Phew! My Hot Water Smells Like Rotten Eggs*

The rotten egg odor is caused by hydrogen sulfide (H2S) gas. The odor is unpleasant, but the gas is not usually harmful at the low concentrations that occur in a household water system. This is not a problem of health but aesthetics.

Water heater tanks can provide an ideal environment for the production of hydrogen sulfide gas. Modern steel water heaters are glass-lined to prevent corrosion. However, it is impossible to assure 100 percent coverage, especially since cracks may occur while the tank is in service. To protect steel exposed by small cracks in the glass coating, a long rod, or anode, may be used to provide cathodic protection. The rod is usually made of magnesium, which corrodes more easily than steel. This corrosion frees many electrons that provide a protective film over the cracks in the glass. The number of electrons liberated by the corrosion of the magnesium anode may greatly exceed the amount required to protect the exposed steel of the water heater tank. The excess electrons provide the energy needed by nonpathogenic sulfate-reducing bacteria to produce H2S gas. This bacteria thrive in the temperature range of most water heaters. In addition, the water heater tank provides for an extended contact time. Where there are many free electrons due to the corrosion of the anode, the hot water heater can be a major contributor to rotten egg odor problems.

Infrequent use of hot water, such as with vacation homes or being away for a weekend, or the use of iron plumbing, which is more likely to corrode than copper or PVC, can lead to hydrogen sulfide gas release. A water softener also decreases CaCO3 levels, reducing protection from corrosion.

Some possible solutions are to replace the magnesium anode, flush low-flow lines, or temporarily increase the water heater temperature. It is recommended to contact a reputable dealer of water heaters or a plumber to perform these tasks.