

## Contaminant: Iron



Iron is a common element, constituting nearly 5% of the earth's crust. Iron can be present in water due to a number of reasons. Acid rain, particularly acidic or basic water, and other chemical factors in water can corrode iron pipes and leach iron into the water. Also, high velocity water and sediment in water can erode iron from pipes into the water. When exposed to air, heat, or chlorine, these iron compounds will form rust, which will stain virtually anything that the water comes in contact with. This can cause extensive damage to faucets and appliances as well as dishes, clothing, and other personal

belongings that come in contact with the contaminated water.

Though the US EPA considers iron to be a secondary standard and currently only recognizes it as an aesthetically damaging contaminant, recent research has demonstrated likely health risks from iron and a possible link between iron in water and Parkinson's Disease.

### EPA Standards:

When testing water for the presence of iron, RAdata looks for the number of ppm, or parts per million of iron in the water. Because iron can stain clothes and appliances at .3 ppm, the EPA has set the regulatory standard at .3 ppm.

## Treatment: Cation Exchange Water Softener

A water softener uses the principle of ion-exchange – in this case, cations – to remove iron from raw water. The equipment contains a "bed" of softening material known as 'resin' through which the untreated water flows.

As water passes through the resin, the iron in the water attaches itself to this material. At the same time, sodium in the resin is released into the water. This ion-exchange process occurs literally billions of times during the softening process.



## **Regeneration:**

Eventually, such a great quantity of iron collects on the resin that the unit can no longer soften the water, and is now considered "exhausted." Regeneration, or recharging, is now necessary. To recharge the resin, it must be rinsed with a rich brine solution. This washes out the minerals and replaces them with sodium, so the resin is once again ready to remove minerals, and 'soften' the 'hard' water.

During the recharging cycle, the unit is also backwashed. Reversing the normal flow of water also serves to remove any turbidity and sediment which may have accumulated during the softening process due to the filtering action of the ion exchange material. Backwashing also loosens and fluffs up the bed of resin.

## **Care of Equipment**

**General maintenance:** A softener should be kept recharged at all times. Failure to do so permits contaminated water to flow into the pipes and water heater.

All water treatment equipment requires service. Whether removing a secondary standard like iron or manganese or killing coli form bacteria, the importance of proper maintenance can't be emphasized strongly enough.

When you receive the bill each month the cost of water is obvious if your source is a municipal supplier. The fact your water comes from a private well does not exclude the need for maintenance on a regular basis. While most home owners prefer a contracted service plan from RAdata, appointments on an as needed basis are also available. RAdata has service programs that include salt deliveries. Where this periodic testing is included in the initial installation cost supplemental testing after the first year are the expense of the homeowner or can be included in the service contracts.

**Call Our Information Hotline: 1-800-723-6641**