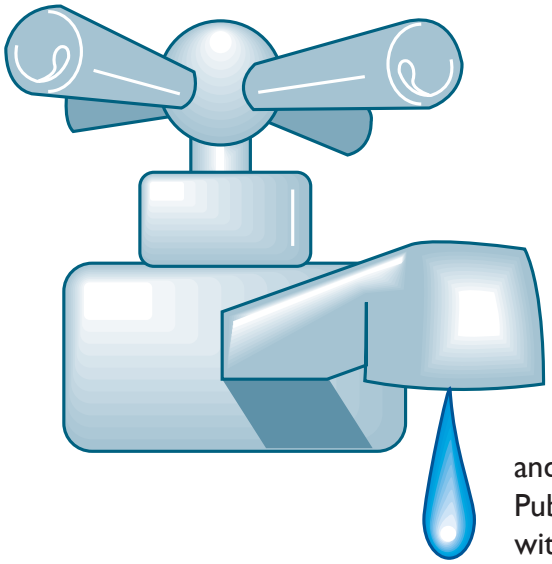
WATER

SIGNIFICANCE OF IRON AND MANGANESE IN DRINKING WATER

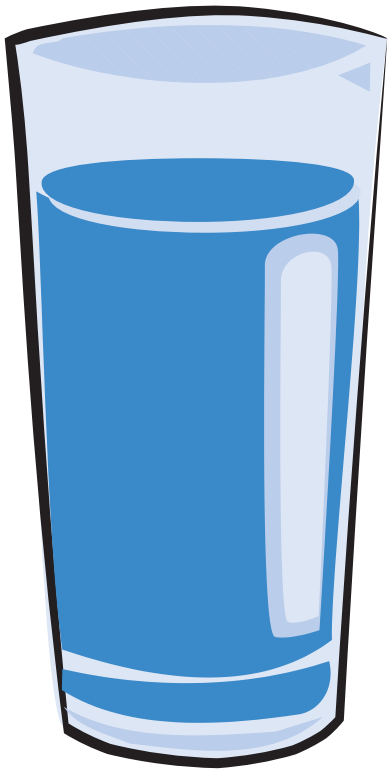


Drinking Water Standards

The U.S. Environmental Protection Agency (EPA) sets standards for public drinking water supplies. (Primary drinking water standards are health-related and are legally enforceable. Public water supplies must comply with primary standards.) Secondary drinking water standards affect the quality of the water in terms of aesthetics such as color and odor, but do not cause human health effects. A secondary drinking water standard is a suggested level above which the water may have a color or odor that may be objectionable, but will not cause adverse health effects.

Iron

is a naturally occurring element. The EPA secondary drinking water standard for iron is 300 ug/l (1 ug/l is equal to 1 part per billion). Above 300 ug/l water may develop a red-orange color. As the amount of iron in the water increases, the color also increases. A public drinking water supply cannot be required to supply water with iron below any particular level. However, drinking water systems are advised that iron over 300 ug/l will cause their water to be discolored.



Manganese

Manganese is another naturally occurring element which can often be detected in drinking water. The EPA secondary drinking water standard for manganese is 50 ug/l. At this level and above, water may be cloudy, form black precipitates, contribute to mineral depositing in pipes or cause difficulty in sudsing and darkening of clothing during washing. There is not a published level at which manganese causes health problems. At 50 ug/l of manganese, drinking water systems are advised that problems with taste and color of water can occur.

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