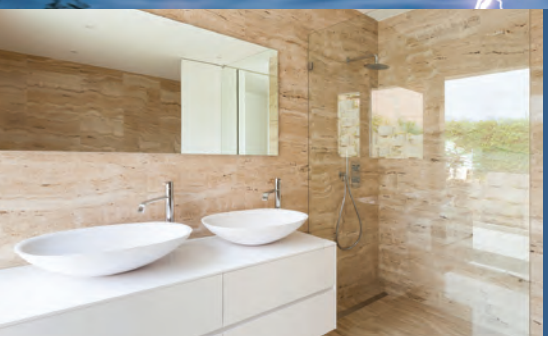
WHOLE HOME IRON & SULPHUR OZONE ENHANCED FILTRATION SYSTEM



EXCALIBUR
Water Systems

What is Ozone?

Ozone (O^3) is Mother Nature's perfect purifier. The word "ozone" is derived from the Greek word for "smell". Ozone is formed naturally and found within the stratospheric layer of our atmosphere. You probably know it as the "Ozone Layer". It exists when oxygen (O^2) is exposed to ultraviolet light, or exposed to high voltages of lightning. That fresh, clean smell that we notice after a rain storm is ozone.

As the oxygen molecules (O^2) are exposed to these energy fields, they dissociate and split, forming atoms (O^1). These wandering oxygen atoms then recombine with other (O^2) molecules in the air stream, forming ozone (O^3). Ozone is nothing more than another molecular form of oxygen.

Because ozone is highly reactive, it readily oxidizes (breaks down) organic matter. When ozone encounters another compound, one oxygen atom will break away, attach itself to the compound and oxidize (clean or purify) it.

What are the benefits of using Ozone?

Ozone is the most powerful oxidizer and disinfectant commercially available that can be safely used in water treatment. It is an environmentally friendly alternative to chemicals. Due to the instability of the ozone molecule, it is generated at the point of use and is easily converted back to oxygen. Ozone can literally oxidize material in water 3,200 times faster than chlorine and 5,600 times faster than bromine.

Excalibur Enhanced Ozone Iron, Sulphur and Manganese Filter

Removes all the iron, sulphur and manganese including the organics that cause iron and sulphur reducing bacteria (chemical free). By using ozone, we eliminate the use of chemicals for disinfection with either chlorine or peroxide. The organics that coat the resin with slime is stripped off (the resin beads) with ozone that disinfects the filter, keeping your water free of iron and sulphur bacteria as it regenerates daily after midnight with ozone injection. Then the filter backwashes contaminants to drain and goes back to service automatically.

Ozone Achieves these Water Treatment Functions:

- Disinfection - Bacterial disinfection and the inactivation of viruses and cysts.
- Oxidation of Inorganics – Precipitates iron, manganese, sulfides, nitrites and organically bound heavy metals.
- Oxidation of Organics – Including organics causing colour, taste and odour problems, iron & sulphur bacteria, some detergents and pesticides, phenols, VOCs, turbidity control and micro flocculation of soluble organics.

How is Ozone used for Water Purification?

Ozone must be made on-site and used immediately. Ozone generators produced ozone first by compressing ambient air, then separating it out and concentrating the oxygen. At Excalibur, we run the oxygen through a high-voltage device, called a corona, essentially "lightning in a bottle". The generator then "injects" the gaseous ozone into water using negative pressure or a vacuum.

Iron and Sulphur Bacteria

Iron bacteria and sulphur bacteria are small living organisms that naturally occur in soil, surface water and groundwater. Ozone kills and removes iron and sulphur bacteria from your water.

Iron bacteria and Sulphur bacteria are naturally occurring organisms in the environment.

Iron bacteria combine iron (or manganese), present in water, with oxygen. The iron bacteria may form large masses of an orangey-brown slime.

Sulphur-reducing bacteria live in oxygen-deficient environments. They break down sulphur compounds present in water, producing hydrogen sulphide gas in the process.

Iron bacteria are more common than sulphur bacteria, because iron is more abundant in groundwater.

Iron and Sulphur Bacteria Issues

On all water wells, new or old, the water quality can change at any time as a water test is only a moment in time. Therefore regular water testing should be done on all water wells.

Iron and sulphur bacteria can occur at any time on a new installed well or an older well after months or years of use which will require an Ozone Disinfection Iron and Sulphur Filtration System if iron and sulphur bacteria occurs.

This will provide a chemical free filtration system or a chemical system will be required by using either chlorine or peroxide for disinfection and a chemical removal filter will need to be added additional to the chemical injection system compared to a chemical free Ozone Disinfection System.

The Iron and Sulphur Ozone Enhanced Filtration System creates ozone for disinfection that during the regeneration cycle we continuously inject ozone for disinfection that creates ozone microscopic air bubbles that provide the disinfection. This continues for the full 40 minutes of the regeneration cycle providing iron and sulphur bacteria free water, then filter will automatically go back to service.

Premium Ozone Enhanced Hybrid Chemical Free Iron, Manganese and Hydrogen Sulphide (Sulphur) Filter

Product Specifications

Premium Ozone Enhanced Chemical Free Iron, Manganese and Hydrogen Sulphide (Sulphur) Filter that removes and eliminates iron, iron stains, manganese and hydrogen sulphide (sulphur) often referred to as "the rotten egg" smell. Plus Ozone disinfection eliminating all iron and hydrogen sulphide (sulphur) bacteria. No chemicals, safe for septic beds, inexpensive operation use of Ozone (O^3) injection for disinfection with our Zentec Hybrid Specialty Iron, Manganese, Hydrogen Sulphide (sulphur) removal media producing clean water.

FEATURES:

- Fully programmable electronic control valve
- Quiet operation
- Adjustable time cycles for best results
- Chrome sweat jacket and black cap
- Uses less than $3.00 per year to operate 12 volt
- High flow control valve for premium backwashing
- Includes ozone injection system
- Iron, manganese and hydrogen sulphide removed up to 10.0ppm
- Removes all iron and sulphur reducing bacteria
- Flows from 7 to 20 gallons per minute based on filter size
- 20 year filter warranty
- 3 year ozone generator warranty

Superior Ozone Enhanced Hybrid Chemical Free Iron, Manganese and Hydrogen Sulphide (Sulphur) Filter

Product Specifications

Superior Ozone Enhanced Chemical Free Iron, Manganese and Hydrogen Sulphide (Sulphur) Filter that removes and eliminates iron, iron stains, manganese and hydrogen sulphide (sulphur) often referred to as "the rotten egg" smell. Plus Ozone disinfection eliminating all iron and hydrogen sulphide (sulphur) bacteria. No chemicals, safe for septic beds, inexpensive operation use of Ozone (O^3) injection for disinfection with our Zentec Hybrid Specialty Iron, Manganese, Hydrogen Sulphide (sulphur) removal media producing clean water.

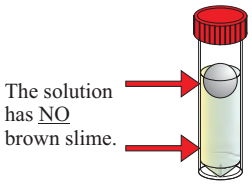
FEATURES:

- Fully programmable electronic control valve
- Quiet operation
- Adjustable time cycles for best results
- Uses less than $3.00 per year to operate 12 volt
- High flow control valve for premium backwashing
- Includes ozone injection system
- Iron, manganese and hydrogen sulphide removed up to 8.0ppm
- Removes all iron and sulphur reducing bacteria
- Flows from 7 to 20 gallons per minute based on filter size
- 12 year filter warranty
- 3 year ozone generator warranty

LAB-BART™ TEST FOR IRB
IRON RELATED BACTERIA

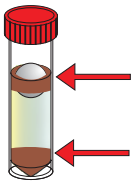
Present/Absent - observe daily for 8 days.

ABSENT
(Negative - Non-aggressive)



The solution has NO brown slime.

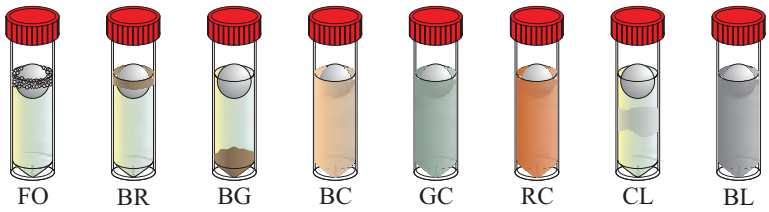
PRESENT
(Positive - Aggressive)



A **Brown** slime ring or foam around the ball,
and/or
A **Brown** slime growth at the base of tube.

*Note: Refer to page bottom for approximate population

Advanced Test Information



FO BR BG BC GC RC CL BL

Determination of Dominant Bacteria:

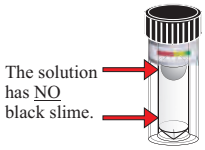
FOAM**(FO)** around ball- Anaerobic Bacteria.
BROWN RINGS**(BR)**, GEL**(BG)**, and/or CLOUDS**(BC)** - IRB.
Solution GREEN-CLOUDY**(GC)** - Pseudomonads.
Solution RED-CLOUDY**(RC)** - Enteric Bacteria.
Solution CLOUDY**(CL)** - Heterotrophic Bacteria.
Solution BLACK**(BL)** - Pseudomonads and Enterics.

Determination of Potential IRB Population - observe daily for reaction.

BART™ TEST FOR SRB
SULFATE REDUCING BACTERIA

Present/Absent - observe daily for 8 days.

ABSENT
(Negative - Non-aggressive)



The solution has NO black slime.

PRESENT
(Positive - Aggressive)

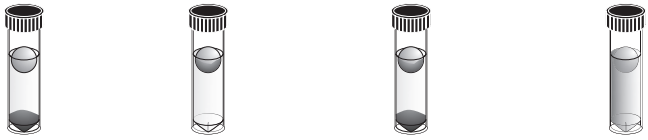
A **Black** slime ring beneath the ball,
and/or
A **Black** slime growth at the base of tube.

1. View test each day for up to 15 days.
2. Observe any growths/color changes.
3. Compare with description(s).

*Note: Refer to page bottom for approximate population

Advanced test information.

Determination of Dominant Bacteria



BLACK only in BASE**(BB)** - Dense anaerobic SRB consortium.

BLACK only around BALL/TOP**(BT)** - Aerobic SRB consortium.

BLACK in BASE and around BALL - Combination of aerobic**(BT)** and anaerobic**(BB)** SRB.

Solution CLOUDY - Anaerobic bacteria present.

Determination of Potential SRB Population - observe daily for reaction.

Tests available for purchase at your local Excalibur Water Systems Dealer.

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Authorized Dealer: