About Total Dissolved Solids in Drinking Water

If you have ever had a water softener or reverse osmosis system, you may be familiar with total dissolved solids. But what exactly are total dissolved solids and how do they impact water quality?

Total Dissolved Solids

Total dissolved solids (TDS) are a measurement of a variety of compounds like minerals, salts and organic compounds that are dissolved into water through contact with rock and other surfaces. In coastal areas, intrusion of seawater can also introduce TDS content into the local groundwater supply. TDS content can be made up of several different types of compounds:

- Calcium and magnesium are most frequently associated with having hard water. Excessive levels of these minerals can lead to scale buildup on shower walls, faucets and other surfaces. They can also cause skin and hair to feel dry after washing.
- Iron is another compound that can contribute to high TDS levels. It can adversely affect the taste of water as well as cause staining of laundry, sinks and tubs.
- Sodium chloride can also impact overall TDS content of water. Sodium can be introduced into water through water softening, seawater intrusion and contact with salt deposits underground. High sodium levels can be a concern for people who are on sodium-restricted diets.
- Sulfates are compounds that are frequently found in groundwater supplies. Consuming water with high sulfates can have a laxative effect on some people and even animals.

Are Total Dissolved Solids a Health Issue?

Because TDS is not a measure of any single contaminant, it is not regulated as a health issue by most government agencies. However, because a high TDS content can affect the taste and appearance of water, the U.S. Environmental Protection Agency (EPA) has set a maximum recommended level of 500 milligrams per liter (mg/L).

TDS content can be detected in several ways, including through the use of TDS meters. While a TDS test measures the total amount of overall dissolved content, it doesn’t identify the individual compounds or their sources, so additional testing is usually needed to determine what specific contaminants are present.

Treatment Options

To some extent, the options for treating TDS content depend upon which compounds make up the dissolved solids content of an individual’s water supply.

- Excess calcium and magnesium as well as small amounts of iron can usually be removed through traditional salt-based softeners. While the overall TDS content will not be reduced, by replacing these minerals with sodium, the impact of hard water will be mitigated.
- For other compounds like sulfates, nitrates and sodium, a reverse osmosis or distillation system is usually needed.

If you have high TDS content in your water and choose to use a water treatment system, make sure to maintain the system in accordance with the manufacturer’s instructions, including changing filters regularly.