



Water Quality and Health

Substances that Cause Tap Water Taste, Odor and Appearance

Part 2 of a Series of Articles on Tap Water

By The Water Quality & Health Council

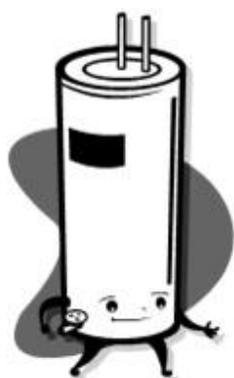
A drink of tap water is a complex sensory experience that reflects a wide range of factors, including: the natural environment of the source water, including whether the source water hails from above (lake or river) or below (ground water) the Earth's surface; water treatment processes; the household plumbing system; and the consumer's sensitivity to taste and odor. This week we examine some of the common substances in water and the scenarios that may impart a color, taste or odor to tap water.



What's that Smell?

To play the water odor detective, first determine whether the odor occurs in water from all of the household faucets, or just some of them. According to the [University of Georgia Cooperative Extension](#), if the odor is associated only with specific faucets, the cause is somewhere in the fixtures or pipes supplying those faucets. If the odor goes away after running the water for a few minutes, the cause of the odor is somewhere in the household plumbing system.

If the odor occurs in water from all household faucets, and the problem does not go away after running the water for several minutes, check to see if the odor is associated with the hot, cold or both taps. If the odor is coming from the hot water tap, the source may be the magnesium rod¹ in the hot water tank. A licensed plumber may substitute an aluminum rod to correct the problem. If the odor is associated with both hot and cold taps, the cause is either the water source, the plumbing system, or both.



Musty, earthy smells are likely due to organic matter, such as leaves and algae from surface water sources. A rotten egg smell signals hydrogen sulfide gas, which may be associated with ground water. Sometimes a rotten egg smell is produced by bacteria growing in the drain by feeding on food waste, hair or soap. To test for this, pour a glass of tap water and stand away from the drain to smell the water. If the water does not smell like rotten eggs, the problem may be in the drain, so disinfect and flush the drain. If the water does smell like rotten eggs,

the problem is in the water.

Chlorine Odor?

A "do-it-yourself" approach to removing chlorine odor is to fill a pitcher with tap water and set it aside for several hours while the chlorine dissipates. Transferring the water rapidly between two pitchers can accelerate chlorine dissipation. Refresh refrigerated stored water every 24 hours.

Odiferous bacteria may be produced in hot water heaters that are set at too low a temperature. Domestic water heater temperatures should be set at 140 degrees Fahrenheit, according to the [US Occupational Safety and Health](#)

¹ Magnesium rods are standard equipment in water heaters, used to help prevent corrosion of the water heater.

[Administration \(consider installing a scald-prevention device\)](#). Bacteria can also grow in well water, in which case “shock chlorination²” may resolve the problem. If well contamination is suspected, contact a drinking water professional to inspect the integrity of your well and to ensure it is properly located away from sources of contamination, such as a septic tank. Local health departments can be a helpful resource.

A strong chlorine odor to tap water could indicate close proximity to the municipal water treatment plant or chlorine booster station. Chlorine is added to water to help destroy waterborne pathogens, but it can introduce an unpleasant odor or taste. Chlorine disinfectants are added routinely to drinking water as it leaves the water treatment plant to journey through pipelines to consumers. A low, protective level, known as the “chlorine residual” must be maintained for the entire journey; for long journeys, booster chlorine stations are needed. Household water filters (e.g., activated carbon) can help remove strong chlorine odors.

Taste and Appearance

Metallic-tasting water could indicate iron or manganese in the water, and is usually associated with ground water. A salty, brackish taste indicates sodium chloride, sulfate and other salts associated with groundwater.

Hard water is rich in dissolved calcium and magnesium and may impart a pleasant flavor, but diminishes the effectiveness of soap, detergents and shampoos, and leaves mineral deposits in pipes and films on shower tiles and other surfaces in contact with water. Household water softening mitigates the effects of hard water by exchanging sodium or potassium for calcium and magnesium, but can impart a slightly salty taste.

Water that Pleases the Palate

Safe drinking water is fundamental to good health. Water that pleases the palate helps ensure an appropriate intake of our most important beverage. Understanding the factors that influence the taste and odor of drinking water can help you fine-tune your drinking water experience for maximum enjoyment.

For further information on household water treatment, please see the CDC webpage, [A Guide to Drinking Water Treatment Technologies for Home Use](#). The following organizational links may be helpful in finding home treatment device information: [Consumer Reports](#), [NSF](#) and [Water Quality Association](#).

² According to the Centers for Disease Control and Prevention, the well water shock chlorination process is complex and tedious, but exact procedures and concentrations for chlorine for effective treatment are available (see references listed at: <http://www.cdc.gov/nceh/publications/books/housing/cha08.htm#fn6>).