland Surface water</td></tr>
<tr><td colspan="3">pH</td><td colspan="2">6.5-9.0</td></tr>
<tr><td colspan="3">Ammonical Nitrogen, as N</td><td colspan="2">50</td></tr>
<tr><td colspan="3">Nitrate Nitrogen, as N</td><td colspan="2">10</td></tr>
<tr><td colspan="3">Cyanide, as CN</td><td colspan="2">2</td></tr>
<tr><td colspan="3">Hexavalent Chromium</td><td colspan="2">0.1</td></tr>
<tr><td colspan="3">Total Chromium</td><td colspan="2">2</td></tr>
<tr><td colspan="3">Suspended Solids</td><td colspan="2">100</td></tr>
<tr><td colspan="3">Oil & Grease</td><td colspan="2">10</td></tr>
<tr><td colspan="5">C. Stromwater</td></tr>
<tr><td colspan="5">i. Stormwater shall not be allowed to mix with effluent and/or floor washings.
ii. Stormwater within battery limit of industry shall be channelized through separate drain(s) passing through HDPE lined pit(s), each having holding capacity of 10 minutes (hourly average) of rainfall for its catchment area.]</td></tr>
</table>

[1] Substituted by Rule 2(ii) of the Environment (Protection) (Second Amendment) Rules, 1999 notified by Notification G.S.R. 682(E), dated 5.10.1999 and amended by Notification G.S.R. 424(E) dated 1st June, 2011

76. Emission Standard for SO_2 from Cupola Furnace

Standard for Sulphur Dioxide emission from Cupola Furnace:

Characteristics	Emission limit
(1)	(2)
Sulphur dioxide (SO_2) emission	300 mg/Nm^3 at 12% CO_2 corrections

To achieve the standard, foundries may install scrubber, followed by a stack six times the diameter of the Cupola beyond the charging door.

Note: In case due to some technical reason, installation of scrubber is not possible, the value of SO_2 to the ambient air has to be effected through the stack height.

[1][77. Specifications of Motor Gasoline for Emission Related Parameters-***]**

[2][78. Specification of Diesel Fuel for Emission Related Parameters***]**

[3][79. Coke Oven Plants**]**

[4][80. Specifications of Two-Stroke Engine Oil**]**

[81. Battery Manufacturing Industry

(i) Lead Acid Battery Manufacturing Industries: Emission Standards.

Source	Pollutant	Concentration based Standards (mg/Nm^3)
Grid casting	Lead	10
	Particulate matter	25
Oxide manufacturing	Lead	10
	Particulate matter	25
Paste mixing	Lead	10
	Particulate matter	25
Assembling	Lead	10
	Particulate matter	25
PVC Section	Particulate matter	150

- To comply with the respective standards, all the emissions from above mentioned sources shall be routed through stack connected with hood and fan in addition to above, installation of control equipment viz. Bag filter/ventury scrubber is also recommended.
- The minimum stack height shall be 30 m.

Liquid Effluent Discharge Standards Pollutant	Concentration based standards
pH	6.5–8.5
Suspended solids	50 mg/1
Lead	0.1 mg/1

[1] Serial No. 77 relating to "Specification of Motor Gasoline for emission related parameters" and entries relating thereto omitted by G.S.R 229(E), dated 28th March, 2014.

[2] Serial No. 78 relating to "Specification of Diesel fuel for emission related parameters" and entries thereto omitted by G.S.R 229(E), dated 28th March, 2014

[3] Serial No. 79 relating to "Coke Oven Plants" and entries thereto omitted by G.S.R 277(E), dated 31th March, 2012 (w.e.f. 31.03.2012)

[4] Sl. No. 80 and entries relating to "Specifications of Two-stroke Engine Oil" entries thereto omitted by G.S.R 229(E), dated 28th March,

(ii) Dry Cell Manufacturing Industry: Emission Standard

Pollutant	Concentration- based Standard (mg/Nm^3)
Particulate matter	50
Manganese as Mn	5

- To comply with the respective standards, all the emissions from above mentioned sources shall be routed through stack connected with hood and fan. In addition to above, installation of control equipment viz. Bag filter/ventury scrubber is also recommended.

- The minimum stack height shall be 30 m.

Effluent Standards

Pollutant	Concentration based Standards
pH	6.5 - 8.5
Total suspended solids	100 mg/1
Manganese as Mn	2 mg/1
Mercury as Hg	0.02 mg/1
Zinc as Zn	5 mg/1

(iii) Secondary Lead Smelters

Pollutant	Concentration based Standards
Lead as Pb	10 mg/Nm^3
Particulate matter	50 mg/Nm^3
Minimum stack height	30 m

82. Environmental Standards for Gas/Naphtha-based Thermal Power Plants

(i) Limit for emissions of NOx

(a) For existing units – 150 ppm (v/v) at 15% excess oxygen.

(b) For new units with effect from 1.6.1999.

Total generation of gas turbine	Limit for Stack NO_x emission [v/v), at 15% excess oxygen]
(a) 400 MW and above	(i) 50 ppm for the units burning natural gas
	(ii) 100 ppm for the units burning naphtha.
(b) Less than 400 MW but upto 100 MW	(i) 75 ppm for the units burning natural gas.
	(ii) 100 ppm for the units burning naphtha.
(c) Less than 100 MW	100 ppm for units burning natural gas or naphtha as fuel
(d) For the plants burning gas in a conventional boiler.	100 ppm

(ii) Stack height H in m should be calculated using the formula $H=14\ Q^{O.3}$, where Q is the emission rate of SO_2 in kg/hr, subject to a minimum of 30 mts.

(iii) Liquid waste discharge limit.

Parameter	Maximum limit of concentration (mg/1 except for pH and temperature)
pH	6.5-8.5
Temperature	As applicable for other thermal power Plants
Free available chlorine	0.5
Suspended solids	100.0
Oil and grease	20.0
Copper (total)	1.0
Iron (total)	1.0
Zinc	1.0
Chromium (total)	0.2
Phosphate	5.0

[1][83. Standards/Guidelines for Control of Noise Pollution from Stationary Diesel Generator (GD) Sets**……..]**

84. Temperature Limit for Discharge of Condenser Cooling Water from thermal Power Plant

A. New thermal power plants commissioned after June 1, 1999.

New thermal power plants, which will be using water from rivers/lakes/reservoirs shall install cooling towers-irrespective location and capacity. Thermal power plants which will use sea water for cooling purposes, the condition below will apply.

B. New projects in coastal areas using sea water.

The thermal power plants using sea water should adopt suitable system to reduce water temperature at the final discharge point so that the resultant rise in the temperature of receiving water does not exceed 7 ^{O}C over and above the ambient temperature of the receiving water bodies.

C. Existing thermal power plants.

Rise in temperature of condenser cooling water from inlet to the outlet of condenser shall not be more than 10 ^{O}C.

D. Guidelines for discharge point:

1. The discharge point shall preferably be located at the bottom of the water body at mid-stream for proper dispersion of thermal discharge.

2. In case of discharge of cooling water into sea, proper marine outfall shall be designed to achieve the prescribed standards. The point of discharge may be selected in consultation with concerned State Authorities/NOI.

3. No cooling water discharge shall be permitted in estuaries or near ecologically sensitive areas such as mangroves, coral reefs/spawning and breeding grounds of aquatic flora and fauna.

[1] Serial No. 83 entry relating thereto omitted by Rule 2 (b) of the Environment (Protection) Second Amendment Rules, 2002 notified vide notification G.R.S. 371 (E), dated 17.5.2002.

85. Environmental Standards for Coal Washeries

1. Fugitive emission standards.

The difference in the value of suspended particulate matter, delta (Δ), measured between 25 and 30 metre from the enclosure of coal crushing plant in the downward and leeward wind direction shall not exceed 150 microgram per cubic meter. Method of measurement shall be High Volume Sampling and Average flow rate, not less than 1.1 m^3 per minute, using upwind downwind method of measurement:

2. Effluent discharge standards

- The coal washeries shall maintain the close circuit operation with zero effluent discharge.
- If in case due to some genuine problems like periodic clearing of the system, heavy rainfall etc. it become necessary to discharge the effluent to sewer/land/stream then the effluent shall conform to the following standards at the final of the coal washery.

S. No.	Parameter	Limits
1.	pH	5.5 - 9.0
2.	Total suspended solids	100 mg/1
3.	Oil & Grease	10 mg/1
4.	BOD (3 days 27 ^{O}C)	30 mg/1
5.	COD	250 mg/1
6.	Phenolics	1.0 mg/1

3. Noise level standards

- Operational/Working zone - not to exceed 85 dB(A) Leq for 8 hours exposure.
- The ambient air quality standards in respect of noise as notified under Environmental (Protection) Rules, 1986 shall be followed at the boundary line of the coal washery.

4. Code of practice for Coal Washery.

- Water or Water mixed chemical shall be sprayed at all strategic coal transfer points such as conveyors, loading/unloading points etc. As far as practically possible conveyors, transfer points etc. shall be provided with enclosures.
- The crushers/pulverisers of the coal washeries shall be provided with enclosures, fitted with suitable air pollution control measures and finally emitted through a stack of minimum height of 30 m, conforming particulate matter emission standard of 150 mg/Nm^3 or provided with adequate water sprinkling arrangement.
- Water sprinkling by using fine atomizer nozzeles arrangement shall be provided on the coal heaps and on around the crushers/pulverisers.
- Area, in and around the coal washery shall be pucca either asphalted or concreted.
- Water consumption in the coal washery shall not exceed 1.5 cubic meters per tonne of coal.
- The efficiency of the setting ponds of the waste water treatment system of the coal washery shall not be less than 90%.
- Green belt shall be developed along the road side, coal handling plants, residential complex, office building and all around the boundary line of the coal washery.

- Storage bunkers, hoppers, rubber decks in chutes and centrifugal chutes shall be provided with proper rubber linings.

- Vehicles movement in the coal washery area shall be regulated effectively to avoid traffic congestion. High pressure horn shall be prohibited. Smoke emission from heavy duty vehicle operating in the coal washeries should conform the standards prescribed under Motor Vehicle Rules, 1989.

86. Water Quality Standards for Coastal Waters Marine Outfalls

In a coastal segment marine water is subjected to several types of uses. Depending of the types of uses and activities, water quality criteria have been specified to determine its-suitability for a particular purpose. Among the various types of uses there is one use that demands highest level of water quality/purity and that is termed as "designated-best use" in that stretch of the coastal segment. Based on this primary water quality criteria have been specified for following five designated best uses: -

Class	Designated best use
SW-I (See Table 1.1)	Salt pans, Shell fishing, Mariculture and Ecologically Sensitive Zone
SW-II (See Table 1.2)	Bathing, Contact Water Sports and Commercial fishing.
SW–III (See Table 1.3)	Industrial cooling, Recreation (non-contact) and Aesthetics
SW–VI (See Table 1.4)	Harbour
SW –V (See Table 1.5)	Navigation and Controlled Waste Disposal

The standards along with rationale/remarks for various parameters for different designated best uses, given in Table 1.1 to 1.5