

Benton-Franklin Health District



Fact Sheet

Hydrogen Sulfide in Drinking Water

As long as our drinking water is colorless, odorless, and free of unpleasant taste, we tend not to give much thought to the water we are using. If, however, our water has a strange taste or smell, we are understandably concerned. In many areas, hydrogen sulfide gas is often the cause.

What is Hydrogen Sulfide?

Hydrogen sulfide is a gas that can show up in drinking water as a result of several different processes. The decay of organic matter is a common cause. However, in surface and groundwater supplies, the presence of harmless sulfate-reducing bacteria is most often the cause.

When hydrogen sulfide gas is introduced into water, a “rotten egg” or “sulfur water” smell and taste may result. In some cases, the odor may be noticeable only when the water is initially turned on or when hot water is run. Heat forces the gas into the air, which may cause the odor to be especially offensive in a shower. Hydrogen sulfide can also be responsible for tarnished silverware and yellow or black stains on kitchen or bathroom fixtures. Coffee, tea and other beverages made with water containing hydrogen sulfide may be discolored, and it can distort the appearance and taste of cooked foods.

Potential Health Concerns

Hydrogen sulfide is a flammable and poisonous gas. However, at concentrations found in household water, it is usually not a health risk. Hydrogen sulfide odors are detectable by the nose at very low levels. Concentrations high enough to cause a health concern are extremely rare because the odor would be intolerable. Nevertheless, hydrogen sulfide in water, when released in confined areas, has been known to cause nausea and illness.

Water with hydrogen sulfide alone does not cause disease. However, in rare cases, the hydrogen sulfide odor may be from sewage pollution, which can contain disease-causing organisms or other contaminants. Sulfur-reducing and sulfur-oxidizing bacteria in water pose no known human health risk.

What are your options?

There are two basic options for water containing hydrogen sulfide. Either find an alternative water supply or use some type of treatment to remove the impurity.

Your need for an alternative water supply or impurity removal should be based upon a water analysis by a reputable laboratory or water treatment company and after consulting with your physician to help you evaluate the level of risk.

Alternate Supplies

It may be possible to obtain a satisfactory alternate water supply by drilling a new well in a different location or a deeper well in a different aquifer. Another alternate source of water is bottled water that can be purchased in stores or direct from bottling companies. This alternative might be considered especially when the primary concern is water for food preparation and drinking.

Treatment

Hydrogen sulfide water problems are usually corrected using oxidizing or aerating techniques. But before selecting a treatment method, it is important to determine the amount of hydrogen sulfide in the water supply. Oxidizing methods remove contaminants from water through a chemical reaction. This is the most common and most effective hydrogen sulfide treatment method. There are several oxidants available, each with their own advantages and disadvantages, including chlorine, ozone and potassium permanganate.

Aerating is the process of exposing the water to pure oxygen. Oxygen is especially good at removing the “rotten egg” smell caused by low levels of hydrogen sulfide gas.

Another option to remove low levels of hydrogen sulfide is to install an activated carbon filter. The filter must be replaced periodically to maintain performance. Frequency of replacement will depend on daily water use and concentration of hydrogen sulfide in the water.

Water treatment/conditioning companies that can test your water for hydrogen sulfide and develop a strategy for its removal can be found in your local yellow pages.

If you need more information, contact the Environmental Health Division at 509.460.4205 or our lab at 509.460.4206.