



Canadian Manufacturer

# EXCALIBUR - WHOLE HOME IRON & SULPHUR ENHANCED OZONE FILTRATION SYSTEM



Quality through innovation





## **What Is Ozone?**

Ozone ( $O^3$ ) is Mother Nature's perfect purifier and is derived from the Greek word for "smell". Ozone is formed naturally and found within the stratospheric layer of our atmosphere.

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 ( $O^3$ ). Because ozone is highly reactive, it readily oxidizes (breaks down) iron, sulphur, manganese and organic matter.

## **What are the Benefits of using Ozone?**

Ozone is the most powerful oxidizer and disinfectant commercially available that is utilized in water treatment as an environmentally friendly alternative to chemicals. Ozone can literally oxidize material in water 3,200 times faster than chlorine.

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## How is Ozone used for Water Purification?

This fully integrated water treatment system effectively removes nuisance iron, sulphur, and manganese, as well as iron and sulphur bacteria, without the use of chemicals. Water entering the filtration system passes through an ozone layer, where impurities are oxidized, deodorized, and enlarged for easier filtration. These impurities are then held in the filter until a backwash cycle occurs, during which they are sent to the drain and a fresh ozone layer is created.

Ozone is generated by compressing ambient air, separating and concentrating the oxygen, which then passes through a generator utilizing a "corona discharge" – essentially creating "lightning in a bottle." By utilizing ozone, the system eliminates the organics that cause iron and sulphur reducing bacteria and strips off the slime coating on the filtration media, keeping it disinfected and your water free of iron and sulphur bacteria as it regenerates daily with ozone injection.



### Service

Raw water enters the filter and first passes through the ozone dome where the Ferrous Iron is oxidized and made ready for filtration. Next, the oxidized water passes through the filter media to remove the oxidized (Ferric) iron, and related tastes and odors from the water.

### Backwash

The system cleaning begins with a backwash cycle that reverses the flow of water to lift the filter media and wash trapped iron particles to the drain.

### Ozone Induction


During the draw cycle, ozone is generated and drawn into the tank to re-establish the ozone dome.

## Iron and Sulphur Bacteria:

Iron bacteria and sulphur bacteria are small living organisms that naturally occur in soil, surface water and groundwater. Iron bacteria may form large masses of an orangey-brown slime, while sulphur bacteria will be black. Sulphur-reducing bacteria live in oxygen-deficient environments. They break down sulphur compounds present in water, producing hydrogen sulphide gas in the process. Ozone kills and removes the organics in water that cause iron and sulphur bacteria.





Iron bacteria in toilet tank



# LAB-BART™ TEST FOR IRB

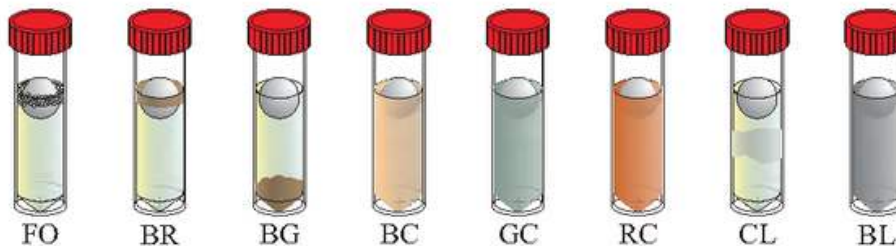
## IRON RELATED BACTERIA

Present/Absent - observe daily for 8 days.

<p><b>ABSENT</b> (Negative - Non-aggressive)</p> <p>The solution has <u>NO</u> brown slime.</p> 	<p><b>PRESENT</b> (Positive - Aggressive)</p> <p>A <b>Brown</b> slime ring or foam around the ball, and/or A <b>Brown</b> slime growth at the base of tube.</p> 
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\*Note: Refer to page bottom for approximate population

### Advanced Test Information



#### 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)



**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.



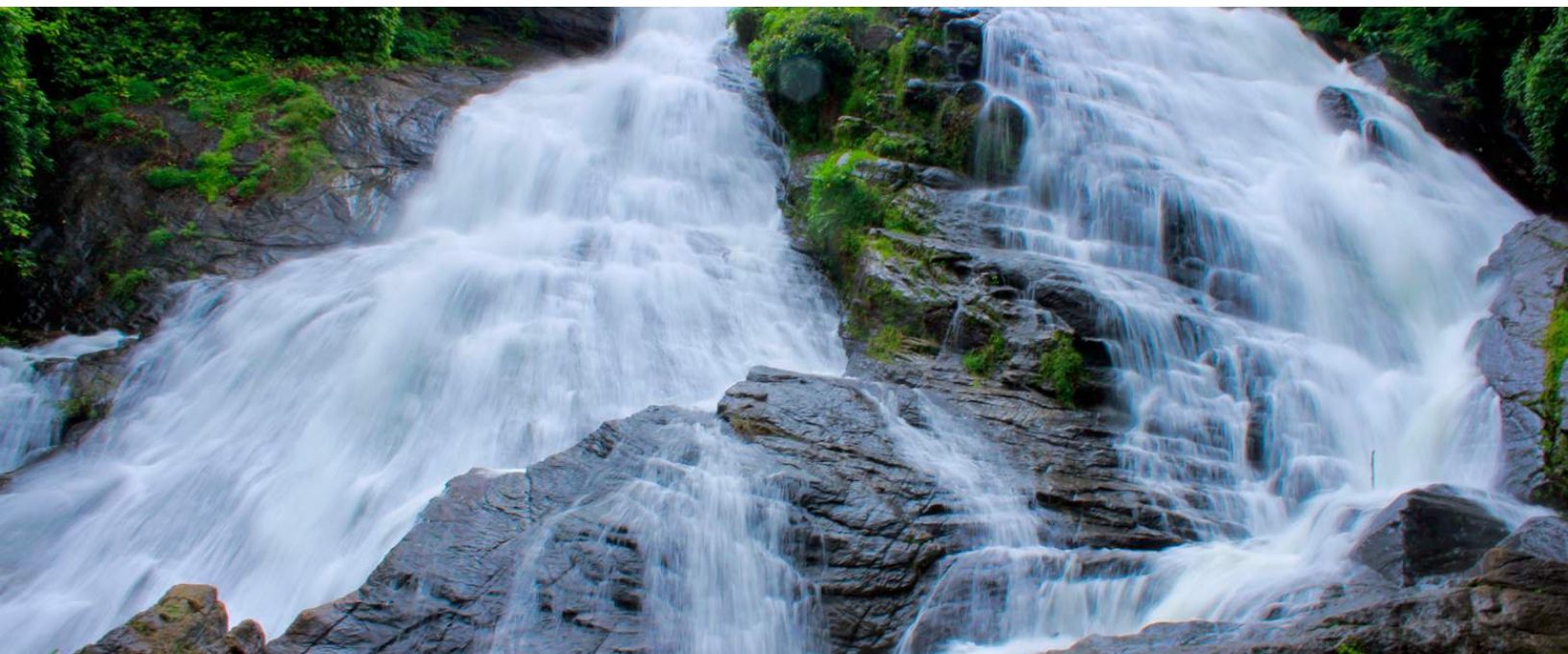
**BLACK** in **BASE** and  
around **BALL** -  
Combination of  
aerobic(**BT**) and  
anaerobic(**BB**) SRB.



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.**



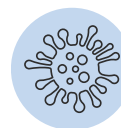


## Premium Zentec™ Hybrid Capsulate Enhanced Ozone Chemical-Free Iron, Sulphur, and Manganese Filter

The Premium Zentec™ Enhanced Ozone Capsulate Filter utilizes a high-capacity corona discharge ozone injection to eliminate up to 8 ppm of iron, sulphur, and manganese from your water supply, and up to 8ppm of iron and sulphur bacteria. Enjoy filtered water in your home; free from unwanted smells, odors, iron and sulphur bacteria, and manganese.



Iron, manganese and sulphur removal up to 8 ppm



Iron/Sulphur bacteria removal up to 8 ppm



Chemical-free system



Needs very little electrical power to operate



Includes ozone injection system

**20 YEAR  
FILTER  
WARRANTY**



Adjustable time cycles for best results

**3 YR  
OZONE  
GENERATOR  
WARRANTY**



### Air Blocker

The air blocker holds water in special chambers, stopping air from reaching the control valve and helping prevent rust buildup. This helps the system last longer.



Part #	Flow Rate (gpm)	Pressure (psi)	Temperature (°F)	L x W x H (in)
EWS BTPZC1EOP	8 GPM	40-110	40-110	10" x 17" x 62"
EWS BTPZC1.5EOP	12 GPM	40-110	40-110	12" x 20" x 60"
EWS BTPZC2EOP	16 GPM	40-110	40-110	13" x 22" x 62"

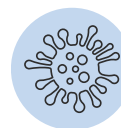


## Superior Zentec™ Hybrid Capsulate Enhanced Ozone Chemical-Free Iron, Sulphur, and Manganese Filter

The Superior Zentec™ Enhanced Ozone Capsulate Filter utilizes a corona discharge ozone injection to eliminate up to 5 ppm of iron, sulphur, and manganese from your water supply, and up to 5 ppm of iron and sulphur bacteria. Enjoy filtered water in your home; free from unwanted smells, odors, iron and sulphur bacteria, and manganese.



Iron, manganese and sulphur removal up to 5 ppm



Iron/Sulphur bacteria removal up to 5 ppm



Chemical-free system



Needs very little electrical power to operate



Includes ozone injection system



Adjustable time cycles for best results



### Air Blocker

The air blocker holds water in special chambers, stopping air from reaching the control valve and helping prevent rust buildup. This helps the system last longer.



**12 YEAR UNLIMITED WARRANTY**

**3 YR OZONE GENERATOR WARRANTY**



### Optional:

High-capacity ozone generator for up to 8 ppm of iron, sulphur, and manganese removal.

Part #	Flow Rate (gpm)	Pressure (psi)	Temperature (°F)	L x W x H (in)
EWS BTSZC1EO	8 GPM	40-110	40-110	10" x 17" x 62"
EWS BTSZC1.5EO	12 GPM	40-110	40-110	12" x 20" x 60"
EWS BTSZC2EO	16 GPM	40-110	40-110	13" x 22" x 62"



## EXCALIBUR WATER SYSTEMS INC.

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