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	May be extended up to 1
22	Anionic detergents (MBAS)	0.2	May be relaxed up to 1.5
23	Chromium as Cr^{+6}	0.05	No relaxation
24	Poly nuclear aromatic Hydrocarbons	--	0
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 SPECIFICATIONS: 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
Essential Characteristics				
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
Following Results are expressed in mg/l:				
6	Total hardness as $CaCO_3$, Max	300	Encrustation in water supply structure and adverse effects on domestic use	600
7	Iron as Fe, 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
8	Chlorides as Cl, Max	250	Beyond this limit test, corrosion and palatability are effected	1000
9	Residual, Free Chlorine, Min	0.2	--	--
Desirable Characteristics				
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, discolouration 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_4, Max	200	Beyond this causes gastro intentional irritation when magnesium or sodium are present	400
16	Nitrates as NO_3	45	Beyond this methanemoglobinemia takes place	100
17	Flouride, Max	1	Flouride may be kept as low as possible. High flouride may cause flourosis.	1.5
18	Phenolic compounds as C_6H_5OH, 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 forth in water	1
27	Chromium as Cr^{6+}, Max	0.05	May be carcinogenic above this limit	No relaxation
28	Poly nuclear 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	--	--	
	a) α emitters Bq/l, Max	--	--	0.1
	b) β emitters Pci/l, Max	--	--	1
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 percent above total suspended matter of influent
3	Particle size of suspended solids	shall pass 850 micron IS Sieve	--	--	a. Floatable solids, solids max. 3mm
		--	--	--	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^{o}C above receiving water temperature			shall not exceed 5^{o}C above receiving water temperature
6	Oil and grease mg/l max	10	20	10	20
7	Total residual chlorine, mg/l max	1			1
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 NH3), mg/l, max	5			5
11	Biochemical Oxygen Demand (3 days at 27^{o}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
16	Cadmium (as Cd), mg/l, max	2	1	--	2

Sl. No	Parameter	Standards			
		Inland Surface water	Public Sewers	Land of Irrigation	Marine/ Costal areas
17	Hexavalent chromium (As Cr+6), mg/l, max	2	2	--	2
18	Total Chromium (as Cr), mg/l, max	2	2	--	2
19	Copper (as Cu), mg/l, max	3	3	--	30
20	Zinc (as Zn) mg/l, max	5	15	--	15
21	Selenium (as Se), mg/l, max	0.05	0.05	--	0.05
22	Nickel (as Ni), mg/l, max	3	3	--	50
23	Cyanide (as CN), mg/l, max	0.2	2	0.2	0.2
24	Flouride (as F) mg/l, max	2	15	--	15
25	Dissolved phosphates (as P). Mg/l, max	5		--	
26	Sulphide (as S), mg/l, max	2		--	5
27	Phenolic compounds (As C_6H_5OH), mg/l, max	1	5	--	5
28	Radioactive materials				
	a. α emitters micro cure mg/l, max	10^{-7}	10^{-7}	10^{-8}	10^{-7}
	β emitters micro cure mg/l, max	10^{-6}	10^{-6}	10^{-7}	10^{-6}
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 g/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.*

DESIGNATED BEST USE CLASSIFICATION OF INLAND SURFACE WATER

CLASS	DESIGNATED BEST USE	CRITERIA
A	Drinking water source without conventional treatment but after disinfection	pH: 6.5 to 8.5 Dissolved Oxygen: 6mg/l or more Biochemical Oxygen Demand: 2mg/l or Total Coliform: 50MPN/100ml
B	Outdoor bathing (Organized)	pH: 6.5 to 8.5 Dissolved Oxygen: 5mg/l or more Biochemical Oxygen Demand: 3mg/l or Total Coliform: 500MPN/100ml
C	Drinking water source with conventional treatment followed by disinfection	pH: 6.5 to 8.5 Dissolved Oxygen: 4mg/l or more Biochemical Oxygen Demand: 3mg/l or Total Coliform: 5000 MPN/ml
D	Propagation of wildlife and fisheries	pH: 6.5 to 8.5 Dissolved Oxygen: 4mg/l or more Free Ammonia: 12mg/l
E	Irrigation, industrial cooling and controlled waste disposal	pH: 6 to 8.5 Electrical Conductivity: Max. 2250mhos/cm Sodium Absorption Ratio: Max. 26 Boron: Max. 2mg/l

MPN – Most Probable Number