



Suburban Property Inspections

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IRON FACT SHEET

Brief Overview:

Category:	Inorganic
Acceptable Level:	0.3 mg/L MCL Secondary Drinking Water Standard
Source:	Naturally in ground water, iron pipes
Effect:	Offensive taste, odor, and staining
Follow up:	Treat and retest
Treatment:	Ion exchange water softener, chemical oxidation and filters, particulate or a combination of multiple treatments filters

Details:

Source:

Iron is a common metal that is found as ore and is widely distributed. It occurs naturally in ground water and it is often found in combination with manganese. Water percolating through iron-bearing soil and rock can dissolve minerals containing iron and hold them in solution. Water's hardness and acidity influence the amount of iron that will dissolve during the percolation process. Occasionally, iron can result from corrosion of iron or steel well casings and/or water pipes.

There are two basic forms of iron in water, red water iron and clear water iron. Red water iron appears red when it comes out of the tap. Clear water iron appears clear when first drawn and turns reddish-brown after exposure to air. Some of each type may be present in a water supply. Clear water iron is sometimes called ferrous iron, while red water iron is called ferric iron. Other more complex forms of iron are colloidal, organic, and bacterial.

Effect:

The regulations regarding iron in drinking water were established as secondary a standard, which means the limits were set because of nuisance problems and aesthetic concerns. Iron in drinking water is not considered a health problem at the levels normally found in drinking water. Except in rare instances, the presence of iron in drinking water is not considered a health problem.

Iron may cause the water to have an unpleasant metallic taste or an offensive odor. Iron will cause reddish-brown staining of laundry, porcelain, dishes, utensils and even glassware. In addition to leaving stains and residues, high concentrations of iron in water can also buildup and clog pipes, pumps, sprinklers and other devices such as dishwashers. This buildup can also weaken water pressure and decrease the available quantity of water. These effects can increase costs for pumping the water through the clogged areas and lead to costly repairs.

Follow up:

If the water has been out of use, put the water back into use and retest. If iron persists, install a treatment system and retest. It is also recommended that a bacteria test be performed to ensure that bacterial contamination is not present.

Treatment:

There are several methods of removing iron from water. The most appropriate method depends on many factors, including the concentration and form of the iron in water and how much water you need to treat. Each form of iron is treated differently.

Ion exchange water softeners can be efficient in removing low concentrations of dissolved iron. Chemical oxidation followed by filtration can be effective when removing high levels of dissolved or oxidized iron. Using oxidizing chemicals, such as chlorine, to oxidize the dissolved iron followed by an oxidizing filter will remove the precipitated material. Iron can be oxidized from the dissolved to solid form by adding potassium permanganate or hydrogen peroxide to untreated water. When iron particles are present, but not dissolved, a particulate filter may be effective. Mechanical filtration will remove red water iron, while clear water iron will require oxidation/filtration or removal by ion exchange. Since iron can be difficult to remove from water, an experienced water treatment professional should be contacted to determine which type of treatment would be the most effective.

For further technical assistance, call Suburban Property Inspections at 1-866-866-6700, or call the U. S. Environmental Protection Agency Safe Drinking Water Hotline at 1-800-426-4791.



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