

## **Environmental Legislations**

India has a broad network of Environmental legislations. Some of these Acts, rules and regulations are mentioned below;

- The Water (P & CP) Act, 1974
- The Water (P & CP) Rules, 1983
- The Water (P & CP) Cess, Act, 1977
- The Water (P & CP) Cess Rules, 1978
- The Air (P & CP) Act, 1981
- The Air (P & CP) Rules, 1983
- The Environment (Protection) Act, 1986 (2001)
- The Environment (Protection) Rules, 1986 (2000)
- The Hazardous Waste (M & H) Rules, 1989 (2000)
- Public Hearing Notification
- The CRZ Rules (2000)
- Environmental Impact Assessment Notification (2000)
- Rules on Emergency Planning, Preparedness and Response for Chemical Accidents, 1996.
- The Manufacturing, Storage and Import of Hazardous Chemicals Rules, 1989 (2000)
- The Bio-Medical (M & H) Rules, 1998 (2000)
- Recycled Plastics Manufacture and uses Rules, 1999.
- Notification on Use of fly ash, bottom ash or pond ash in the manufacture of bricks & other construction activities, 2000.
- MUIE & S of Hazardous Organism, Genetically Engineered Micro-Organisms or cells, Rules, 1989
- The Noise pollution (Regulation and Control) Rules, 2000.
- Ozone Depleting Substances (R & C) Rules, 2000.
- The Municipal Solid Wastes (M & H) Rules, 2000.
- The Batteries (M & H) Rules, 2001.
- Criteria for FINISHED LEATHER as Environment Friendly Product.
- The Public Liability Insurance Act, 1991
- The Public Liability Insurance Rules, 1991
- The National Environment Tribunal Act, 1995
- The National Environment Appellate Authority Act, 1997.
- The details of the latest development regarding the Environmental legislations can be obtained by visiting the site of Ministry of environment and Forest, Government of India's website <http://envfor.nic.in/>

**Ambient Air Quality Standards (NATIONAL)**

Pollutants	Time-weighted average	Concentration in ambient air			Method of measurement
		Sensitive of Area	Industrial Area	Residential, Rural & Other areas	
Sulphur Dioxide (SO <sub>2</sub> )	Annual Average*	15 µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>	Improved West and Greake Method
	24 hours**	30 µg/m <sup>3</sup>	120 µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	Ultraviolet Fluorescence
Oxides of Nitrogen as NO <sub>2</sub>	Annual*	15 µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>	Jacob & ochheiser Modified ( Na - Arsenite ) Method
	24 hours**	30 µg/m <sup>3</sup>	120 µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	Gas Phase Chemilumloescence
Suspended Particulate Matter (SPM)	Annual 24 hours**	70 µg/m <sup>3</sup> 100 µg/m <sup>3</sup>	360 µg/m <sup>3</sup> 500 µg/m <sup>3</sup>	140µg/m <sup>3</sup> 200µg/m <sup>3</sup>	High volume sampling. (Average flow rate not less than 1.1m <sup>3</sup> /minute).
Respirable Particulate matter(RPM), (size less than 10 µm)	Annual * 24 hours**	50 µg/m <sup>3</sup> 75 µg/m <sup>3</sup>	120 µg/m <sup>3</sup> 150 µg/m <sup>3</sup>	60 µg/m <sup>3</sup> 100µg/m <sup>3</sup>	Respirable particulate matter sampler
Lead (Pb)	Annual* 24 hours**	0.50µg/m <sup>3</sup> 0.75µg/m <sup>3</sup>	1.0 µg/m <sup>3</sup> 1.5 µg/m <sup>3</sup>	0.75µg/m <sup>3</sup> 1.00µg/m <sup>3</sup>	ASS Method after sampling using EPM 2000 or equivalent Filter paper
Carbon Monoxide (CO)	8 hours** 1hour	1.0 mg/m <sup>3</sup> 2.0 mg/m <sup>3</sup>	5.0 mg/m <sup>3</sup> 10.0 mg/m <sup>3</sup>	2.0 mg/m <sup>3</sup> 4.0 mg/m <sup>3</sup>	Non dispersive infra red Spectroscopy

\*Annual Arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.

\*\*24 hourly/8 hourly values should be met 98% of the time in a year. However, 2% of the time, it may exceed but not on two consecutive days.

**NOTE :**

1. National Ambient Air Quality Standard: The levels of air quality with an adequate margin of safety, to protect the public health, vegetation and property.
2. Whenever and wherever two consecutive values exceeds the limit specified above for the respective category, it would be considered adequate reason to institute regular / continuous monitoring and further investigations.

**Noise : (Ambient Air Quality Standards)**

Area	Category of Area	Limit in dB (A) Leq	
		Day time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Note: 1 Day time is reckoned in between 6 A.M. and 9 P.M

Note: 2 Night time is reckoned in between 9 P.M. and 6 A.M.

Note: 3 Silence zone is defined as areas upto 100 metres around such premises as hospitals, educational institutions and courts. The silence zones are to be declared by the Competent Authority. Use of vehicular horns, loudspeakers and bursting of crackers shall be banned in these zones.

Note: 4 Mixed categories of areas should be declared as "one of the four above mentioned categories by the Competent Authority and the corresponding standards shall apply.

**A) Noise Limits for Automobiles (Free Field at 7.5 metre 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

**B) Domestic Appliances and Contruction Equipments at the Manufacturing Stage to be Achieved by the Year, 1993 Db (A)**

a)	Window Air Conditioners of 1 ton to 1.5 ton	68
b)	Air (coolers)	60
c)	Refrigerators	46
d)	Diesel generator of domestic purposes	85-90
e)	Compactors (rollers), Front Loaders, Concrete mixers, Cranes (movable), Vibrators and Saws	75

**General Standards for Discharge of Effluents**

Sr. No	Parameter	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1.	Colour and odour	See Note 1	--	See Note 1	See Note 1
2.	Suspended solids, mg/l, Max.	100	600	200	a. For process waste water-100 b. For cooling water effluent - 10 percent above total suspended matter of influent cooling water.
3.	Particle size of suspended solids.	Shall pass 850 micron IS Sieve			a. Floatable solids, Max 3 mm. b. Settleable solids Max 850 microns.
4.	Dissolved solids (inorganic), mg/l, max.	2100	2100	2100	--
5.	pH value	5.5 to 9.0	5.5 to 9.0		5.5 to 9.0
6.	Temperature °C, Max	Shall not exceed 40 in any section of the stream within 15 meters down stream from the effluent outlet.	45 at the point of discharge	--	45 at the point of discharge.
7.	Oil and grease, mg/l, max	10	20	10	20
8.	Total Residual Chlorine, mg/l, Max.	1.0	--	--	1.0
9.	Ammonical Nitrogen (as N), mg/l, Max.	50	50	--	50
10.	Total Kjeldahl Nitrogen (as N), mg/l, Max.	100	--	--	100
11.	Free Ammonia (as NH <sub>3</sub> ), mg/l, Max.	5.0	--	--	5.0
12.	Biochemical Oxygen Demand (5 days at 20 °C) Max.	30	350	100	100
13.	Chemical Oxygen Demand, mg/l, Max.	250	--	--	250
14.	Arsenic (as As), mg/l., Max.	0.2	0.2	0.2	0.2
15.	Mercury (As Hg), mg/l, Max.	0.01	0.04	--	0.01

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Sr. No	Parameter	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
16.	Lead (as Pb), mg/l, Max.	0.1	1.0	--	1.0
17.	Cadmium (as Cd), mg/l, Max.	2.0	1.0	--	2.0
18.	Hexavalent Chromium (as Cr+6) mg/l, Max.	0.1	2.0	--	1.0
19.	Total chromium (as Cr), mg/l, Max.	2.0	2.0	--	2.0
20.	Copper (as Cu), mg/l, Max.	3.0	3.0	--	3.0
21.	Zinc (as Ni), mg/l, Max.	5.0	15	--	15
22.	Selenium (as Se), mg/l, Max.	0.05	0.05	--	0.05
23.	Nickel (as Ni), mg/l, Max.	3.0	3.0	--	5.0
24.	Boron (as B), mg/l, Max.	2.0	2.0	2.0	--
25.	Percent Sodium, Max.	--	60	60	--
26.	Residual Sodium carbonate, mg/l, Max.	--	--	5.0	--
27.	Cynide (as Cn), Mg/l, Max.	0.2	2.0	0.2	0.2
28.	Chloride (as Cl), mg/l. Max.	1000	1000	600	--
29.	Fluoride (as F), mg/l, Max.	2.0	15	--	15
30.	Dissolved Phosphate (as P), mg/l, Max.	5.0	--	--	--
31.	Sulphate (as SO <sub>4</sub> ), mg/l, Max.	1000	1000	1000	--
32.	Sulphide (as S), mg/l, Max.	2.0	--	--	5.0
33.	Pesticides	Absent	Absent	Absent	Absent
34.	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH) mg/l, Max.	1.0	5.0	--	5.0
35.	Radioactive materials : a. Alpha emitters MC/ml., Max. b. Beta emitters µc/ml. Max.	10 <sup>-7</sup> 10 <sup>-6</sup>	10 <sup>-7</sup> 10 <sup>-6</sup>	10 <sup>-8</sup> 10 <sup>-7</sup>	10 <sup>-7</sup> 10 <sup>-6</sup>

Note :-

1. All efforts should be made to remove colour and unpleased odour as far as practicable.
2. The Standards mentioned in this notification shall apply to all the effluents discharged, such as industrial mining and mineral processing activities, municipal sewage, etc.
3. Omitted by Rule 2 of the Environment (Protection) Fourth Amendment Rules, 1992 vide Notification G.S.R. 797(E) dated 01.10.1992, Gazette No. 396 dated 01.10.1992.

**Tolerance Limits for Drinking Water as per IS-10500-1991**

Sr. No	Substance or Characteristic	Requirement (Desirable Limit)	Undesirable Effect Outside the Desirable Limit	Permissible Limit in the Absence of Alternate Source	Methods of Test (Ref to IS)	Remarks
1.	pH Value	6.5 to 8.5	Beyond this range the water will affect the mucous membrane and / or water supply system	No relaxation	3025 (Part II) 1984	--
2.	Iron ( as per ) mg/l, Max)	0.3	Beyond this limit taste / appearance are affected, has adverse effect on domestic uses and water supply structures, and promotes iron bacteria.	1.0	32 of 3025 : 1964	--
3.	Chloride ( as Cl mg/l, Max	250	Beyond this limit, taste corrosion and palatability are affected	1000	3025 (part 32) 1988	
4.	Dissolved Solids mg/l, Max	500	Beyond this palatability decreases and may cause gastro intestinal irritation.	2000	3025 (Part 16) 1984	--
5.	Calcium (as Ca) mg/l, max	75	Encrustation in water supply structure and adverse effects on domestic use	200	3025 (Part 40) : 1994	---
6.	Sulphate (as SO4) mg/l, Max	200	Beyond this causes gastro intestinal irritation when magnesium or sodium are present	400 (see col 7)	3025 (part 24) 1986	May be extended up to 400 provided (as mg) does not exceed 30
7.	Nitrate (as NO3) mg/l, Max	45	Beyond this methaemoglobinemia	100	3025 (part 31) 1986	--

### Bacteriological Examination

<b>Organism</b>	<b>Unit</b>	<b>Guideline Value</b>
Fecal Coliforms	Number / 100 ml	0
Total Coliforms	Number / 100 ml	10

### PRIMARY WATER QUALITY CRITERIA FOR VARIOUS USES OF FRESH WATERS, AS LAID DOWN BY THE CENTRAL BOARD FOR THE PREVENTION & CONTROL OF WATER POLLUTION (1979)

S.No	Characteristics	A*	B*	C*	D*	E*
1	Dissolved Oxygen (DO), mg/l, min.	6	5	4	4	-
2	Biochemical Oxygen demand (BOD) mg/l, max.	2	3	3	-	-
3	Total coliform organisms**. MPN/100 ml. Max.	50	500	5000	-	-
4	pH Value	6.5-8.5	6.5-8.5	6.0-8.5	6.5-8.5	6.0-8.5
5	Free Ammonia (as N), mg/l. max	-	-	-	1.2	-
6	Electrical conductivity, micro mhos/cm max	-	-	-	-	22.50
7	Sodium absorption ratio, SAR max	-	-	-	-	26.00
8	Boron, mg/l, max.	-	-	-	-	2.00

\* Use classes

\*\* If the coliform is found to be more than the prescribed tolerance limits, the criteria for coliforms shall be satisfied, if not more than 20% of samples show more than the tolerance limits specified and not more than 5% of samples show values more than 4 times the tolerance limit. There should be no visible discharge of domestic and industrial wastes into Class 'A' waters. In case of class 'B' and 'C' the discharge shall be so regulated / treated as to ensure maintenance of the stream standards.