

water line



Help Protect South Carolina Water Quality

HOME WATER QUALITY PROBLEMS, CAUSES AND TREATMENTS

Many areas have water containing impurities from natural or artificial sources. These impurities may cause health problems, damage equipment or plumbing, or make the water undesirable due to taste, odor, appearance or staining. Water-related problems will be found primarily in homes serviced by a private water supply, although occasionally, they will be found in water from municipal or public water supplies. Those impurities

which cause health problems should be attended to immediately; other problems caused by water impurities can be corrected if they are a nuisance. Before beginning any treatment plan, have water tested by an independent laboratory to determine the specific impurities and level of contamination. This will help you select the most effective and economical treatment method.

SYMPTOMS

Intestinal disorders.

Water may or may not have "off" taste or odor.

Soap doesn't lather well.

Greasy, grimy rings in tubs and sinks. Dingy laundry with a harsh feel and possibly white or gray streaks. Milky film or spots on dishes washed in automatic dishwasher. Scale build-up in water heater. Scale build-up in pipes and reduced water flow. Scale build-up in cooking utensils.

PROBABLE CAUSES

Contamination of water source. Potential contaminants include fertilizer, pesticides, animal waste, human waste, and industrial chemicals.

Hard water due to calcium and magnesium compounds dissolved from rocks and minerals in the earth.

The most commonly used description of hard water is:
0-3 grains per gallon= Soft
4-9 grains per gallon= Average
over 10 grains per gallon= Hard

SUGGESTED TREATMENTS

Have water tested immediately for suspected contaminants. Disinfect water supply with strong chlorine solution and install automatic chlorinator, if appropriate. Install check valves or other protection at plumbing cross connections and maintain air laps between faucets and any possible source of contamination.

Install a water softener or reverse osmosis system for both hot and cold water, bypassing outside water lines. Kitchen cold water line may be bypassed if water softener is selected and sodium in the diet is a concern. Alternatively, soften water in washer, tub and basins by adding non-precipitating water conditioners. Special scale filters may be attached to the cold water supply lines to appliances.

Reddish-brown stains in sinks, toilets, tubs, dishwashers, and dishes. Reddish-brown stains or yellowing of laundry, especially after using chlorine bleach. Water tastes metallic. Brown sediment in standing water. (Also see reddish slime.)

Reddish slime on walls of toilet flush tank and reduced water flow. Slimy material suspended in clear water.

Corroding water pipes.

Water dripping from corroded iron or galvanized pipe has a rusty color. Corroded copper or brass pipes cause blue-green stains on plumbing fixtures. Laundry may have red, reddish-brown, or blue-green stains. Water has a metallic taste.

Rotten egg odor from both

hot and cold water pipes. Copper and silver turn black in the water. Iron, steel, or copper parts of pumps, pipes, and fixtures corroded. Black stains on laundry and porcelain. Black particles in water.

Dissolved iron in the water that is oxidized by air to form iron oxide, which is insoluble. (Also see iron bacteria.)

Iron bacteria, which live on iron in the water and eventually harden into scale.

Low pH, commonly called acid water; often caused by a high concentration of carbon dioxide.

Hydrogen sulfide, sulfur/sulfate reducing bacteria.

After determining type and amount of iron problem, select appropriate iron removal equipment such as chlorinator and sand filter, high capacity water softener or manganese greensand filter. Choice of treatment for iron problems can be complex, depending on the level of iron in the water and the presence of other impurities. Purchase equipment from a reliable dealer who has had training in this area of water treatment.

Install a chlorinator to feed into the well near the pump intake and an activated carbon filter to remove excess chlorine and other objectionable tastes or odors.

Depending on the acidity level, use appropriate treatment such as aeration, soda ash feeder, or neutralizing filter.

Compounds such as iron sulfide, calcium sulfide, and sodium sulfide can interfere with hydrogen sulfide removal so multiple treatments may be required. Appropriate treatments include chlorination or aeration followed by filtration through a sand filter

Rotten egg odor from hot water pipe only.

Chemical reaction of anti-corrosion magnesium rod in electric water heater.

Remove magnesium rod and replace with chemical solution feeder to protect water heater from corrosion or chlorinate water.

Objectionable taste or odor other than hydrogen sulfide.

Decaying organic matter, pollution from surface drainage, insufficient chlorine being used to disinfect water.

Install activated carbon filter or automatic chlorinator followed by activated carbon filter.

Turbid, cloudy or dirty water. Dingy laundry.

Silt, sediment, small organisms or organic matter, suspended in the water.

Install a fiber or sand filter.

Black stains on sinks, tubs, and laundry. Water may feel greasy.

Manganese (often appears with iron).

Iron removal treatment also removes manganese.

The problems listed above are not the only ones possible. Other impurities such as nitrate, lead, fluoride, pesticides, and chloride may contaminate water with or without visible symptoms. If there is reason to believe your water may have been contaminated and is dangerous, or if impurities are simply

a nuisance, have the water analyzed (refer to WQL1) read the report carefully, and take appropriate action. Always select water treatment equipment from a reputable and knowledgeable dealer. For more information on selecting water treatment equipment request WQL 5.

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