

Podcast Title: *It's Your Water*

Episode Title: 4. Oxidation Principles Related to Popular Filtration Media

In this episode of *It's Your Water*, Michael and Denise Urbans share their expertise and advocate for successful water treatment systems. Together they discuss the importance of oxidation. Michael explains the use of popular oxidation filtration methods and how to apply them.

Oxidation & Filtration is used to remove or reduce the following contaminants:

- Iron Fe⁺⁺⁺
- Manganese
- Hydrogen Sulfide

They begin by discussing some of the most common oxidizers.

- Chlorine
- Ozone O³
- Hydrogen peroxide

In the past Potassium Permanganate was also used and it worked well but could turn the water purple if not applied correctly.

Simple Explanation of How it Works.

Oxidation

- Feeding the oxidizer has a dual purpose.
- First - the oxidizer chemical (chlorine, hydrogen peroxide) causes the ferrous iron Fe⁺⁺ to come out of solution and turn into Ferric iron Fe⁺⁺⁺, which is now solid and visible to the eye as Ferric Hydroxide Fe(OH)₃ and can be filtered.

Filtration

- Second - The filtration medias need to be re-fueled by the oxidizing chemical on an ongoing basis.
- The most common filtration medias are coated with manganese-dioxide.
- Pure manganese-dioxide ores are too heavy and are difficult to backwash with residential well pumps.

Michael and Denise explain the need for oxidizing iron to create soluble compounds within the water. Many people use the wrong chemicals to treat iron bacteria in the water system. Michael explains the consequences of using the incorrect type or amount of treatment. After a chemical treatment has been applied, a well with a strong pump, in conjunction with properly engineered backwashing system is necessary to flush out the oxidized contaminate.

Ozone

The application of ozone is now used frequently as well. While ozone is a strong oxidizer, Michael shares the positives and negatives of using it. However, the use of ozone has been revolutionized with the help of innovative valve technology and new devices.

To wrap up, Michael recommends using a professional to install your oxidation and filtration equipment. He also suggests the use of twin tanks and explains the advantages of having a standby tank. Michael and Denise remind listeners that oxidation and filtration is a delicate chemical balance and does need to be performed correctly!

Key Takeaways:

- Michael explains the need for oxidation/filtration.
- Ozone, hydrogen peroxide, and chlorine are the most common elements used to treat water.
- They share how chlorine sanitizes and interacts with iron.
- Denise and Michael discuss the difference between iron and iron bacteria, and how to treat both.
- Michael states why there is no such thing as a functional chemical-free filtration system.
- Michael lists the chemicals he recommends for oxidation reactions.
- Michael shares the positives and negatives of using ozone.
- Innovative valve technology and new devices have revolutionized the use of filtration chemicals.
- Michael also suggests the use of twin tanks and explains the advantages of having a standby tank.

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