

**INDIAN STANDARD SPECIFICATIONS FOR DRINKING WATER  
IS: 10500**

S.NO.	Parameter	Requirement desirable Limit	Remarks
1.	Colour	5	May be extended up to 50 if toxic substances are suspected
2.	Turbidity	10	May be relaxed up to 25 in the absence of alternate
3.	pH	6.5 to 8.5	May be relaxed up to 9.2 in the absence
4.	Total Hardness	300	May be extended up to 600
5.	Calcium as Ca	75	May be extended up to 200
6.	Magnesium as Mg	30	May be extended up to 100
7.	Copper as Cu	0.05	May be relaxed up to 1.5
8.	Iron	0.3	May be extended up to 1
9.	Manganese	0.1	May be extended up to 0.5
10.	Chlorides	250	May be extended up to 1000
11.	Sulphates	150	May be extended up to 400
12.	Nitrates	45	No relaxation
13.	Fluoride	0.6 to 1.2	If the limit is below 0.6 water should be rejected, Max. Limit is extended to 1.5
14.	Phenols	0.001	May be relaxed up to 0.002
15.	Mercury	0.001	No relaxation
16.	Cadmium	0.01	No relaxation
17.	Selenium	0.01	No relaxation
18.	Arsenic	0.05	No relaxation
19.	Cyanide	0.05	No relaxation
20.	Lead	0.1	No relaxation
21.	Zinc	5.0	May be extended up to 10.0
22.	Anionic detergents (MBAS)	0.2	May be relaxed up to 1
23.	Chromium as Cr <sup>+6</sup>	0.05	No relaxation
24.	Poly nuclear aromatic Hydrocarbons	--	--
25.	Mineral Oil	0.01	May be relaxed up to 0.03
26.	Residual free Chlorine	0.2	Applicable only when water is chlorinated
27.	Pesticides	Absent	--
28.	Radio active	--	--

**DRINKING WATER SPECIFICATION: IS: 10500, 1992  
(Reaffirmed 1993)**

**TOLERANCE LIMITS**

S.No	Parameter	IS: 10500 Requirement (Desirable limit)	Undesirable effect outside the desirable limit	IS: 10500 Permissible limit in the absence of alternate source
<b>Essential Characteristics</b>				
1.	pH	6.5 – 8.5	Beyond this range the water will effect the mucous membrane and / or water supply system	No relaxation
2.	Colour (Hazen Units), Maximum	5	Above 5, consumer acceptance decreases	25
3.	Odour	Unobjectionable	--	--
4.	Taste	Agreeable	--	--
5.	Turbidity, NTU, Max	5	Above 5, consumer acceptance decreases	10
<b>Following Results are expressed in mg/l :</b>				
6.	Total hardness as CaCO <sub>3</sub> , Max	300	Encrustation in water supply structure and adverse effects on domestic use	600
7.	Iron as Fe, Max	0.30	Beyond this limit taste/appearance are affected, has adverse effect on domestic uses and water supply structures, and promotes iron bacteria.	1.0
8.	Chlorides as Cl, Max	250	Beyond this limit tast, corrosion and palatability are effected	1000
9.	Residual, Free Chlorine, Min	0.20	--	--
<b>Desirable Characteristics</b>				
10.	Dissolved solids, Max	500	Beyond this palatability decreases and may cause gastro intentional irritation	2000
11.	Calcium as Ca, Max	75	Encrustation in water supply structure and adverse effects on domestic use	200

12.	Magnesium as Mg, Max	30	--	100
13.	Copper as Cu, Max	0.05	Astringent taste, discoloration and corrosion of pipes, fitting and utensils will be caused beyond this	1.5
14.	Manganese as Mn, Max	0.1	Beyond this limit taste/appearance are affected, has adverse effect on domestic uses and water supply structures	0.3
15.	Sulphate as SO <sub>4</sub> Max	200	Beyond this causes gastro intentional irritation when magnesium or sodium are present	400
16.	Nitrates as NO <sub>3</sub>	45	Beyond this methanemoglobinemia takes place	100
17.	Fluoride, Max	1.0	Fluoride may be kept as low as possible. High fluoride may cause fluorosis	1.5
18.	Phenolic compounds as C <sub>6</sub> H <sub>5</sub> OH, Max	0.001	Beyond this, it may cause objectionable taste and odour	0.002
19.	Mercury as Hg, Max	0.001	Beyond this, the water becomes toxic	No relaxation
20.	Cadmium as Cd, Max	0.01	Beyond this, the water becomes toxic	No relaxation
21.	Selenium as Se, Max	0.01	Beyond this, the water becomes toxic	No relaxation
22.	Arsenic as As, Max	0.05	Beyond this, the water becomes toxic	No relaxation
23.	Cyanide as CN, Max	0.05	Beyond this, the water becomes toxic	No relaxation
24.	Lead as Pb, Max	0.05	Beyond this, the water becomes toxic	No relaxation
25.	Zinc as Zn, Max	5	Beyond this limit it can cause astringent taste and an opalescence in water	15
26.	Anionic detergents as MBAS, Max	0.2	Beyond this limit it can cause a light froth in water	1.0
27.	Chromium as Cr <sup>6+</sup> , Max	0.05	May be carcinogenic above this limit	No relaxation
28.	Ploynuclear aromatic hydrocarbons as PAH, Max	--	May be carcinogenic	--

29.	Mineral Oil, Max	0.01	Beyond this limit undesirable taste and odour after chlorination take place	0.03
30.	Pesticides, Max	Absent	Toxic	0.001
31.	Radioactive materials	--	--	0.1
	a) $\alpha$ emitters Bq/1, Max	--	--	1
	b) $\beta$ emitters Pci/1, Max			
32.	Alkalinity, Max	200	Beyond this limit taste becomes unpleasant	600
33.	Aluminum as Al, Max	0.03	Cumulative effect is reported to cause dementia	0.2
34.	Boron, Max	1	--	5

## General Standards For Discharge Of Environmental Pollutants

### Part – A: Effluents

Sl. No.	Parameter	Standards			
		Inland Surface water	Public Sewers	Land of irrigation	Marine/Costal areas
1.	Colour and odour	Of Annexure-1	--	See 6 of Annexure -1	See 6 of Annexure -1
2.	Suspended solids mg/l, max.	100	600	200	a. For process waste water 100 b. For cooling water effluent 10 per cent above total suspended mater of influent
3.	Particle size of suspended solids	Shall pass 850 micron IS Sieve	--		a. Floatable solids, solids max. 3 mm b. Settleable solids. Max 856 microns
4.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
5.	Temperature	Shall not exceed 5°C above the receiving water temperature	--	--	Shall not exceed 5°C above the receiving water temperature
6.	Oil and grease, mg/l max.	10	20	10	20
7.	Total residual chlorine, mg/l max	1.0	--	--	1.0
8.	Ammonical nitrogen (as N), mg/l, max.	50	50	--	50
9.	Total nitrogen (as N), mg/l, max.	100	--	--	100
10.	Free ammonia (as NH <sub>3</sub> ), mg/l, max	5.0	--	--	5.0
11.	Biochemical oxygen demand (3 days at 27°C), mg/l, max	30	350	100	100

12.	Chemical oxygen demand, mg/l, max	250	--	--	250
13.	Arsenic (as As) mg/l, max	0.2	0.2	0.2	0.2
14.	Mercury (as Hg), mg/l, max	0.01	0.01	--	0.01
15.	Lead (as Pb), mg/l, max	0.1	0.1	--	2.0
16.	Cadmium (as Cd) , mg/l, max	2.0	1.0	--	2.0
17.	Hexavalent chromium (as Cr+6), mg/l, max	0.1	2.0	--	1.0
18.	Total chromium (as Cr), mg/l, max	2.0	2.0	--	2.0
19.	Copper (as Cu), mg/l, max	3.0	3.0	--	30
20.	Zinc (as Zn), mg/l, max	5.0	15	--	15
21.	Selenium (as Se), mg/l, max	0.05	0.05	--	0.05
22.	Nickel (as Ni), mg/l, max	3.0	3.0	--	50
23.	Cyanide (as CN), mg/l, max	0.2	2.0	0.2	0.2
24.	Fluoride (as F), mg/l, max	2.0	15	--	15
25.	Dissolved phosphates (as P), mg/l, max	5.0	--	--	--
26.	Sulphide (as S), mg/l, max	2.0	--	--	5.0
27.	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, max	1.0	5.0	--	5.0
28.	Radioactive materials				
	a. α emitters micro cure mg/l, max	10 <sup>-7</sup>	10 <sup>-7</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>
	β emitters micro curemg/l, max	10 <sup>-6</sup>	10 <sup>-6</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>

29.	Bio-assay test	90 % survival of fish after 96 hours in 100 % effluent	90 % survival of fish after 96 hours in 100 % effluent	90 % survival of fish after 96 hours in 100 % effluent	90 % survival of fish after 96 hours in 100 % effluent
30.	Manganese (as Mn)	2 mg/l	2 mg/l	2 mg/l	2 mg/l
31.	Iron (as Fe)	3 mg/l	3 mg/l	3 mg/l	3 mg/l
32.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	--	0.2 mg/l
33.	Nitrate Nitrogen	10 mg/l	--	--	20 mg/l

\* These standards shall be applicable for industries, operations or processes other than those industries. Operations or process for which standards have been specified in Schedule of the Environment Protection Rules 1989.

## 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	Annual Average*	15 µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>	Improved West and Greek Method
Dioxide (SO <sub>2</sub> )	24 hours**	30 µg/m <sup>3</sup>	120 µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	Ultraviolet Fluorescence
Oxide 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	70 µg/m <sup>3</sup>	360 µg/m <sup>3</sup>	140 µg/m <sup>3</sup>	High volume sampling. (Average flow rate not less than 1.1m <sup>3</sup> /minute)
	24 hours**	100 µg/m <sup>3</sup>	500 µg/m <sup>3</sup>	200 µg/m <sup>3</sup>	
Respirable Particulate matter (RPM), (size less than 10 µm)	Annual	50 µg/m <sup>3</sup>	120 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>	Respirable particulate matter sampler
	24 hours**	75 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	100 µg/m <sup>3</sup>	
Lead (Pb)	Annual	0.50 µg/m <sup>3</sup>	1.0 µg/m <sup>3</sup>	0.75 µg/m <sup>3</sup>	ASS Method after sampling using EPM 2000 or equivalent Filter paper
	24 hours**	0.75 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>	1.00 µg/m <sup>3</sup>	
Carbon Monoxide (CO)	8 hours**	1.0 µg/m <sup>3</sup>	5.0 µg/m <sup>3</sup>	2.0 µg/m <sup>3</sup>	Non dispersive infra red Spectroscopy
	1 hour	2.0 µg/m <sup>3</sup>	10.0 µg/m <sup>3</sup>	4.0 µg/m <sup>3</sup>	

\* 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.

**CPCB Standards of Noise Levels**

<b>Rural</b>	<b>Sub Urban</b>	<b>Residential (Urban)</b>	<b>Urban (Residential &amp; Business)</b>	<b>City</b>	<b>Industrial</b>
<b>25-35</b>	<b>30-40</b>	<b>35-45</b>	<b>40-50</b>	<b>45-50</b>	<b>50-60</b>