

Water Quality FAQ

Q. 1) Which Act/Rule deals with the prevention and control of water pollution? Who enforces these regulations?

- The Water (Prevention and Control of Pollution) Act, 1974, aims to prevent and control water pollution and to maintain/restore the wholesomeness of water by establishing Central and State Pollution Control Boards to monitor and enforce these regulations.
- The Water (Prevention and Control of Pollution) Rules, 1975, is a document by the Ministry of Environment and Forests (MoEF), that details the Rules underlying the Water (Prevention & control of Pollution) Act and includes information on the committee formed, its powers & functions, its role & responsibilities, budget and associated accounts.

Q.2) Is there a standard that prescribes guidelines for assessing the quality of irrigation water?

The quality of irrigation water is evaluated in terms of degree of harmful effects on soil properties with respect to the soluble salts it contains in different concentrations, and crop yield. To evaluate the quality of irrigation water, IS 11624:1986 standard has been prepared as a guideline for advisory purposes.

Q. 3) What is the water quality tolerance for use in the processed food industry?

That is because it appears blue when viewed from outer space. Why? This is because 70% of the earth surface is covered with water (in the form of its giant oceans). This water renders it the blue colour.

- In the processed food industry, water is used for a number of purposes such as processing, washing, flushing and general usage and also for boiler feed and cooling. The quality of water required varies for different processed food industries.
- IS 4251:1967 standard is intended to guide the food processing industry in judging the suitability of a particular supply of water for that industry and in planning the type of treatment required for available supplies of water.

Q. 4) Which are the codes for packaged water for drinking purpose ?

BIS has published two Indian Standards on packaged water for drinking purpose:

- IS 13428: For Packaged Natural Mineral Water (PNMW)
- IS 14543: For Packaged Drinking Water (Other Than Packaged Natural Mineral Water) (PDW)

Q. 5) Which are the IS guidelines on the usage of activated carbon ?

There are two IS codes that prescribe certain characteristics for the classification of activated carbon based on physico-chemical characteristics. These codes deal with activated carbon:

- IS 2752:1995: "Indian standard: Activated carbons, Granular - specification", Bureau of Indian Standards, Third revision (December 1995), defines the activated carbon for water treatment.
- IS 8366:1989, "Indian standard: Activated carbons, Powdered - specification", Bureau of Indian Standards, First revision, Reaffirmed, Second reprint (January 1997), for decolonization of pharmaceuticals.

Q.6) Which document specifies the various classifications of water as per use?

In the IS:2296-1982, the tolerance limits of parameters are specified as per the classified use of water depending on various uses of water. The following classifications have been adopted in India:

- Class A: Drinking water source without conventional treatment but after disinfection
- Class B: Outdoor bathing
- Class C: Drinking water source with conventional treatment followed by disinfection
- Class D: Fish culture and wild life propagation
- Class E: Irrigation, industrial cooling or controlled waste disposal

Q.7) Which is the IS code of practice for installation of septic tanks?

The IS:2470 provides various requirements that have to be met while constructing a septic tank, and ensures that the sewage is treated in a way that maintains the health and hygiene of the community. There are two parts to the code:

- Part I: Design criteria and construction
- Part II: Secondary treatment and disposal of septic tank effluent

Q.8) What are the BIS standard specifications for permissible & desirable limits of various parameters in drinking water?

The BIS drinking water specification: IS 10500:1991, gives details of the permissible and desirable limits of various parameters in drinking water. The various parameters covered include colour, odour, pH, total dissolved solids, and hardness, and alkalinity, elemental compounds such as iron, manganese, sulphate, nitrate, chloride, fluoride, arsenic, chromium, copper, cyanide, lead, mercury, zinc and coliform bacteria.

Q.9) What is Total Salt Concentration?

It is expressed as the electrical conductivity (EC). In relation to hazardous effects of the total salt concentration, the irrigation water can be classified into four major groups.

SL NO.	CLASS	RANGE OF EC (MICROMHOS/cm)
i)	Low	Below 1500
ii)	Medium	1500-3000
iii)	High	3000-6000
iv)	Very high	Above 6000

Q.10) What is Sodium Absorption Ratio (SAR)?

Sodium Adsorption Ratio (SAR) shall be calculated from the following formula:

$$SAR = \sqrt{\frac{Na^+}{\left(\frac{Ca^{2+} + Mg^{2+}}{2}\right)}}$$

Where

SAR= Sodium Absorption Ratio √ (millimole/litre)

Na^+ = Sodium Ion Conc_d (me/l)

Ca^{2+} = Calcium Ion Concentration (me/l)

Mg^{2+} = Magnesium Ion Concentration (me/l)

SL NO.	CLASS	SAR
i)	Low	Below 10
ii)	Medium	10-18
iii)	High	18-26
iv)	Very high	Above 26

Q.11) What is Residual Sodium Carbonate (RSC)?

Residual Sodium Carbonate (RSC)- shall be calculated from the following formula

$$\text{RSC} = (\text{CO}_3^{2-} + \text{HCO}_3) - (\text{Ca}^{2+} + \text{Mg}^{2+})$$

Where

RSC= Residual Sodium Carbonate (millimole/litre)

Ca^{+} =Calcium Ion Concentration (me/l)

Mg^{2+} =Magnesium Ion Concentration (me/l)

HCO_3 = Bicarbonate Ion Concentration (me/l)

CO_3^{2-} =Carbonate Ion Concentration (me/l)

Q.12) What is Biochemical Oxygen Demand?

Amount of oxygen required for the biochemical decomposition of biodegradable organic matter under aerobic conditions.

Q.13) What is Chemical Oxygen Demand?

The measure of the oxygen required for chemical oxidation. It does not differentiate between biological oxidisable and non-oxidisable material.

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