

Does your water smell of rotten eggs?

Sulfur Smell in Well Water

The sulfur smell in well water is due to the presence of the gas contaminant, hydrogen sulfide (H₂S). This gas is a common contaminant of well water and is usually produced by certain types of bacteria as a waste product. Hydrogen sulfide gas produces an offensive “rotten egg” or “sulfur water” odor and taste in the water. Two forms of sulfur are commonly found in drinking water supplies: sulfate and hydrogen sulfide.

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. Occasionally, a hot water heater is a source of hydrogen sulfide odor. The magnesium corrosion control rod present in many hot water heaters can chemically reduce naturally occurring sulfates to hydrogen sulfide.

What’s the difference between Sulfates and Hydrogen Sulfide?

Hydrogen sulfide is a gas with an offensive “rotten egg” odor. Water in many regions contains dissolved hydrogen sulfide in deep or shallow wells. In deep wells it is commonly associated with oil and gas fields. In shallow wells it is generally caused by decaying vegetation such as that found in swampy areas that feed an aquifer. In shallow wells the effect may be seasonal; the odor may be more prevalent when water tables are at their highest (fresh recharge from surface water sources).

Hydrogen sulfide smell can be detected down to 0.5 mg/L or even lower at high pH. At modest concentrations it can also stain silverware. Because it is a gas, hydrogen sulfide should be measured at the well or faucet immediately after collection to get an accurate measure of concentration.

Sulfates are a combination of sulfur and oxygen. These elements are naturally occurring minerals in some soil and rock formations that contain groundwater. The minerals dissolve over time and gradually released into groundwater.

Sulfur-reducing bacteria are the primary producers of large quantities of hydrogen sulfide. These bacteria use sulfur as an energy source, chemically changing natural sulfates in water to hydrogen sulfide. These bacteria usually flourish on the hot water side of a water distribution system.