



Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals

What are Secondary Standards?

The United States Environmental Protection Agency (EPA) has established National Secondary Drinking Water Regulations that set non-mandatory water quality standards for certain contaminants. EPA does not enforce these "secondary maximum contaminant levels" or "SMCLs." They are established only as guidelines for drinking water for aesthetic considerations, such as taste, color and odor. These contaminants are not considered to present a risk to human health at the secondary standard level.

Why Set Secondary Standards?

EPA believes that if these contaminants are present in your water at levels above these standards, the contaminants may cause the water to appear cloudy or colored, or to taste or smell bad. This may cause a great number of people to stop using water from their water supply even though the water is actually safe to drink.

Secondary standards are set to give guidance on removing these chemicals to levels that are below what most people will find to be noticeable.

What problems are caused by these contaminants?

Problems can be grouped into three categories: *Aesthetic effects* -- undesirable tastes or odors; *Cosmetic effects* -- effects which do not damage the body but are still undesirable; and *Technical effects* -- damage to water equipment or reduced effectiveness of treatment for other contaminants. The secondary MCLs related to each of these effects are given in Table 1.

Aesthetic effects:

Odor and Taste are useful indicators of water quality even though odor-free water is not necessarily safe to drink. Odor is also an indicator of the effectiveness of different kinds of treatment. However, present methods of measuring taste and odor are still fairly subjective and the task of identifying an unacceptable level for each chemical in different waters requires more study. Also, some contaminant odors are noticeable even when present in extremely small amounts. It is usually very expensive and often impossible to identify, much less remove, the odor-producing substance.

- *Standards related to odor and taste:* Chloride, Copper, Iron, Manganese, pH, Sulfate, Total Dissolved Solids, Zinc.

Color may be indicative of dissolved organic material or inadequate treatment. Inorganic contaminants such as metals are also common causes of color.

- *Standards related to color:* Aluminum, Iron, Manganese, Total Dissolved Solids.

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Technical Effects:

Corrosivity, and *staining* related to corrosion, not only affect the aesthetic quality of water, but may also have significant economic implications. Other effects of corrosive water, such as the corrosion of iron and copper, may stain household fixtures, and impart objectionable metallic taste and red or blue-green color to the water supply as well. Corrosion of distribution system pipes can reduce water flow.

- *Standards related to corrosion and staining:* Chloride, Iron, Manganese, pH, Total Dissolved Solids, Zinc.

Scaling and *sedimentation* are other processes which have economic impacts. Scale is a mineral deposit which builds up on the insides of hot water pipes, boilers, and heat exchangers, restricting or even blocking water flow. Sediments are loose deposits in the distribution system or home plumbing.

- *Standards related to scale and sediments:* Iron, pH, Total Dissolved Solids, Aluminum.

Table I. Secondary Maximum Contaminant Levels

Contaminant	Secondary MCL	Noticeable Effects above the Secondary MCL
Aluminum	0.05 to 0.2 mg/L*	colored water
Chloride	250 mg/L	salty taste
Iron	0.3 mg/L	rusty color; sediment; metallic taste; reddish or orange staining
Manganese	0.05 mg/L	black to brown color; black staining; bitter metallic taste
pH	6.5 – 8.5	<i>low pH:</i> bitter metallic taste; corrosion <i>high pH:</i> slippery feel; soda taste; deposits
Sulfate	250 mg/L	salty taste
Total Dissolved Solids (TDS)	500 mg/L	hardness; deposits; colored water; staining; salty taste
Zinc	5 mg/L	metallic taste

* mg/L is milligrams of substance per liter of water

Federal regulations do not apply to private wells. Where secondary contaminants are a problem, the homeowner may want to consider installation of a water treatment system.

For More Information

Contact the Cecil County Health Department or call the Safe Drinking Water Hotline at 1-800-426-4791.

Source: Abridged from <http://water.epa.gov/drink/contaminants/secondarystandards.cfm>