

Do You Have Red Stains on Your Sinks or Toilets?

Iron Removal

Iron, and to a lesser extent manganese, frequently occur in the rock and soil of the earth's crust. Shallow and deep aquifers often contain appreciable amounts of iron. The familiar reddish brown iron stains on sinks and toilets and the similar stains on freshly laundered clothes are caused by iron. Manganese causes similar stains but they are generally black or dark gray. **Iron (and manganese) occurs in many forms. In order to facilitate iron removal, it's important to know what type of iron you have in your water supply.**

The prime culprits in US water supplies are:

- **Ferrous (clear) iron** – This iron is dissolved in water and is invisible in the water when drawn from a tap. If it sits in a container, after 15-20 minutes, the water gradually turns yellow to reddish brown. Clear water iron is readily removed by a softener and is not covered in this document.

- **Ferric (red) iron** – This iron is oxidized in the water to an orange or red particle. The particles settle if the water sits in a container. Although red iron is less common than clear iron, red iron causes considerable problems and is the iron form covered in this document. Red iron should be removed before water reaches softeners or other appliances installed in a facility.
- **Organic iron (tannin)** – will be discussed separately in the tannin section.
- **Iron bacteria** – Gelatinous or scummy appearing iron in the water, generated by bacteria that eat iron. Specialty equipment is needed.
- **Colloidal iron** – Red iron that is smaller than 0.1 microns. Specialty equipment is needed.

Maximum Contaminant Level:

As a Secondary Drinking Water Standard, iron over 0.3 mg/L (ppm) and manganese over 0.05 mg/L (ppm) cause problems but no health issues.