

SPECIFICATIONS FOR DRINKING WATER

Water is one of the prime necessities of life. We can hardly live for a few days without water. In a man's body, 70-80% is water. Cell, blood, and bones contain 90%, 75%, and 22% water respectively.

Drinking water is water intended for human consumption for drinking and cooking purposes from any source. Access to safe drinking water is essential to health, a basic human right and to sustain life.

The primary purpose of the specifications for drinking water is the protection of public health. The parameters include organoleptic, physical, chemical, toxic, radio active, and biological specifications are as follows:

1. Organoleptic and physical parameter:

Parameter	Acceptable limit	Undesirable effect outside the acceptable limit
Color	5 (Hazen units)	Consumer acceptance decreases
Odour	Agreeable	Consumer acceptance decreases
Taste	Agreeable	Consumer acceptance decreases
Turbidity	1 (NTU)	Consumer acceptance decreases
Dissolved solids	500 mg/L	Palatability decreases and cause GIT irritation
pH value	6.5-8.5	Affect mucus membrane
Total hardness	200mg/L	Adverse effects.

2. Chemical parameters:

Parameter	Acceptable limit	Undesirable effect outside the acceptable limit
Iron	0.3mg/L	Taste and appearance affected and promotes iron bacteria
Calcium	75mg/L	Adverse effects
Chloride	250mg/L	Corrosion and effects palatability
Fluoride	1 mg/L	Cause fluorosis
Aluminium	0.03mg/L	Cause dementia
Copper	0.05 mg/L	Astringent taste
Manganese	0.1 mg/L	Effects taste
Zinc	5 mg/L	Opalescence in water
Magnesium	30 mg/L	Adverse effects
Barium	0.7 mg/L	Leads to cardiovascular problems
Silver	0.1 mg/L	Adverse effects
Selenium	0.01 mg/L	Toxic effects
Molybdenum	0.07 mg/L	Osteoporosis
Boron	0.5 mg/L	Adverse effects
Nitrate	45 mg/L	Methaminoglogbinamia
Sulphate	200 mg/L	GIT irritation
Sulphide	Below detectable limit	Objectionable taste and odour
Ammonia	0.5 mg/L	Toxic effects
Chloramines	02 mg/L	Anaemia, eye and nose irritation
Phenolic compounds	0.001 mg/L	Objectionable taste and odour
Mineral oil	Below detectable limit	Undersirable taste and odour
Anionic detergents	0.2 mg/L	Light froth in water

3. Toxic parameters:

Parameter	Acceptable limit	Undesirable effect outside the acceptable limit
Chromium	0.05mg/L	Carcinogenic
Arsenic	0.01 mg/L	Carcinogenic
Mercury	0.01 mg/L	Toxicity
Cadmium	0.003 mg/L	Toxicity
Lead	0.01 mg/L	Toxicity
Nickel	0.02 mg/L	Allergic
Cyanide	0.05 mg/L	Toxicity
Polynuclear aromatic hydrocarbons	0.0001 mg/L	Carcinogenic
Polychlorinated biphenyls	0.0005 mg/L	Carcinogenic
Trihaomethanes	0.1 mg/L	carcinogenic

4. Radio active parameters:

Parameter	Acceptable limit	Undesirable effect outside the acceptable limit
Alpha emitters	0.1Bq/L	Carcinogenic
Beta emitters	1 Bq/L	carcinogenic

5. Biological parameters:

Parameter	Acceptable limit	Undesirable effect outside the acceptable limit
E.coli or thermotolerant coliform bacteria	May not be detectable in 100 mL sample	Adverse effects