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Sensing Your Customers' Treatment Needs

Cheater's Chart of Water Symptoms

The following is a list of symptoms that are found in drinking water. Next to them are the EPA's Primary or Secondary Maximum Contaminant Levels (SMCLs) and suggestions on how to treat the problem.[1,2,3]

Effects	Possible Problem	PMCL/SMCL	Treatment
Bathtub rings	Hard Water	500 mg/L	Cation exchange water softener
Bitter taste	Foaming Agents	0.5 mg/L	Chlorination, activated carbon, ozonation, distillation, reverse osmosis
Bitter metallic taste	Manganese	0.05 mg/L	Filtration, cation exchange, disinfection/filtration, oxidation/precipitation/filtration
Black to brown color	Manganese	0.05 mg/L	Filtration, cation exchange, disinfection/filtration, oxidation/precipitation/filtration
Bleach odor	Chlorine	4 mg/L*	Activated carbon, reverse osmosis
Blue-green stains	Copper	1.0 mg/L	Distillation, cation exchange, reverse osmosis, electrodialysis, submicron filtration
Brown / red stains	Iron	0.3 mg/L	Oxidizing filters, disinfection, cation exchange, oxidation/precipitation/filtration
Colored water	Aluminum	0.05–0.2 mg/L	Cation exchange, ultrafiltration, deionization, reverse osmosis, distillation
Corroded pipes / fixtures staining	Corrosivity	Non-corrosive	Calcite, calcite/magnesium oxide, soda ash chemical feed, polyphosphate feed, sodium silicate feed
Dark brown / black stains	Manganese	0.05 mg/L	Filtration, cation exchange, disinfection/filtration, oxidation/precipitation/filtration
Desposits	Total Dissolved Solids	500 mg/L	Distillation, electrodialysis, reverse osmosis, deionization with ion exchange
Fish odor	Barium	2.0 mg/L*	Cation exchange, reverse osmosis, distillation, electrodialysis
Fish odor	Cadmium	0.005 mg/L*	Coagulation/filtration, reverse osmosis, cation exchange, distillation, electrodialysis, submicron filtration
Frothy, cloudy	Foaming Agents	0.5 mg/L	Chlorination, activated carbon, ozonation, distillation, reverse osmosis
Graying of the white part of the eye	Silver	0.1 mg/L	Cation exchange, filtration, distillation
Gray stains	Aluminum	0.05–0.2 mg/L	Cation exchange, ultrafiltration, deionization, reverse osmosis, distillation
Hardness	Total Dissolved Solids	500 mg/L	Distillation, electrodialysis, reverse osmosis, deionization with ion exchange

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Using your senses for initial diagnosis of water problems

The overwhelming rotten egg smell. The faint taste of metal in the water. The spots all over the dishes and glasses. All of these symptoms can help determine what the problem with the water may be. And each of these aesthetic concerns may cause a consumer not to drink the water at all.

For dealers who have been in the business for a while, they might initiate the diagnosis by tasting or smelling the water. Others might not be able to yet, and that is why presented here is a chart to help determine the problem and which treatment may be necessary. Although these are just suggestions, it is quite difficult to pinpoint a contaminant by smell, sight or taste alone. Each symptom could ultimately have more than one possibility of what the problem is or which solution is needed.

The U.S. Environmental Protection Agency offers its Secondary Maximum Contaminant Levels, which set non-mandatory water quality standards for 15 contaminants. These guidelines regulate contaminants that cause cosmetic or aesthetic effects in drinking water but are not health related and do not present a risk to human health.[1] These standards offer guidelines to assist public water systems in managing their drinking water for aesthetic considerations such as taste, odor and color.

- **Vision with which to see everything (well, sort of).** An important aspect of water to a customer is how the water looks. Complaints of clouds in the water or spots on a glass that is being served to guests often are heard by most dealers when working with homeowners. Vision is the strongest of the five senses—it is said that two-thirds of what we know was learned through vision. Therefore, appearance may be the whole reason you were called in the first place.

  Spots on dishes or clothes, various colors apparent in the drinking

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WQP *does not guarantee the exact cause or treatment of any water quality problem. This article and the accompanying chart are designed to serve only as a general guide.*

Cheater's Chart of Water Symptoms **(continued from page 18)**

Effects	Possible Problem	PMCL/SMCL	Treatment
Medicinal taste	Sulfate	250 mg/L	Anion exchange, reverse osmosis, distillation, electrodialysis
Metallic taste	Iron	0.3 mg/L	Filtration, cation exchange, disinfection, oxidation/precipitation/filtration
Metallic taste	Zinc	5 mg/L	Reverse osmosis, electrodialysis, cation exchange, distillation
Metallic taste	Corrosivity	Non-corrosive	Calcite, calcite/magnesium oxide, soda ash chemical feed, polyphosphate feed, sodium silicate feed
Musty or chemical smell	Odor (chemicals)	3 TON**	Activated carbon, air stripping, oxidation/filtration, disinfection/filtration
Reddish / orange stains	Iron	0.3 mg/L	Filtration, cation exchange, disinfection, oxidation/precipitation/filtration
Rotten egg smell	Odor (hydrogen sulfide gas)	3 TON**	Activated carbon, air stripping, oxidation/filtration, disinfection/filtration
Rusty color	Iron	0.3 mg/L	Filtration, cation exchange, disinfection, oxidation/precipitation/filtration
Salt taste	Chloride	250 mg/L	Reverse osmosis, anion exchange, deionization, distillation, electrodialysis
Salt taste	Sulfate	250 mg/L*	Anion exchange, reverse osmosis, distillation, electrodialysis
Sewage odor	Selenium +6 (total selenium)	0.05 mg/L*	Anion exchange, activated alumina, reverse osmosis, electrodialysis, distillation
Skin discoloration	Silver	0.1 mg/L	Cation exchange, filtration, distillation
Soap scum	Hard water	500 mg/L	Cation exchange water softener
Spots on glasses, dishes, clothes	Hard water, TDS	500 mg/L	Cation exchange water softener, distillation, electrodialysis, reverse osmosis, deionization with ion exchange
Sweet solvent odor	MTBE	No Limit	Activated carbon, air stripping
Tooth discoloration	Fluoride	2.0 mg/L	Activated alumina, reverse osmosis, distillation, electrodialysis
Visible tint	Color	15 color units	Anion exchange, activated carbon, ozonation, filtration, chlorination, reverse osmosis, distillation
Whitish scale	Hard water	500 mg/L	Cation exchange water softener

* Indicates a Primary (health-related) Maximum Contaminant Level
** Threshold Odor Number

1 *Water Quality Products.* www.wqpmag.com, Scranton Gillette Communications.
2 U.S. Environmental Protection Agency. www.epa.gov/safewater, 2003.
3 Water Quality Association. www.wqa.org, 2003.

Water Quality Products would like to have the most complete Water Symptoms chart available to our readers on our website, www.wqpmag.com.
To add symptoms and treatments to this list, please e-mail Wendi Hope King at wking@sgcmail.com.

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water and stains in the bathtub are all strong indicators for customers to take action. Spots on dishes may indicate that hard water is the problem and dark brown or black stains may indicate manganese.

Although most people find color objectionable over 15 color units, the point of consumer complaint varies from 5 to 30 color units. Standards related to color include aluminum, color, copper, foaming agents, iron, manganese and total dissolved solids.

- **Your nose knows.** Your sense of smell is a great interpretor of water problems. Smells of fish (barium), rotten eggs (sulfur water) or bleach (chlorine) may be the first symptoms noticed by the customer.

- **Taste can tell the difference.** If it tastes like salt or metal, then it could be chloride or iron. Taste is a powerful tool for diagnosis. Taste, which is a sense that partners with smell, is a useful indicator of water quality and may suggest to the consumer that treatment is needed. In fact, it may be the most important aesthetic of water. Numerous reports continually are released that state that consumers are constantly seeking better tasting and, therefore, more appealing drinking water.

  Standards related to odor and taste include chloride, copper, foaming agents, iron, manganese, pH, sulfate, threshold odor number, total dissolved solids and zinc.

Taste, odor and even color are quite objective. What tastes bad to one person may seem all right to another. Our senses act as useful tools when diagnosing your customer's water and which treatment methods may benefit him the most. By using these symptoms and the EPA's guidelines as a start and then testing the water samples with a kit or laboratory services, an effective treatment method can be found. WQP

References

1 U.S. Environmental Protection Agency. www.epa.gov/safewater, 2003.

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