

TECHNICAL BULLETIN

BULLETIN 21

DISCOLORED WATER

SYMPTOMS	Rusty, brown, black, or yellow water appearing in the hot water.
CAUSE	<p>Complaints of discolored water are commonly blamed on water heaters and storage tanks, but in fact, it is a rare occurrence for today's high quality glass lined tanks to have a lining failure significant enough to allow water to contact enough bare metal to discolor the contents of even a small tank.</p> <p>The most common cause of "rusty" water is a non-toxic iron reducing bacteria, scientifically termed <i>Crenothrix</i>, <i>Leptothrix</i>, and <i>Gallionella</i>. Iron bacteria is commonly found in soil, water wells, water treatment plants and water distribution piping systems where soluble iron exceeds 0.2 ppm, higher levels make conditions even more favorable. Soluble iron in the water provides food for the bacteria. Rusty discolored water is the end result of the bacteria feeding process. Water heaters and storage tanks usually require new anode rods as presence of iron bacteria contributes to premature anode failure.</p> <p>The requirements for the bacteria to thrive are:</p> <ul style="list-style-type: none">• Elevated levels of iron and manganese in the water• Water with little or no dissolved oxygen• Temperatures below 138°F <p>Items that can increase the potential for this bacteria are:</p> <ul style="list-style-type: none">• Water softeners• Well water• Long periods of no water movement
TREATMENT	The simplest treatment available is shock-chlorination of the system. This is a surface treatment, and often requires repeated trials in heavily infected systems. The chlorination of a system requires that you follow each step explicitly to avoid an un-treated portion of the piping system from reinfesting another part. See Bulletin 23 for the chlorination procedure.
NOTE	Since rusty water is caused by a bacteria presence and is not caused by the water heater, any treatment would not be considered warranty related.