

3- Hardness

Hardness in water usually indicates the presence of such minerals as calcium and magnesium. These dissolved minerals cause scale deposits in hot water pipes and affect soap efficiency. These problems make hard water generally unacceptable to the public. Hard water helps tooth and bone growth and hard water scaling reduces toxicity of lead oxide in pipelines made of lead.

4- Fluorides

Fluoride is toxic to humans in large quantities, and to some animals, though moderate amounts of fluoride ions (F⁻) in drinking water contribute to good dental health. Fluoride appears in groundwater in only a few geographical regions, and in a few types of sedimentary rocks. It is seldom found in appreciable quantities in surface water. Fluoride is a common addition to drinking water in many communities.

5- Metals

Metals in water that are harmful in relatively small amounts are classified as toxic; other metals are classified as nontoxic. In natural waters other than groundwater, metal sources include dissolution from natural deposits and discharges of domestic, agricultural, or industrial wastes. Leachate from improperly designed, constructed, or managed landfills is another common source. Some metals [iron (Fe) and manganese (Mn), for example] impart a bitter taste to drinking water even at low concentrations, though they do not cause health problems. These metals usually occur in groundwater in solution. They and other metals in solution may cause brown or black stains on laundry.

6- Organics

Organic matter in water can cause color problems as well as taste and odor problems. Organic matter can contribute to the formation of halogenated compounds in water undergoing chlorine disinfection. Organic matter can also create problems with oxygen depletion in streams, because as microbes metabolize organic material, they consume oxygen. The oxygen microbes consume is dissolved oxygen (DO). This demand for