

## Taste, Odor and Color in Drinking Water

Off-tastes and odors are common water quality problems across the country. They are caused by a variety of factors, the most common of which is chlorine. Keep in mind that tastes and odors will vary from tap to tap and are influenced by personal likes and dislikes.

### Common Taste and Odor Problems:

- **Chlorine taste and odor:** If your water smells or tastes like a "swimming pool," it is probably due to chlorine that has been added to disinfect the water. Chlorination is the most commonly used water treatment method. Although chlorine is very effective at killing harmful bacteria and viruses, it frequently causes both an off-taste and odor. The addition of ammonia to produce monochloramine (which lasts longer in the pipes) makes the taste and odor even worse.
- **Rust and metallic tastes:** Excessive iron, manganese and other metals in drinking water change the taste and appearance of water. They may be naturally occurring or produced by corrosion. Although water is usually rust-free when it leaves the treatment plant, it can pick up rust and other metals from corroding pipes en route to your tap. Untreated water from private wells often contains iron and manganese in "reduced" form, which is fully dissolved until slowly oxidized by oxygen in the air. Such water will appear clear at first, turning either rusty (iron) or blackish (manganese) and cloudy in a few minutes. The same delayed reaction can happen with corrosion, too, if the problem is nearby.
- **Musty, earthy and fishy tastes and odors:** These tastes and odors are caused by algae, molds and bacteria that naturally live in most water sources, such as lakes and rivers. These off-tastes and odors may be stronger during certain times of the year when algae "bloom" all at once.
- **Rotten egg smell:** This is caused by hydrogen sulfide in water, produced by bacteria in deep wells and in low-use stagnant water mains. When combined with iron, the iron sulfide stains are black. It is also highly corrosive, so other problems may accompany the smell.
- **Off-colors and staining:** Water that is brownish in color can be caused both by the tea-like extracts of dead leaves and by corrosion by-products, such as iron and manganese. This water is unpleasant tasting and looking, and can also stain sinks and laundry. Organic color and staining usually occur in areas with poor drainage, and sometimes it combines with iron to form "heme iron," which is difficult to remove.
- **Hardness:** This term refers to water that has picked up minerals such as calcium and magnesium, as it traveled through certain types of rock and soil. Approximately 85 percent of the country has hard water. Hard water also leaves a sticky film on shower tiles and inhibits the lathering ability of soaps and detergents. Extremely hard water also has a distinctive off-taste to it, although moderate amounts taste good to most people.

## **Reducing Off-Tastes and Odors In Your Drinking Water**

Most off taste and odor problems are easily solved with a point-of-use (POU) water filtration system containing activated carbon. Activated carbon is a highly effective tool in water filters because it has enormous surface area and is highly porous - one pound of activated carbon has the surface area of more than 100 acres. The activated carbon surface attracts and holds tiny particles and molecules such as those that cause the most common tastes and odors - chlorine and "musty, earthy, mildewy and fishy" tastes and odors. Better systems also can reduce other water contaminants that pose serious health threats, such as trihalomethanes and other volatile organic chemicals, lead, and parasites like Cryptosporidium. Unfortunately, activated carbon filters are not the answer to all taste, odor, and color problems. When time and the dissolved oxygen level in the water permit, iron and manganese from wells and corrosion areas will be changed to insoluble forms that are easily removed by good mechanical filters. However, it often is necessary to use small chlorinator pumps or special filters with oxidizing media in front of the mechanical filters to oxidize the iron or sulfite quickly. This is always required for naturally-occurring hydrogen sulfide in well water, but in municipal systems with dead-end pipes, the remedy is simply for the city to flush out the pipes with fresh, oxygenated water from time to time. POU systems designed for the consumer are typically the size of a household fire extinguisher. They are installed under the kitchen sink and dispense filtered water through a dedicated drinking water faucet. Commercial systems are larger in size due to their increased capacity and are typically wall-mounted near the incoming water line. It is important to look for a model that is certified by NSF International. NSF is an independent testing agency that sets product standards and certifies the performance of POU systems. Everpure manufactures drinking water systems for both home and commercial use that are NSF Certified to remove contaminants that can cause off tastes and odors. Everpure precoat systems use Micro-Pure, a unique blend of filtering materials containing mostly powdered activated carbon that provides 40 times finer filtration than other drinking water systems. The result is effective removal of particles down to 1/2 micron and larger in size - about as large as one particle of cigarette smoke - plus removal of carbon-absorbable contaminants. For more than 60 years, Everpure has been a leading manufacturer of water filtration systems for residential and commercial use.

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