



# Suburban Property Inspections

Know what to expect - INSPECT<sup>sm</sup>  
Family owned and operated since 1988

## MANGANESE FACT SHEET

### Brief Overview:

<b>Category:</b>	Inorganic
<b>Acceptable Level:</b>	0.05 mg/L per EPA MCL Secondary Drinking Water Standard
<b>Source:</b>	Occurs naturally in ground water
<b>Effect:</b>	Offensive taste, odor, and staining
<b>Follow up:</b>	Treat and retest
<b>Treatment:</b>	Ion exchange, chemical oxidation and filter, particulate filters or a combination of multiple treatments

### Details:

#### Source:

Manganese can occur naturally in ground water and is often found in combination with iron. Water seeping through soil and rock can dissolve minerals containing iron and manganese and hold them in solution.

#### Effect:

Manganese is commonly found dissolved in borehole waters, and at first glance fresh from the pump, the water may appear crystal clear. However, after it has come in contact with oxygen in the air it will oxidize and form visible brownish-black particles or coat-exposed surfaces. This colored appearance is usually noticed in toilet flush tanks, washing machines and dishwashers. Manganese can cause brownish-black stains on laundry, porcelain, dishes, utensils and glassware. Stains usually cannot be removed by soap, detergent or chlorine bleach, which may actually intensify the stain. Manganese may also turn solid once oxidized by the air. These dark brown or black particles leave a dark brown residue when crushed. When it mixes with tea, coffee or alcohol it can turn to a sludge-like substance affecting taste, odor and appearance. In addition to leaving stains and residues, high concentrations of manganese in water can also buildup and clog pipes. This buildup can also weaken water pressure and decrease the available quantity of water. These effects can increase energy costs for pumping the water through the clogged areas.

The regulations regarding manganese in drinking water were established as secondary a standard, which means the limits were set because of nuisance problems and aesthetic concerns. Manganese in drinking water is not considered a health problem at the levels normally found in drinking water. Liver damage and other diseases are rare, yet possible effects of consumption of water containing manganese.

#### Follow up:

If the water has been out of use, put the water back into use and retest. If manganese 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 manganese from water. The most appropriate method depends on many factors, including the concentration and form of manganese in the water and how much water you need to treat. Ion exchange water softeners are usually effective in removing low levels of manganese. Chemical oxidation followed by filtration can be effective when removing high levels of dissolved or oxidized manganese. Using an oxidizing chemical such as chlorine, followed by an oxidizing filter will remove the precipitated material. Manganese can be oxidized from the dissolved to solid form by adding potassium permanganate or hydrogen peroxide to untreated water. When manganese particles are present, but not dissolved, a particulate filter may be effective. 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.**



Home • Septic • Termite • Radon • Mold • Water