Water Treatment Enhancement Project FAQs

Updated February 2024

pH Questions

Q: What is pH?

A: The letters 'pH' stand for potential of hydrogen, and pH is a measure of the concentration of hydrogen ions in the water, which indicates how acidic or basic a solution is. The pH range goes from 0 to 14; see Figure 1.0 on page 4 for an illustration of this scale. Values less than 7 indicate acidity, and values greater than 7 indicate basicity/alkalinity. Examples of acidic liquids include stomach fluid (pH between 1 to 3.5), lemon juice (pH of 2.4), and vinegar (pH of 2.8). An example of a basic liquid is bleach (pH of 13.5). The pH of drinking water depends on the water source, treatment methods, and other factors, but generally lies within the range of 6.5-8.5.

Q: Why is MW increasing the pH?

A: In 2019, we completed a Water Quality and Corrosion Study as part of our commitment to ensuring that our customers continue to receive the highest quality water. While we **meet and surpass** all applicable federal and state drinking water standards, the study concluded that increasing the pH of both of our sources would further enhance the water quality at customer's taps by limiting the potential release of metals (such as copper, lead, and iron) from both customer's private plumbing, and our distribution system watermains, improving the longevity of our system and allowing us to continue to serve our customers for years to come.

Q: How much will the pH change?

A: Currently, the pH of water entering our drinking water system from Big Butte Springs is approximately 7.0, and 7.3 for the water entering from the Rogue River. This small increase in pH, using sodium hydroxide, will eventually bring both sources to a target of approximately 7.8. This number is well within the common drinking water pH range of 6.5-8.5.

Q: When will this change take place, and will I notice the difference?

A: We will implement the pH increase first at Big Butte Springs in February 2024, and plan to increase pH in the water from the Rogue River in the spring. **Our award-winning water will not taste or smell any different due to this small increase in pH**—the change is not significant enough to impact taste or smell—though it is predicted to result in a minor increase to the alkalinity of the water.

This may result in a *small* increase in the amount of "scaling" on equipment/appliances—the white, naturally-occurring mineral that can be seen after water has dried (see photo at right). In particular, customers may notice a small amount of additional scale develop over time where hot water is in contact with fixtures and appliances, such as hot water heaters, dishwashers, and showerheads. Follow the manufacturers' directions for care and maintenance of these appliances.

Mineral scale on water faucet

In addition, the change will not result in any measurable impact to hair or nails; pool/hot tub owners should continue with their regular water testing schedule, and garden owners with their soil testing.

Q: Is pH the same as hardness? Will the hardness change?

A: While they are linked, pH is different than hardness, which is the measure of the mineral content of the water, typically measured by dissolved calcium carbonate (CaCO3). The harder the water, the less easily soap will lather. Typically ranging between 25 and 40 ppm, **our water tends to be moderately soft, and this will not change.** Hardness is also sometimes given in grains per gallon, with our water generally having between 1.4 and 2.4 grains per gallon.

Q: Are there any individuals that should pay special attention to the change?

A: No action is required for most customers, except for those described below:

Medical facilities/equipment users.
As noted above, a minor increase in scaling on equipment may occur due to the alkalinity of the water slightly increasing as a result of the pH increase. If you have specific concerns about how the increase in pH may affect the operations and/or maintenance procedure of your business or equipment, consult the manufacturer or operator of the equipment. Customers can contact the Oregon Health Authority for more information on how changes in pH may affect medical operations.

There is no risk expected to dialysis patients, and the pH increase will not affect in-center or home dialysis treatment operations.

Aquarium and pond owners.
While the increase in pH will not change the pH from being at a safe drinking water level for humans and most pets (and within the US EPA's range of 6.5-8.5 for secondary contaminants), more sensitive organisms such as fresh water and salt-water aquatic life are more susceptible to impacts from changes in pH. It is recommended that aquarium and pond owners regularly test the pH of the water in the fish tank and also to test and adjust the water if needed prior to adding it to the tank to ensure it remains within the safe range specific to the species/type of organisms present.

Breweries/individuals who brew beer at home.
An increase of pH of the water used in brewing operations can affect the process of crafting beer or spirits. Homebrewers should ask their local homebrew shop for suggestions on appropriate products to reduce pH; breweries and distilleries typically have their own procedures for testing and adjusting water used in their operations and should continue to follow those procedures.

Food processing customers.
Similar to brewing, some food processing methods require specific pH conditions. If your business or facility contains processes that are known to be pH dependent, it is recommended that procedures for testing and adjusting water are implemented if not already in place.

Sodium Hydroxide Questions

Q: Why is sodium hydroxide the best choice to adjust the pH?

A: Sodium hydroxide is used at thousands of drinking water plants in Oregon and across the nation to make pH adjustments including Joint Water Commission (outside Portland, OR), Albany, the Dalles, Eugene Water & Electric Board, Denver Water, Dayton (TN), and more. When dissolved in water, it breaks down into sodium ions (found in table salt, but don't worry, it won't make the water salty!) and hydroxide ions (found in all water). In addition to being used in water treatment, it is used in many everyday beauty products and in food preparation to make ingredients less harsh (overly acidic formulas with a very low pH can be extremely harsh on the skin).

Sodium hydroxide was selected due to the chemistry of Medford Water's raw source water (Big Butte Springs and the Rogue River), as well as conditions within some customer's private plumbing and in the distribution system. The addition of sodium hydroxide prior to transmission through distribution pipes will adjust the pH to a level that reduces the tendency of the water to potentially release metals (such as copper, lead, and iron) from both customer's private plumbing, and our distribution system watermains. As a corrosion inhibitor, sodium hydroxide is the best choice to make this change.

Q: Will I be able to taste or smell sodium hydroxide in my tap water?

A: No. There will not be a difference in the taste or smell of your tap water; the only additives are a small amount of sodium and hydroxide ions, which are already naturally present in water. Water with a pH higher than 8.5 or 9 may start tasting different, but we are not in that range with this change.

Q: Will there be an increase in sodium in the water with the addition of sodium hydroxide?

A: Sodium is naturally present in most water sources and is not regulated, but our levels are so low to begin with that they will remain low even after this change. Recent sodium levels from our BBS source are 6.06 mg/L, and 6.87 mg/L from our Rogue River source; we anticipate an increase of approximately 2-4 mg/L for both sources. World Health Organization acknowledges that most water supplies contain around 20 mg/L.

Q: Will the addition of sodium hydroxide in my drinking water have an adverse effect on my personal filter that I have installed?

A: No. However, for all privately purchased water filtration systems, it is recommended to always refer to the manufacturer's instructions.

Other Questions

Q: Where does our water come from?

A: During the winter months, our drinking water comes from Big Butte Springs, a ground water source that provides water of exceptional quality. During the peak-use summer months, water from the Rogue River is used to supplement the springs supply. The river water is also of high quality, but additional treatment—performed at the Robert A. Duff Water Treatment Plant—is required. Treatment of this surface water source consists of coagulation, settling, and filtration, followed by disinfection. The addition of ozone in 2002 provided a dramatic reduction in musty taste and odors occasionally found in the river water. While it does provide additional disinfection benefits, it was added only for these aesthetic qualities; the overall water quality is excellent and safe to drink.

Q: Where can I find out what is in my drinking water?

A: View our Consumer Confidence Report, which focuses on and provides details about compliance with regulations. For a comprehensive listing of water testing results, see our Water Quality Analyses.

Q: Does our water have lead in it?

A: There is virtually no lead or copper in either of Medford Water's supply sources. However, since these metals can enter the drinking water supply through corrosion within the water distribution system or household plumbing, supplemental testing is conducted at the individual taps of customers whose plumbing meets criteria for being at risk for elevated lead and copper levels, as part of our Lead and Copper Monitoring Program.

Find out more about lead in our Lead and Copper FAQs; results of our lead and copper monitoring program are pictured in Figure 2.0 on page 4.

Q: What is corrosivity?

A: Corrosivity describes the quality of eroding or eating away, such as water eroding pipes and fixtures. Corrosive water can cause lead and copper in pipes to leach into drinking water and can eventually cause leaks in plumbing. Surface water and groundwater, both sources of drinking water, can potentially be corrosive, depending upon the chemistry of the water.

Q: What is a mineral?

A: A mineral is a naturally occurring inorganic solid with a definite chemical composition and a crystalline structure.

Q: Where can I find more information about pH in drinking water?

Environmental Protection Agency:
https://www.epa.gov/sdwa/drinking-water-regulations-and-contaminants

World Health Organization:
https://cdn.who.int/media/docs/default-source/wash-documents/wash-chemicals/ph.pdf?sfvrsn=16b106564

Medford Water pH webpage:
medfordwater.org/pH

Q: Who can I call if I have questions or concerns about water quality?

A: For information about water quality, call 541-774-2430. Questions also can be emailed to customerservice@medfordwater.org. The EPA's Safe Drinking Water Hotline is 1-800-426-4791.

Figure 1.0 – The pH Scale

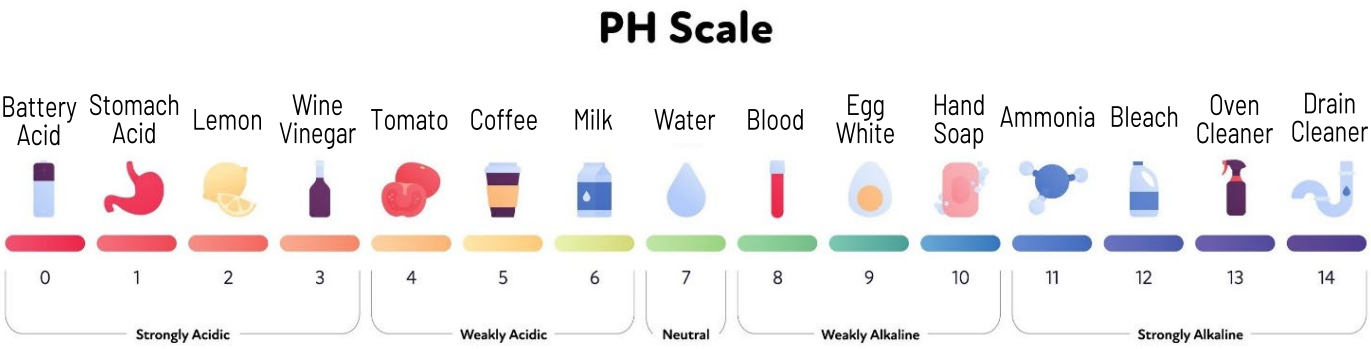

Figure 2.0 – Lead and Copper Sampling Results

LEAD AND COPPER SAMPLING AT RESIDENTIAL WATER TAPS		
Analyte	**Amount Detected**	**Maximum Contaminant Level**
Copper (2022 Results)	90th percentile value = **0.7** ppm No samples exceeded action level.	Action Level: 90% of the homes tested must have copper levels less than **1.3** parts per million.
Lead (2022 Results)	90th percentile value = **1.1** ppb No samples exceeded action level.	Action Level: 90% of the homes tested must have lead levels less than **15** parts per billion.

There is virtually no lead or copper in either of Medford Water's supply sources. However, since these metals can enter the drinking water supply through corrosion within the water distribution system or household plumbing, supplemental testing is conducted at the individual taps of customers whose plumbing meets criteria for being at risk for elevated lead and copper levels. Based on testing in representative home plumbing systems, it has been found that our water does not tend to promote the leaching of these minerals in amounts that would normally be considered a health concern.