

## Characteristics For Drinking Water

	Substance or Characteristic	Requirement (Desirable Limit)	Undesirable effect outside the desirable limit	Permissible limit in the absence of alternate source	Remarks
<b>Essential characteristics</b>					
1	Colour Hazen Units, Max	5	Above 5, consumer acceptance decreases	25	Extended to 25 only if toxic substances are not suspected in absence of alternate source
2	Odour	Unobjectioable	--	--	a). Test cold and when heatedb). Test at several dilutions
3	Taste	Agreeable	--	--	Test to be conducted only after safety has been established
4	Turbidity NTU Max	5	Above 5, consumer acceptance decreases	10	--
5	pH	6.5 to 8.5	Beyond this range it will affect mucous membrane and water supply system	No relaxation	--
6	Total hardness ( as CaCO <sub>3</sub> ) mg/L, Max	300	Encrustation in water supply structure and adverse effects on domestic use	600	--

7	Iron (as Fe) 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	--
8	Chlorides (as Cl) mg/L, Max	250	Beyond this limit, taste, corrosion and palatability are affected	1000	--
9	Residual, free chlorine mg/L, Max	0.2	--	--	To be applicable only when water is chlorinated. Tested at consumer end. When protection against viral infection is required, it should be Min 0.5 mg/L.

### Desirable Characteristics

10	Dissolved solids mg/L, Max	500	Beyond this palatability decreases and may cause gastro intestinal irritation	2000	--
11	Calcium (as Ca) mg/L, Max	75	Encrustation in water supply structure and adverse effects on domestic use	200	--
12	Copper (asCu) mg/L, Max	0.05	A stringent taste, discoloration and corrosion of pipes, fitting and utensils will be caused beyond this	1.5	--
13	Manganese (as Mn) mg/L, Max	0.1	Beyond this limit taste/ appearance are affected, has adverse effect on domestic uses and water supply structures	0.3	--

14	Sulphate (as SO <sub>4</sub> ) mg/L, Max	200	Beyond this causes gastro intestinal irritation when magnesium or sodium are present	400	May be extended upto 400 provided (as Mg) does not exceed 30
15	Nitrate (as NO <sub>3</sub> ) mg/L Max	50	Beyond this methaemoglobinemia takes place	No relaxation	--
16	Fluoride (as F) mg/L, Max	1	Fluoride may be kept as low as possible. High fluoride may cause fluorosis	1.5	--
17	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH) mg/L, Max	0.001	Beyond this, it may cause objectionable taste and colour	0.002	--
18	Mercury (as Hg) mg/L, Max	0.001	Beyond this, the water becomes toxic	No relaxation	To be tested when pollution is suspected
19	Cadmium (as Cd) mg/L, Max	0.01	Beyond this, the water becomes toxic	No relaxation	To be tested when pollution is suspected
20	Selenium (as Se) mg/L, Max	0.01	Beyond this, the water becomes toxic	No relaxation	To be tested when pollution is suspected
21	Arsenic (as As) mg/L, Max	0.05	Beyond this, the water becomes toxic	No relaxation	To be tested when pollution is suspected
22	Cyanide (as CN) mg/L, Max	0.05	Beyond this, the water becomes toxic	No relaxation	To be tested when pollution is suspected
23	Lead (as Pb) mg/L, Max	0.05	Beyond this, the water becomes toxic	No relaxation	To be tested when pollution is suspected

24	Zinc (as Zn) mg/L, Max	5	Beyond this limit it can cause astringent taste and on opalescence in water	15	To be tested when pollution is suspected
25	Anionic Detergents (as MBAS) mg/L, Max	0.2	Beyond this limit it can cause a light froth in water	1	To be tested when pollution is suspected
26	Chromium (as Cr 6+) mg/L, Max	0.05	May be carcinogenic above this limit	No relaxation	To be tested when pollution is suspected
27	Polynuclear aromatic hydrocarbons (as PAH) mg/L, Max	--	May be carcinogenic	--	--
28	Mineral Oil mg/L, Max	0.01	Beyond this limit undesirable taste & odour after chlorination take place	0.03	To be tested when pollution is suspected
29	Pesticides mg/L, Max	Absent	Toxic	0.001	--
30	Radioactive materials a). Alpha emitters Bq/L, Max b). Beta emitters Bq/L, Max	--	--	0.11	--
31	Alkalinity mg/L, Max	200	Beyond this limit taste becomes unpleasant	600	--
32	Aluminium (as Al) mg/L, Max	0.03	Cumulative effect is reported to cause dementia	0.2	--
33	Boron, mg/L, Max	1	--	5	--

## **Bacteriological Examination**

### **Water in the distribution system**

Ideally, all samples taken from the distribution system including consumers' premises should be free from coliform organisms. In practice, this is not always attainable, and the following standard of water collected in the distribution system is therefore recommended when tested in accordance with IS 1622:1981.

- a) Throughout any year, 95 percent of samples should not contain any coliform organisms in 100 mL;
- b) No sample should contain E. coli in 100 mL;
- c) No sample should contain more than 10 coliform organism per 100 mL; and
- d) Coliform organism should not be detectable in 100 mL of any two consecutive samples.

*Source: Indian standard drinking water - specification (First Revision) IS-10500:1991. BIS, New Delhi, India*