

WATER  
TREATMENT  
COMPANY



# **WATCH<sup>®</sup>** **WATCH WATER** *a Water Company*

2019 Edition

## **PRODUCT CATALOG (Extended)** **WATCH WATER, GERMANY**

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**40+**

Years' of Experience

# Hello !

## Welcome to Watch Water's world of Water Treatment

*We offer world class water treatment products and keen on building long term satisfactions and commitments with our customers. We have multiple branches worldwide working throughout North and South America, Europe, Asia, Africa and Australia. We help our customers to learn Green Chemistry and save millions of dollars every year. The key factor in Watch Water's success story is developing new products to meet new standards and regulations.*



■ Watch Water Germany  
(Headquarter)

■ Watch Water branches and  
Distributor

**“Watch-Water® GmbH, Germany  
Water Technologies and Chemicals”**

## Expert in Contaminants Removal



MEMBER  Water Quality



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# FILTERSORB® SP3

## Scale Prevention Media based on NAC Technology

Watch Water® core motivation for developing this product was to find an alternative to conventional ion exchange based water softeners, reverse osmosis or other chemical based systems that prevent scale.

Recent restrictions placed upon the above mentioned technology lead to an environment friendly, cost effective solution for hard water, Watch Water® FILTERSORB® SP3. FILTERSORB® SP3 completely takes care of the primary cause of scale forming cations viz.  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$ .



FILTERSORB® SP3 is the result of extensive research work along with its undisputable success in the market Worldwide since 2005.



## WORKING PRINCIPLE

When the hard water under goes nucleation in the pressure vessel, the calcium bicarbonate  $\text{Ca}(\text{HCO}_3)_2$  is transformed into aragonite form of calcium carbonate  $\text{CaCO}_3$  crystals. These crystals are formed through decomposition and crystallization process, forming very stable harmless crystals.

The following equation describes the reaction that occurs inside the pressure vessel when flow over grains of nucleation.



The name fragment “SP (Scale Prevention) 3” is to indicate this unique transformation of water hardness  $\text{Ca}(\text{HCO}_3)_2$  into 3 components viz.

1)  $\text{CaCO}_3$  (micro-crystals)

2)  $\text{CO}_2$  (colloid)

3)  $\text{H}_2\text{O}$  (pure)

In the pressure vessel, the equilibrium of carbonate species in water is changed, assisted by the driving force of stable crystal formation and therefore the reaction is pushed to the right →. With this technology, as long as  $\text{CO}_2$  is being removed the soluble  $\text{Ca}(\text{HCO}_3)_2$  converts into insoluble calcium carbonate ( $\text{CaCO}_3$ ) crystals.

The calcium carbonate crystals grow steadily. They are **very stable** and **cannot dissolve** (incapable of forming scale) in the water.

Glass grains crystallization sites provide **increased nucleation sites** for the formation of submicron sized  $\text{CaCO}_3$  crystals. Hence this amazing process is called **NUCLEATION ASSISTED CRYSTALLIZATION**.



### FEATURES

- 5 – 7 years media life
- Nucleation Assisted Crystallization (NAC)
- Best Quality Drinking Water Green Technology!

## APPLICATION

### Home appliances:

Faucets, water pipes, shower heads, shower cabins, toilets. All beverage systems, kitchen machines, dish washers, ice cubes, compact washers and dryers.

### Major appliances:

Central heating, air conditioners, water heaters, air humidifiers, coffee and tea makers, solar heating systems, water coolers.

### Boilers:

Hot water boilers, central heating boilers, combo boilers, catering water boilers, boilers and pool heaters, commercial water heaters, industrial hot water boilers.

### Cooling towers:

Closed circuit cooling towers, open circuit cooling towers, concrete cooling towers, cross flow cooling towers.

### Industrial appliances:

Winery, Car Washing, Dairy Processing, Food & Beverages, Injection Moulding, Irrigation, Nurseries, Reverse Osmosis pre-treatment etc.

### Other applications:

Irrigation, Swimming pools and SPA, Dairy Processing, Winery and Beverages, Planting and Gardening, Automobile Washing, Hotel, Restaurants and Institutions, Coffee and Tea-machines, Vending appliances, and many more...

## Physical Characteristics

Appearance	White / opaque solid granules	
Composition	modified ceramic beads	
Bulk density	SI	780 kg/m <sup>3</sup>
	US	48.7 lb / ft <sup>3</sup>
Particle size	SI	0.55 – 0.75 mm
	US	20 x 35
Moisture content	10 – 25 %	

## ADVANTAGES

- **No salt** required
- **No backwashing** required
- **No regeneration** cycle required
- No increase in sodium content in water
- Removes the previous scales of plumbing
- Catalytic process converts **Ca** and **Mg** into harmless micro crystals
- **Maintenance free.** No extra cost incurred.
- **No chemicals** required for disinfection
- **No electrical connections** required
- No drain connections required
- No control valves required
- Very easy to install
- Great savings against conventional salt based water softeners
- Provide the best quality healthy water without the addition of Sodium or Phosphates



Let us say Bye Bye to conventional water softener BY using our FILTERSORB technologies.

### CERTIFICATIONS:

- ✓ FILTERSORB® SP3 is certified under ANSI/NSF 61 from WQA, USA
- ✓ FILTERSORB® SP3 is BS 6920:2000 (British Standard, UK) certified.
- ✓ FILTERSORB® SP3 is tested to meet MSZ 448-36:1985 standard (Hungary).
- ✓ FILTERSORB® SP3 is certified from Department of Environmental Hygiene (Poland).
- ✓ FILTERSORB® SP3 Tested to meet WRAS (Water Regulations Advisory Scheme, British Standard, UK) Standard of Product Quality and High temperature



**FILTERSORB® SP3**



# FILTERSORB CT

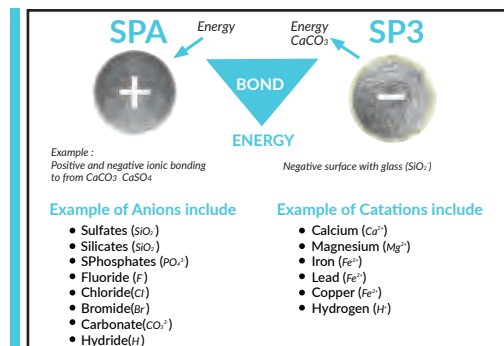
## Combined Treatment of Cationic and Anionic Scale ( Total Hardness )

The goal of **Watch-Water®** is to guide all customers in designing an accurate combined treatment system. There are a number of different technologies which are described as **combined treatment (CT)** used avoid scaling including the **Watch-Water® FILTERSORB® SP3**.

The goal of the designer of a **CT** combined treatment system is to ensure that the correct **water quality and quantity** is delivered with optimized tank, head and distributors. The optimum design depends on the relating Importance of water parameters.



FILTERSORB®CT is the best way to treat both anions as well as cations in hard water which can provide safe treatment of scale with 100 times more power.



## FILTERSORB® CT is a Nucleation and Exothermic Combination

### Problem

The formation of heavy deposits of calcium and magnesium, silicate and sulfate scale has become a major operational problem for domestic, industrial and all commercial applications. Scale formation combined with silicate and sulfate ions in the well water, seawater is resistant to removal with acid. The scales formed are of such low solubility that occurred and deposition cannot be cleaned. If not treated with **FILTERSORB® CT**, this scale can rapidly lead to severe productivity impairment.

**CT** = Combined Treatment of

- Carbonate scales
- Silicate and sulfate scales

**FILTERSORB®CT** is the best way to treat both anions as well as cations in hard water which can provide safe treatment of scale with 100 times more power.



### Nucleation

**FILTERSORB® SP3** works in a process of nucleation in which the media absorbs cations from its surroundings in the form of crystal and release  $\text{CO}_2$  in the form of gas → splitting a gas molecule. Example: photosynthesis.

**Result:** Calcium and Magnesium is absorbed from hard water on the surface and released into the form of  $\text{CaCO}_3$  crystals. Example: Evaporation or melting ice.

### Exothermic

**FILTERSORB® SP3** is an exothermic process in which the media separates the anions (negatively charged) from positively charged cations in the form of ionic bonds on the surface called EXO (outside) on very strong positively charged beads.

**Result:** Negatively charged energy is separated from water and released and joined them in a form of electricity. Example: Making ice, rusting iron or chemical bonds. These electrons keep switching directions and sometimes going behind the protons (cations) and then going "backwards".

## FEATURES



Scale Prevention



High Efficacy



No Salt



Water Softener



100 % Efficiency



#### Operational parameters & water impurities

Flow direction		Up Flow
Recommended operating time	SI US	5 – 80 °C 41 – 176 °F
ph range		6.5 – 9.5
Hardness, max.	SI US	1338 ppm (mg/l) 75 gpg
Salinity, max.		35000 ppm (mg/l)
Iron, max.		0.5 ppm (mg/l) *
Manganese, max.		0.05 ppm (mg/l)
Free chlorine, max.		3 ppm (mg/l)
Copper, max.		1.3 ppm (mg/l)
Oil		Free
Hydrogen sulfide		Free

**FILTERSORB® CT** is able to remove Iron from water with very high efficiency.

#### Uses of FILTERSORB® with alternating surfaces

The two types of **FILTERSORB®** units are **SP3** scale prevention and **SPA** anion scale prevention. **SP3** units prevent cationic scale based on positively charged ions such as calcium and magnesium and with nucleation it changes them into  $\text{CaCO}_3$  crystals. **SPA** units prevent scale based on negatively charged ions such as sulfates, silicates and phosphates (Calcium phosphate).

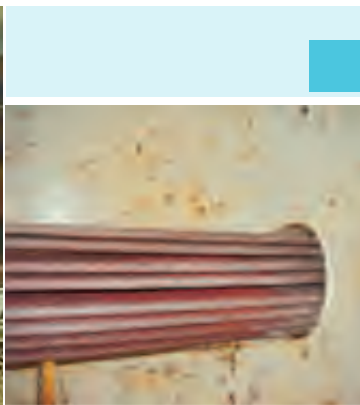
**FILTERSORB® CT** units prevent scale of both cations and anions, both positively and negatively charged ions. WatchWater® recommends a mix of 50 % **SP3** media and 50 % **SPA** media.

The **FILTERSORB®** systems do not need any regeneration, no chemical feed and no electrical valve head or waste water outlet. **FILTERSORB® CT** is a continuous up-flow system.

**FILTERSORB® CT** systems can treat both:

- Point-of-entry (POE)
- Point-of-use (POU)

These systems will reduce the scale of calcium, magnesium, sulfates, silicates including phosphates.



# ZEOSORB

## Absolute Replacement of Sand & Multimedia Filters

**ZEOSORB®** has been introduced to the process purification of drinking water and wastewater due to its large specific surface area and the selective adsorption of substances, such as ammonia, dissolved organic matter and many other cations. Moreover, **ZEOSORB®** has advantageous hydraulic properties, that is the filtration capacity of large quantities of water. Compared with other adsorbents, **ZEOSORB®** is more stable, has better filter features, accessible and relatively cheaper.

Based on numerous studies, it can be concluded that **ZEOSORB®** has great potential as effective adsorbent in numerous processes of purification of drinking water and wastewater, such as water softening, the removal of ammonia (from municipal wastewater, wastewater from livestock farms,

the barn manure, water from ponds and swimming pools), the removal of nitrogen, the removal of dissolved organic matter and color, the removal of heavy metals (from natural water, acid mine water, industrial wastewater), the removal of radioactive substances from wastewater, desalination seawater and many others.

**ZEOSORB®** performs as polyfunctional sorbent in the waste watertreatment process and it binds a number of harmful components. However, it does not possess the ability of anions adsorption due to negative charge of its aluminosilicate network. Superficial modification of **ZEOSORB®**, by means of organic modifiers, allows partial neutralization of negative charge of external surface of **ZEOSORB®** media.



APPLICATIONS	FEATURES	ADVANTAGES
<p>Superior Purification of</p> <ul style="list-style-type: none"> <li>• Drinking Water</li> <li>• Ground Water</li> <li>• Surface Water</li> <li>• Waste Water</li> <li>• Swimming pool Water</li> <li>• Reverse osmosis pre-filtration</li> </ul>	<ul style="list-style-type: none"> <li>• Saves Water</li> <li>• Doubles time between backwashes</li> <li>• Reduces backwash time by up to 50%</li> <li>• Naturally Green Product</li> <li>• High capacity filtration</li> </ul>	<ul style="list-style-type: none"> <li>• Greater Ammonia Adsorption</li> <li>• Reduces Turbidity &lt; 3 micron</li> <li>• Controls Chloramines formation</li> <li>• Greater Surface Area</li> <li>• Life Span: (10+ years)</li> </ul>

**Z**EOSORB is a high-purity filter media that  
**E**nsures many advantages  
**O**ver conventional granular  
**S**and, anthracite, multimedia and  
**O**ther filter media products for  
**R**emoval of suspended particles and Turbidity.  
**B**ackwash cycles and labor costs are reduced.

**WATCHER®**  
WATCH WATER  
*a Water Company*



**Watch Water® Filtration Technology**



## STRUCTURE AND PROPERTIES:

**ZEOSORB®** is a high purity natural Aluminosilicate microcrystalline mineral. It is available in many particle size of 0.5 - 1.0 mm or 1.5 - 2.5 mm . The bulk weight is about 820 kg/m<sup>3</sup>. **ZEOSORB®** made by **Watch Water®** has high porosity and high specific surface and it is resistant to abrasion. The **ZEOSORB®** media is classified as a GRAS (Generally Recognized As Safe) product. It is also listed under NSF standard 61 & German Trinkwasserverordnung (TVO) 2011.

Since the mid 2005, lab and field test data reports in the Europe have indicated that **ZEOSORB®** filtration media consistently outperformed sand, sand/anthracite and multimedia in both pressure vessels and gravity filtration tests.

Based on more than 100 lab. and field tests (2/3 using pressure vessels and 1/3 using gravity beds) since the mid 2005, representing commercial, residential and industrial water filtration projects, it has been concluded that high purity **ZEOSORB®** media is superior to conventional granular media. **ZEOSORB®** effectively removes fine particles in the range of 0.5 µm to 3 µm, that escape conventional media.

## Performance test data for pressure vessels

Filter Media	Filter rating (nominal)	Solids loading capacity
ZEOSORB® (18 x 35 mesh)	< 3 µm	~ 2.6x
Sand ( 20 x 40 mesh and Anthracite)	~ 20 µm	1x
Sand/Anthracite (20 x 40)	~ 15 µm	~ 1.4x
Multimedia	~ 12 µm	~ 1.6x



### Physical Properties

Filtration (nominal)	< 3 micron
Porosity	24 - 32 %
Particle Size	0.5-1.0 mm x 1.5-2.5 mm
Surface Area	>270 m <sup>2</sup> /gram
Mesh size	18 x 35 and 8 x 14
Color	Pale green/grey
Water Retention	Holds 50% of its weight
Surface Absorption	Hydrophilic
Packaging	30 liters in a bag; 40 bags in a pallet

### Filtration Performance

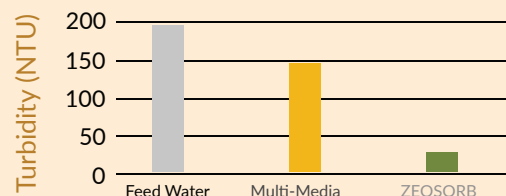
#### ZEOSORB®



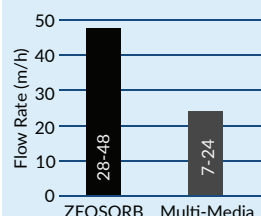
#### Multi-Media



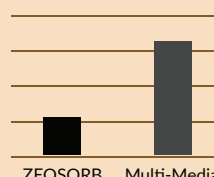
### Turbidity Reduction



### Service Flow Rate



### Media & System Cost



### Operation conditions and exchange capacity

Bed depth	Swimming Pool	400 - 1000 mm
	Other Applications	800 - 1200 mm
Freeboard		30 - 50 %
Service flow rate		20 - 48 m/h
Back wash flow rate		25 - 50 m/h
Cation exchange capacity		1.7 - 1.9 mg/g
Thermal Stability		Up to 600°C

# KATALYST-LIGHT®

Advanced Catalytic Filtration Media for Iron, Manganese and Hydrogen Sulfide Removal

**KATALYST LIGHT®** is a new brand of revolutionary advanced filtration media completely developed in Germany. It's composition simply makes it outstanding against the contemporary filter media available in water treatment industries, like sand, BIRM, Greensand Plus, Manganese Greensand etc. **KATALYST LIGHT®** is manufactured in Germany.

**KATALYST LIGHT®** is engineered with unique MnO<sub>2</sub> coating technique on **ZEOSORB®**, providing it light weight, higher filtration surface, more service life and more reliable performance (filtration down to 3 µm).

**KATALYST LIGHT®** is being used in numerous system for residential, commercial, industrial and municipal applications worldwide, for High level filtration, color and odor removal, Iron, Manganese, Hydrogen sulfide removal, efficient reduction of Arsenic, Zinc, Copper, Lead, Radium, Uranium and other radionuclides and heavy metals.



KATALYST LIGHT® is ANSI/NSF 61 Certified for drinking water applications and has met the ANSI/ NSF 372 Lead free compliance.



## WORKING PRINCIPLE

High concentration coating of MnO<sub>2</sub> on the **KATALYST LIGHT®** surface (10%) is the biggest advantage compared to any similar product available in the market. This makes the oxidation and co-precipitation of contaminants much more effective. For removal of very high concentration of contaminant it's recommended to use H<sub>2</sub>O<sub>2</sub> as an oxidizer, which provides accelerated catalytic oxidation on the surface of the media. Conventional oxidizing agents like chlorine or potassium permanganate also could be used if required.

**KATALYST LIGHT®** can be used for Arsenic, Radium, Uranium removal but in these cases there is requirement of Iron in the water. **KATALYST LIGHT®** system is designed with special iron dosing technology which has many advantages over Adsorbent media used for Heavy Metal removal.



### ADVANTAGES FEATURES

#### Filtration (≤ 3 µm) of:

- Total Suspended Solids
- Sediments
- Turbidity
- Organics
- Color (some, organic)
- Odor

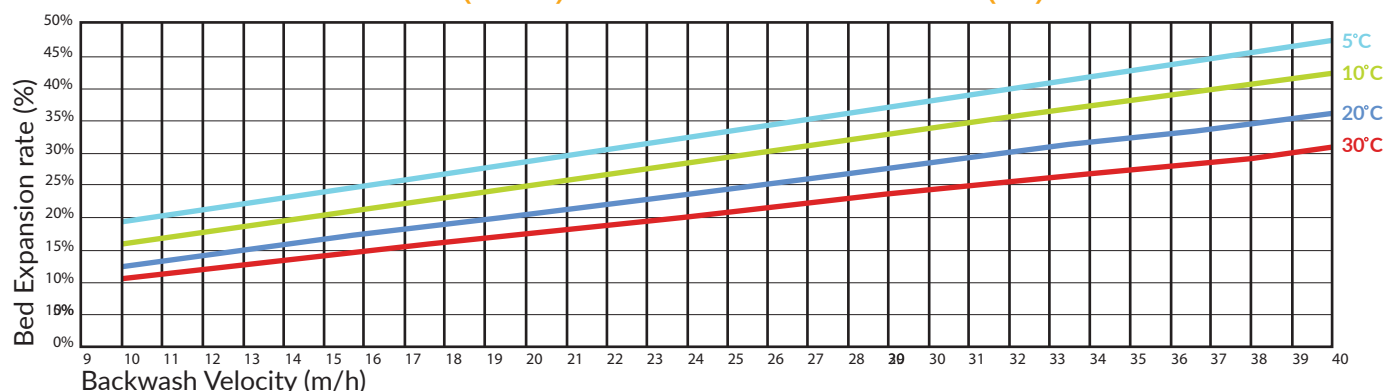
#### Removal of:

- Iron (Inlet conc. up to. 100 mg/L)
- Manganese (Inlet conc. up to 20 mg/L)
- Arsenic
- Hydrogen sulfide
- Uranium, Radium
- Heavy Metals
- Radionuclide

- High content MnO<sub>2</sub> coating (10%)
- Very High Surface Area
- Contains NO Crystalline Silica
- Light Weight - providing significant savings on backwash water
- Effective reduction of Arsenic, Zinc, Copper, Lead, Radium, Uranium, radionuclides and other heavy metals
- Filtration of sand, sediment and suspended solids, down to 3 micron

- High removal capacity of Iron, Manganese and Hydrogen sulfide
- Higher Filtration rates
- Media replacement every 7 - 10 years
- No disinfection by-product
- No mandatory KMnO<sub>4</sub>, chlorine or chlorine dioxide dosing
- Low operational costs
- Unique product, unmatched by our Competitors

## BACKWASH VELOCITY (m/h) VS. BED EXPANSION (%)



Standard systems are designed with a filtration velocity of 20 m/h (8.2 gpm/ft<sup>2</sup>) to provide a good filtration. This value may differ for advanced application like Arsenic, Radium, Uranium and other Heavy Metal removal where co-precipitation process requires higher contact time thus lower filtration velocity. Running the system at higher velocity may compromise the filtration performance.

Virtually there is no flow rate limitations for **KATALYST LIGHT®** systems as **KATALYST LIGHT®** units can be configured in parallel to address industrial high flow requirements.



KL System with simple Manual Control

KL System with full Automatic Control



## Physical Properties

Appearance	Granular black beads	
Odor	None	
Mesh size	US	14 x 30
	SI	0.6 - 1.4 mm
Uniformity Coefficient for H <sub>2</sub> S alone	≤ 1.75	
Bulk density	US	66 lb./ft <sup>3</sup>
	SI	1060 kg/m <sup>3</sup>
Moisture Content	< 0.5 % as shipped	
Filtration	< 3 micron	
Loading Capacity	for Fe <sub>2+</sub> alone	3000 mg/l 85000 mg/ft <sup>3</sup> (aprx)
	for Mn <sub>2+</sub> alone	1500 mg/l 42500 mg/ft <sup>3</sup> (aprx)
	for H <sub>2</sub> S alone	500 mg/l
		14000 mg/ft <sup>3</sup> (aprx)

## Recommended System Operating Conditions

Inlet water pH	5.8 - 10.5	
Freeboard	40%	
Minimal Bed Depth	US	29.5 inches
	SI	75 cm
Optimal Bed Depth	US	47 inches
	SI	120 cm
Service flow	US	4 - 12 gpm/ft <sup>2</sup>
	SI	10 - 30 m/h
Backwash velocity**	US	10 - 12 gpm/ft <sup>2</sup>
	SI	25 - 30 m/h
Backwash time**	10 - 15 minutes	
	2 - 3 minutes	



# CRYSTOLITE

## Microfiltration Media, SDI Removal

As a global leader in absorbents technology and iron and manganese removal filtration, Watch Water® has developed a unique industrial water and waste water treatment filtration solution.

For microfiltration, **Crystolite™** filtration media (CFM) is very robust, long life, back washable filter media. **Crystolite™** filtration media meets the needs of all industrial, municipal, residential and water reuse for any application. This unique, high-capacity media is designed to reduce the waste of expensive cartridges and plastic filter housings.

**Crystolite™** filtration media is an excellent alternative to all microfiltration membranes.

## WORKING PRINCIPLE TECHNOLOGY

Using **Crystolite™** media in a pressure vessel to provide a microfiltration effect, the **Crystolite™** media allows the water to flow through the top distributor on the top of media layer, when suspended solids are held on the highest surface area of the media allows only clean water to flow through the **Crystolite™** media. As a result, **Crystolite™** can be used to filter down 0.5 microns without clogging. It allows all suspended solids to accumulate on the surface of the **Crystolite™** media and are easily backwashed to drain.

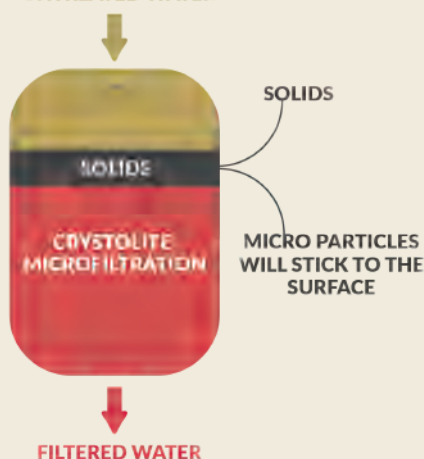
The system can be designed either manual backwash or by using automatic backwash cycle, the backwash cycle is maximum 10 minutes which uses 80% less water than any traditional anthracite or multimedia filters, it is because 90% of the solids are captured on surface and not inside of the **Crystolite™** media-bed. This results if the High-tech filtration that can filter solids and particles down to submicron levels at 10 to 15 times the flow rate of all traditional filters. Backwash water reduction is up to 80%.

## APPLICATIONS

- Ammonia removal
- Trace heavy metal removal
- Pretreatment of RO & RO reclaim
- Power stations
- Steel and iron mills
- Zero blown down
- High solids waste water
- Zero blown down
  - o Cooling towers
  - o Boiler water
- Swimming pools
- Circulation plants for
  - o Plating processes
  - o Printed circuit



UNTREATED WATER



## Crystolite™ System

- High filtration rates
- Resistance to heavy metals
- Continuous operation and performance
- Easy operation, maintenance & control
- Lifespan is 10-15 years
- pH environments from 3 to 12
- High temperatures up to 80°C

## Technical Data

Base material	Iron oxide based minerals	
Appearance	reddish crystalline granule	
Grain size	US	14 x 30
	SI	0.6 - 1.4 mm
Bulk density	US	65.5 lb. / ft <sup>3</sup>
	SI	1050 kg / m <sup>3</sup>
Flow direction	Down-flow or Up-flow	
Inlet water pH		
Freeboard (downflow)	40%	
Min. Bed Depth	US	29.5 inches
	SI	75 cm
Optimal Bed. Depth	US	47 inches
	SI	120 cm
Service flow	US	6 - 12 gpm/ ft <sup>2</sup>
	SI	15 - 30 m/h
Backwash velocity	US	8 - 10 gpm/ ft <sup>2</sup>
	SI	20 - 25 m/h
Backwash time	5 -10 minutes	
Rinse time	1 - 2 minutes	

# ACTIVESORB® CX

## Coconut Shell Activated Carbon

**ACTIVESORB® CX** is a catalytic, high activity **granular activated carbon** manufactured by steam activation of selected coconut shells. The catalytic activity of this activated carbon makes it highly effective for the removal of chloramines and hydrogen sulfide from potable water. Its large micropore volume makes it particularly well suited for the removal of low molecular weight organic compounds and their chlorinated by-products such as chloramines and other **trihalomethanes (THMs)**. An important feature of this material is its superior mechanical hardness and the extensive dedusting during its manufacture ensures an exceptionally clean activated carbon product.

This **granular activated carbon** is used for water treatment applications in fixed bed media filters. It is used for **removal of taste, odor, chlorine, and dissolved organic contaminants** from potable and process water. It is also used in DM plant filters, Tap water filters, Desalination plants, and Aquariums.



### FEATURES AND BENEFITS

- ★ Catalytic activity
- ★ Large & extensive internal pore structure
- ★ Optimized density
- ★ Maximum hardness
- ★ Low dust and turbidity
- ★ Excellent adsorption capacity
- ★ High volume activity
- ★ Rapid dechlorination
- ★ Low filtered water turbidity

### APPLICATIONS

- ★ Municipal drinking water treatment
- ★ Point of Entry (POE) / Point of Use (POU)
- ★ Beverage Production
- ★ Protection of ion exchange resins from chloramines.

### Typical Properties

Mesh Size	8x30 (0.600 -2.36 mm)
Surface Area (BET)	1100 m <sup>2</sup> /g
Apparent Density	522 kg/m <sup>3</sup>
Bulk Density	525 - 540 kg/m <sup>3</sup>
pH	9 -11

### STANDARD PACKAGING

25 kg bag

500 kg bulk bag

Other packing considered upon request



# CATALYTIC CARBON

## Adsorption And Desorption Media

Watch Water® CATALYTIC CARBON® is made of coconut shells. Carbon from coconut shell is the most effective form. Activated Carbon used in CATALYTIC CARBON® systems is a Granulated Activated Carbon (GAC). Advanced Carbon technology (CATALYTIC CARBON® by Watch Water® is (highly activated) by coating a positive (+) charge

which enhances the adsorption of contaminants that have negative charge. CATALYTIC CARBON® made by Watch Water® is an advanced Activated Carbon product designed to adsorb very high level of chloramines. Chloramines replace chlorine in the disinfection process and form Trihalomethanes (THMs) – a cancer causing substance.



### Description of CATALYTIC CARBON®

- CATALYTIC CARBON® is **Coconut carbon**
- CATALYTIC CARBON® is tested to meet NSF 61 Standard
- CATALYTIC CARBON® is **Catalyzed with Iron** ("Catalytic Structure")
- Iron Catalyst has the **highest Oxidation and Adsorption pores** "Inside as well as Outside the Activated Carbon"
- Surface of CATALYTIC CARBON® ranging from 2000 m<sup>2</sup>/g to 2500 m<sup>2</sup>/g



### Removal of:

- Suspended Solids ≤ 1 micron
- Humic Substances (organics)
- Tannins and Lignin
- Color and Odor
- Hydrogen sulfide (H<sub>2</sub>S)
- Chloramines
- Trihalomethanes (THMs)
- Phenols and p-nitro phenol
- All kind of Dyes
- Heavy Metals (inorganic)
- Including Arsenate, Arsenide, Chromium, Copper, Cyanide, Fluoride, Lead, Mercury and Selenium

## WORKING PRINCIPLE

CATALYTIC CARBON® offers better than any applied conventional method a way to remove humic substances which generates a large volume of wastewater. Using Watch Water® CATALYTIC CARBON® coated with iron-hydroxide, has huge capacity for humic substances, phosphates, copper and many other heavy metals (read on page one). Humic substances are negatively charged at circumneutral pH conditions due to prevalence of carboxyl and phenol groups on their surface. Adsorption of humic substances, however is possible on surface chemistry, surface modification of activated carbon with iron-hydroxide coating that generates very strong positively charged CATALYTIC CARBON® – leading to the most favorable surface interactions between them.

Finally a simple and safe method that removes contaminants from any kind of water and waste water.



## System design with Watch Water<sup>®</sup> CATALYTIC CARBON<sup>®</sup>

Standard filtration rate is recommended to set at max. 40 BV / hour to provide 90 seconds contact time (recommended minimum) to yield good results. Required filtration rate varies according to

the inlet water constituent. Pilot test is recommended for industrial applications, wastewater treatment and other critical waters. The table below to realize the expected water quality from different filtration rate:

Flow rate	Filtration rate	Bed contact time	CC media	Outlet water quality
1 m <sup>3</sup> /h	40 Bed-Volume/h*	90 seconds	25 liters	Satisfactory
	30 Bed-Volume/h**	120 seconds	33 liters	Very Good
	≤ 20 Bed-Volume/h	180 seconds	50 liters	Best

### PHYSICAL PROPERTIES

Specification	Value
Appearance	Coarse granule
Color	Dark red
Particle size	0.6 – 2.4 mm
Mesh size (US)	8 x 30
Surface area (BET)	2000 – 2500 m <sup>2</sup> /g
Moisture Content	5 % (max.)
Ball pen hardness	98 % (min.)
Bulk density	630 – 640 kg/m <sup>3</sup>
pH	9.5
Expected service life	2 – 5 years *
Multiple regeneration	Yes **

### OPERATING CONDITIONS

Flow direction	Can be designed both up-flow (packed bed) and down-flow
System freeboard (down-flow)	25 – 35 %
Filtration rate	10 – 30 Bv/h (max. 40 Bv/h)
Backwash velocity	10 – 20 m/h
Bed depth	80 – 100 cm (max. 120 cm)
EBCT	≥ 90 seconds
Standard packing	60 liters (38 kg) in a drum, 18 drums on a pallet

\* Depending on the contamination load and regeneration frequency

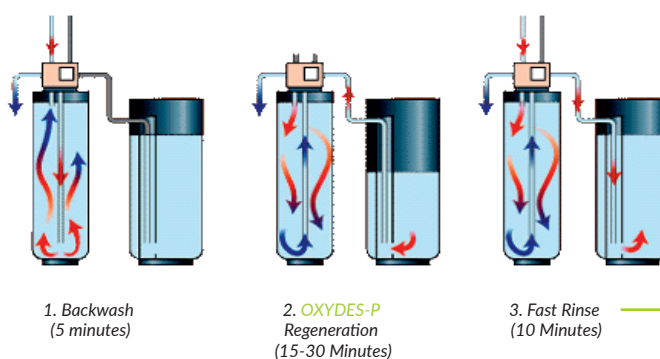
\*\* CATALYTIC CARBON<sup>®</sup> can be regenerated using OXYDES-P depending on the loaded contaminants

### Regeneration of Spent Catalytic Carbon<sup>®</sup>

Superoxide Systems a very simple a) Brine Tank with b) Brine Wall and a control valve, same as water softener, can be used to apply this very unique technology to Regenerate contaminated CATALYTIC CARBON<sup>®</sup> and reactivate it up to 99%. **Desorption and Destruction of all organics and adsorbed heavy metals can be achieved by 1% strength solution of OXYDES-P (Catalyzed Super Oxide).** Catalyzed Super Oxide reactions are based on Fenton's like reaction which generates hydroxyl radicals (\*OH). These Hydroxyl radicals are so strong that it oxidizes all possible organics from the surface of Activated Carbon.

CATALYTIC CARBON<sup>®</sup> is re-activated and is like brand new Carbon the total amount of regeneration is as the following cycles:

1. Backwash – 5 minutes
2. Suction of regenerator (OXYDES-P) – 15 minutes
3. Fast rinse – 10 minutes
4. Back to service



**NOTE:** The regeneration is every six month and the solution is prepared fresh just before the regeneration.

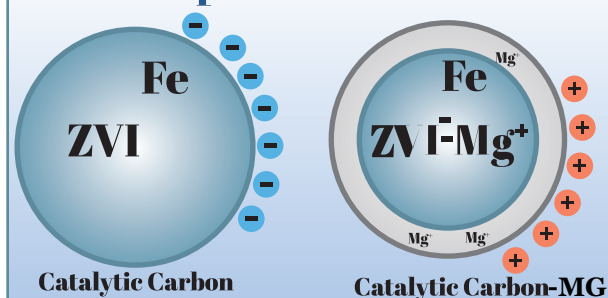
OXYDES-P can be used for regenerating also for normal Activated Carbon media.

# CATALYTIC CARBON MG

## Magnesium Coated Activated Carbon

Watch Water® adsorption treatment technologies including **SuperOxy** is an **Advanced Oxidation Processes (AOPs)**, photolysis and use of **Zero Valent Iron (ZVI)** activated carbon with **MGO surface** is the solution for direct degradation of **PFCs** and removal of **PFOA** equal to 95% using sulfate radicals and photolysis of regenerated concentrate. **SuperOxy** can effectively degrade **perfluoro carboxylic acids (PFCAs)** to fluoride ions and carbon dioxide. In recent years **Catalytic Carbon (ZVI)** has emerged as one of most innovative technology for the removal of most difficult environmental pollutants through reduction regeneration mechanism. The high reactivity of **catalytic carbon** is due to the high surface area and its very high **negative (-) surface** for cation's. For this reason, **Watch Water®** has created a new stable adsorber by attaching stabilized molecules onto **ZVI** particles **MgZVI/AC**.

### Graphical Abstract



## ADSORPTION AND RECOVERY

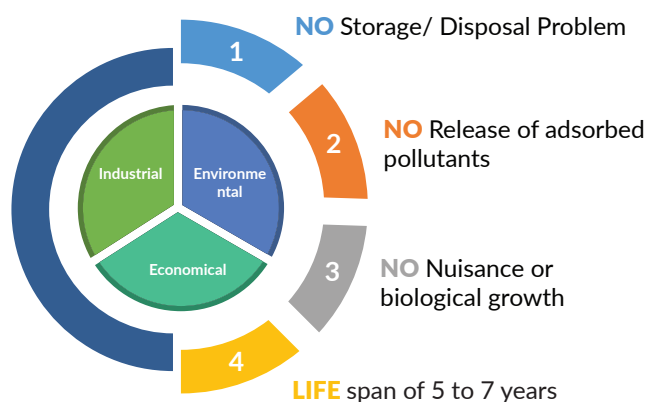
An adsorption process of **Catalytic Carbon-MG** has extremely high adsorption capacity of **C2-C6-C8** fluorine containing compounds and can be adsorbed without any morphological change. Therefore, by the use of adsorption Catalytic Carbon MG; and desorption process using **SuperOxy** all adsorbed substances can be recycled or destroyed using **solar energy**. Water or wastewater containing **C2-C6-C8** fluorine-containing compounds is passed through a pressure vessel with the **Catalytic Carbon-MG** to adsorb **PFOA**, **PFHA** & **PFOS** and the water at outlet is without fluorine-containing compounds.

## REGENERATION

Regeneration with **SuperOxy** means reactivation of adsorber and destruction of adsorbate with strong Oxidation. Regeneration can be explained as combination of **Desorption and Activation** of adsorber with **SuperOxy**. Regeneration process can be carried onsite and using **SuperOxy** any Adsorber or any Activated Carbon can be reactivated for multiple uses. **SuperOxy** has solved the problems of discarding spent adsorbents.



## Benefits of Regeneration



## APPLICATIONS



Residential



Commercial



Industrial

### Using Catalytic Carbon-MG, removal of

- ★ Perfluorooctanoic Acid (PFOA)
- ★ Perfluorinated Carboxylic Acids (PFCAs) with Great Hydrophobic character
- ★ Fluorosurfactant fluorinated substances
- ★ Perfluorinated Alkylated substances PFASs

# ACTIVESORB® AG

## Silver Impregnated Activated Carbon

**ACTIVESORB® AG** is a **silver-impregnated** coconut shell based granular activated carbon specifically designed and made for **bacteriostatic properties** that avoids **microorganism growth** inside purifiers and trace removal. It is a catalytic, high activity granular activated carbon manufactured by steam activation of selected coconut shells under rigidly controlled conditions.

**ACTIVESORB® AG** was designed to avoid bacterial growth and can be used in wide variety of applications and the antimicrobial properties of silver impregnated on the carbon makes especially valuable in most water purification applications where bacterial growth on filter media can become an issue. It is recommended when microorganism growth presents.

The silver impregnation of carbon **ACTIVESORB® AG** imparts bacteriostatic properties that inhibit bacterial growth on the carbon filter media. Silver exhibits a self-sterilizing property called the **oligodynamic** effect that is recognized as an effective method for controlling microbial growth in drinking water.



### Features and Benefits

- ◆ Antimicrobial (with bacteriostatic properties)
- ◆ Extensive internal surface
- ◆ Predominance of micropores
- ◆ Improves taste and odour of water.
- ◆ Optimized density
- ◆ Maximum hardness
- ◆ Low dust and turbidity
- ◆ Excellent adsorption capacity
- ◆ High volume activity
- ◆ Rapid Dechlorination
- ◆ Low filtered water turbidity

### Applications



Point-of-Entry  
(POE)



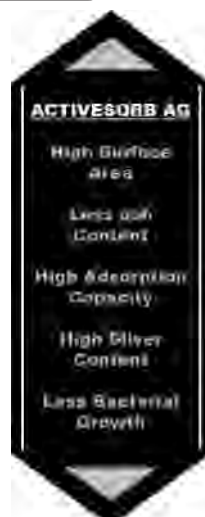
Point-of-Use  
(POU)



Pharmaceutical steam  
purification

### Standard Packaging

Iodine Adsorption	min. 1100 mg/g
Moisture content,	as packed max. 3%
Total ash content	max. 4%
Ball-pan hardness	min. 98%
CTC activity	min. 55%
Silver Content	0.01/ 0.05%



***"The Best Solution to  
Avoid Bacterial Growth"***



# FERROLOX-X

## Metal Organic Frameworks Technology

Watch-Water® have developed Metal Organic Framework (MOF) based Adsorbent that can selectively capture soluble **organic, inorganic & heavy metals** in water. This water is passed through granules which have carbon core surround-ed by a Hematite ferrite shell. It has the highest Adsorption capacity. **FERROLOX-X** is applied in a very simple passive pump and treat system applying the technology of **Fixed Bed Adsorption**.

**Rapid, Selective Heavy Metal Removed From Water by a Metal-Organic- Framework**

## WORKING PRINCIPLE

Since the adsorption process is a surface process. Only the surface area of the adsorbent is of great importance. **FERROLOX-X** internal surface area is consisting of **70% Mesopores** and **20% Macropores** and only **10% micropores**. The macropores and mesopores are primarily relevant for the mass transfer into the internal pores of the **FERROLOX-X** granules. **FERROLOX-X** surface is covered with surface OH groups. These groups are subject to



And it all depends on the pH value of the polluted water. **Symbol S** stands for the surface of the solid material. In simple words the surface is positively charged at **LOW** pH values and negatively charged at **HIGH** pH values. The adsorption of **Cation's** increases with **increasing pH**, where as the adsorption of **Anions** increases with **decreasing pH**.

## REMOVAL OF :



Arsenic



Phosphates



Copper



Chromium



Hydrogen Sulfide



Selenium (IV & VI)

The reason we are using the MOFs, the rare coal itself is because the heavy metals are tied up in such a way that they are easy to get out.



## Comparison

	Granular Ferric Hydroxide	Titanium Dioxide	Activated Carbon	Metal Organic Frameworks
	Based Adsorber	Based Adsorber	Based Adsorber	<b>Ferrolox - x Based Adsorber</b>
Surface Area	250 - 300 m <sup>2</sup> /g	400 - 600 m <sup>2</sup> /g	1000 - 1250 m <sup>2</sup> /g	<b>Up to 5000 m<sup>2</sup>/g</b>
Structure	Crystalline	Crystalline	Crystalline	<b>Meso Porous</b>
Pore Size	0.3 - 1.0 nm	0.3 - 3.0 nm	0.3 - 5.0 nm	<b>0.3 - 10.0 nm</b>
Pore Size	Narrow	Narrow	Broad	<b>Narrow</b>
Molecular Tunability	Low	Low	Very Large	<b>Large</b>
Particle Size	0.2 - 2.0 mm	0.6 - 2.0 mm	0.6 - 2.0 mm	<b>0.5- 2.0 mm</b>

## APPLICATIONS

Drinking Water

Surface water

Waste water

Reverse Osmosis

Well Water

Sea water

Aquariums

Concentrated Contaminants

### Operating Parameters

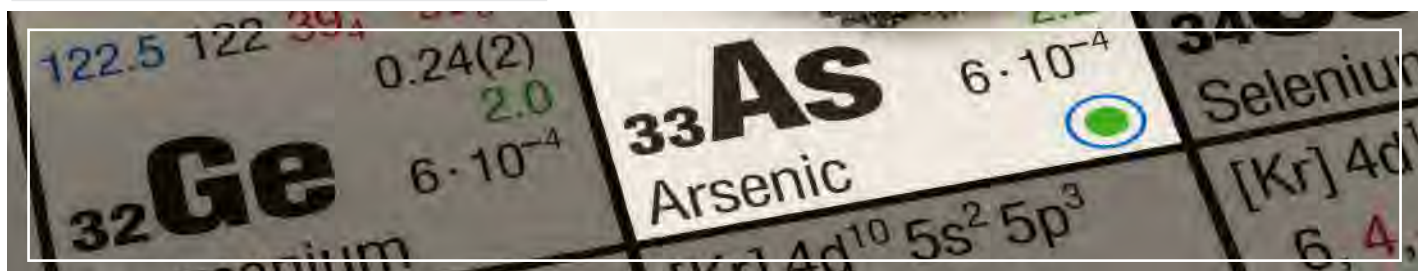
Flow Direction	Down Flow	
Freeboard	40%	
pH	5 – 9	
Minimal Bed Depth	US SI	31.5 inch 80 cm
Optimal Bed Depth	US SI	47 inch 120 cm
Service Velocity	US SI	6 – 12 gpm/ft <sup>2</sup> 15 – 30 m/h
Backwash Velocity	US SI	10 – 12 gpm/ft <sup>2</sup> 25 – 30 m/h

Loaded **FERROLOX-X** Adsorber can be regenerated by using **SOLAROXY-3C**



Watch Water® has developed a process that combines the benefits of (MOF) adsorption and oxidation: Adsorption coupled with **Solaroxy-3C**

**“It’s an amazing breakthrough for  
Science and Water treatment industry”  
For more information please see SolarOxy-3C**



## FERROLOX-XG

Carbon based Metal-Organic-Frameworks



### Operating Parameters

Inlet H <sub>2</sub> S Concentration	50 mg/l to 15000 mg/l	
Bed height	Min: 0.5 m Max: 12 m	
Pressure loss in filter bed	< 1 to 15 mbar depending upon bed height and granule size	
Pressure range	No pressure – ca. 25 bar overpressure	
Backwash Velocity	US	10 – 12 gpm/ft <sup>2</sup>
Relative gas moisture	Min:	40 %
	Optimal:	60 % - 80 %

Carbon based Metal-Organic-Frameworks to remove troublesome impurities from gases

Removing the troublesome and highly toxic impurities of Hydrogen Sulfide (H<sub>2</sub>S) and Carbon dioxide (CO<sub>2</sub>) from gases has become so simple and highly effective using a Metal (Iron Hydroxide) Organic (Carbon) Framework (MOF) developed by **Watch Water Germany**.

Upgrading gases with **FERROLOX-XG** could help the entire world to make greater and cleaner use of gases including natural gas supplies, which can contain high level of toxic impurities. **FERROLOX-XG** can be used to clean natural gases and other industrial gases containing H<sub>2</sub>S and CO<sub>2</sub> worldwide to reap potentially large environmental and economic benefits.

**Adsorb List** →

NO  
NO<sub>2</sub>  
(N<sub>2</sub>O<sub>4</sub>)  
N<sub>2</sub>O  
CO  
CS<sub>2</sub>  
CO<sub>2</sub>  
SO<sub>2</sub>  
H<sub>2</sub>S  
(CH<sub>3</sub>)<sub>2</sub>S  
NH<sub>3</sub>  
HCN  
CNCL  
PH<sub>3</sub>  
AsH<sub>3</sub>  
C<sub>6</sub>H<sub>12</sub>  
C<sub>6</sub>H<sub>6</sub>  
Ni (CO)<sub>4</sub>  
B<sub>2</sub>H<sub>6</sub>  
F<sub>2</sub>  
Cl<sub>2</sub>  
O<sub>3</sub>  
BV<sub>2</sub>  
I<sub>2</sub>  
COCL<sub>2</sub>  
S(C<sub>2</sub>H<sub>4</sub>Cl)<sub>2</sub>  
POFCH<sub>3</sub>  
(OC<sub>3</sub>H<sub>7</sub>)  
C<sub>11</sub>H<sub>26</sub>NO<sub>2</sub>P



# TITANSORB

## Titanium Dioxide Based High Capacity Absorbent Media

Titanium dioxide is a widely available compound that can be mined from minerals in the ground and is commonly found in food as whitening additives and in sunblock products. **TITANSORB™** a new advanced Wonder Adsorbent that can remove Arsenic, Cadmium, Copper, Chromium (VI), Lead, Selenium and many other heavy metals and produces Clean-Water. With its superior bacteria killing capabilities, it can also be used to kill bacteria in water. **Watch-Water®** have succeeded in developing a high capacity, revolutionary Adsorbent that can do all the above mentioned at very low cost compared to other Titanium dioxide based existing technology.

The breakthrough, which has taken **Watch-Water®** five years to develop the Double Capacity Titanium dioxide crystals into Patented Adsorbent. **TITANSORB™**, such a low cost Adsorbent is expected to have immense potential to help tackle ongoing Global Adsorbent Market in Arsenic and Environmental issues of Arsenic Removal.

Patented **TITANSORB™** media used for commercial, municipal, bottle water, mineral water is capable of removing arsenic, selenium, uranium, radium, molybdenum, nickel and other heavy metals. **TITANSORB™** has several advantages to existing adsorbents based on aluminum or iron hydroxide medias. **TITANSORB™** has the fastest mass transfer kinetics, and this results in very short EBCT'S. Lower the EBCT, lower the capital cost of the equipment. EBCT of 30 seconds is absolutely acceptable for of **TITANSORB™**. Granules of **TITANSORB™** are so strong that system almost has no pressure drop. Media is washed and results in no under mesh. **TITANSORB™** surface has very large pore sizes and large pores in **TITANSORB™** media permits rapid intra-particle mass transport, this allows for very short EBCT's of seconds instead of more minutes on every other existing adsorbents. Pressure vessel sizes are much smaller than the aluminium based or iron hydroxide based adsorbents.



## ARSENIC REMOVAL

If arsenic is detected above the new Maximum Contaminant Level (MCL) is 5 µg/l, watch this warning "Don't use this water for drinking, cooking, bathing, or in other consumption ways". At this time **Watch-Water®** recommends arsenic removal for residential, commercial, hospitals, schools and all other food service whose city water or well water contains arsenic above 5 µg/l to install a arsenic removal system. Don't boil your water as a method of treatment. This will result in higher arsenic concentrations in your water. Remember only water evaporates but not contaminants and also not arsenic.



## TITANSORB-P

Crystalline Titanium Dioxide Based Adsorber

TITANSORB is now also available as a unique crystalline powder called Titansorb-P with high surface area made by combination of crushing and sieving procedures. This gives access to a wide range of new applications of Titanium dioxide (TiO<sub>2</sub>)



To reduce the arsenic concentration from drinking water, there are several short-term (Low capacity) and long term (High capacity) adsorbent solutions. There are three types of water treatment systems to remove arsenic.

1. Point-of-Use (POU) systems treat the water at the kitchen tap.
2. Point-of-Entry (POE) treatment systems for the entire household.
3. Large system for municipalities serving 100 homes or more.

Pic. 1  
Fast adsorption kinetics makes it possible to make TITANSORB™ cartridges for POU filters



Pic. 2  
POE Filters are available both with manual or fully automatic valves



## FEATURES



Highest Arsenic Loading



Operates in wider pH Range



Highest Purity



Low Cost

## ADVANTAGES

- No regeneration chemical required
- Simple system design
- Simple manual or Automatic Systems
- Simple start ups
- Reduced equipment footprint
- High adsorption capacity for Arsenic and other Heavy Metals.
- Removing Arsenic in millions of gallons of drinking water worldwide.
- Extremely fast kinetics
- Empty Bed Contact Time (EBCT) between 0.5 – 3 minutes.

### Loading Capacity

Contaminants	Tested capacity*
Arsenic (V)	48 – 60 g/kg
Arsenic (III)	20 – 30 g/kg
Chromium (VI)	14 – 18 g/kg

### Technical Specification

Appearance	White solid granules
Base material	Titanium oxohydrate
Particle size	SI 0.5 – 2.0 mm
	US 10 x 35
Bulk density	SI 608 kg/m <sup>3</sup>
Color	US 38 lb/ft <sup>3</sup>
Moisture Content	< 4 %
Specific surface area	300 m <sup>2</sup> /g (BET)

### Operating conditions

Flow direction	Down-flow
Inlet water pH *	6.5 – 6.9
Max. feed water temp.	40 °C (104 °F)
Pressure rating	3 – 10 bar (43.5 – 145 psi)
Freeboard	40 – 45 %
Minimum bed depth	100 cm (39.4 in)
Filtration velocity	15 – 25 m/h (6 – 10 gpm/ft <sup>2</sup> )
EBCT	30 – 180 sec.
Backwash velocity	6 – 10 m/h (2.4 – 4 gpm/ft <sup>2</sup> )
Backwash Volume	5 – 10 BV

# TRAPPSORB®

Purest Magnesium Oxide Adsorbent For Water Treatment

**TRAPPSORB®** is an adsorber filter material, which is **purest magnesium oxide** in the form of beads with unique outer surface and structure. **TRAPPSORB®** is porous, amorphous form of **Magnesium (MgO)**. It is composed of unique manufacturing process giving its uniformity and Macroscopic pores. **TRAPPSORB®** have larger pores with wide range of diameters for the wide range of application.



Ammonium



Boron



Hydrogen  
Sulfide



Heavy  
Metals



Phosphorus



Total Suspended  
Solids

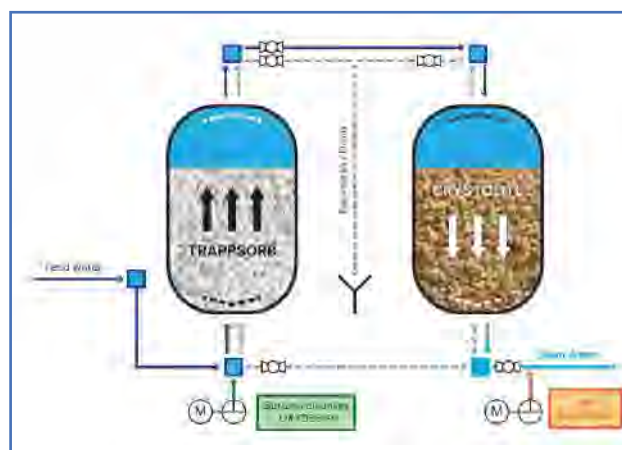


Silica

## Usages Of

### Trappsorb®

- To Filter out suspended solids
- Due to its high alkalinity, it's easy to control the pH without using any chemicals.
- Remove silica effectively compared to Ion exchange Resin's and Membranes.
- Remove Phosphorus effectively compared to any other technology available in the Market.
- Remove CO<sub>2</sub> and H<sub>2</sub>S including Ammonia in the water or wastewater.
- In the event that Heavy metals are present in the water or wastewater, TRAPPSORB® will be able to allow them to precipitate effectively and then extracted followed by Zeosorb or Crystallite Filter.
- Controlling Corrosion of the Municipal and Utilities network without adding any Corrosion inhibitors and through coating the inner surface of the pipes with Magnesium Hydroxide. No effect on scale.
- The simplest process of enriching water with Mg<sup>2+</sup> ions to be salinated and softened water.
- High purity Magnesium Oxide in water forms a very stable corrosion resistant film which does not break. All results have proved that Magnesium Oxide coatings on surface are without the addition of any Anti-scalant's and corrosion inhibitors.
- Solve all scaling problem's in wastewater tanks with its long-lasting alkalinity/pH control. Easy and safe to handle since
  - NON-HAZARDOUS
  - NON-CORROSIVE
  - NON-TOXIC



## Physics

**TRAPPSORB®** porous outer surface, when exposed to liquids, exhibit a strong physical affinity for these fluids (Physisorption). The molecules of Ionic bonding in liquids, become trapped on the outer surface of **TRAPPSORB®** macrospores. These molecules are called "Adsorbates" and are "**Adsorbed**" in the process of Adsorption.

Different surfaces exhibit different **Adsorption** properties and different molecules are Adsorbed to different capacities. For both, Outer surface and Outer Pores, this "**Adsorption Process**" is completely reversible. Molecules which have been adsorbed, can be released with slow backwash when reduce in pressure or concentration of molecules. Molecules larger than the pores opening of the molecular sieve can not be adsorbed. Smaller molecules can (Silica, Phosphorus, Ammonium can be adsorbed on **TRAPPSORB®**).

Mesoporous Magnesium Oxide is the world's number ONE product for capturing CO<sub>2</sub> and H<sub>2</sub>S.



## TRAPPSORB® FAMILY

Watch Water's **TRAPPSORB (MGO BEADS)** are available with different **TRADE NAMES** as mentioned below for its wide range of applications for specific removal of contaminants.



### BARIUMTRAPP

- Removal of Barium



### CARBONTRAPP

- Capturing/TRAPPING of CO<sub>2</sub>
- Converting into valuable fertilizers



### CORRTRAPP

- Passivation Technology
- Corrosion Prevention



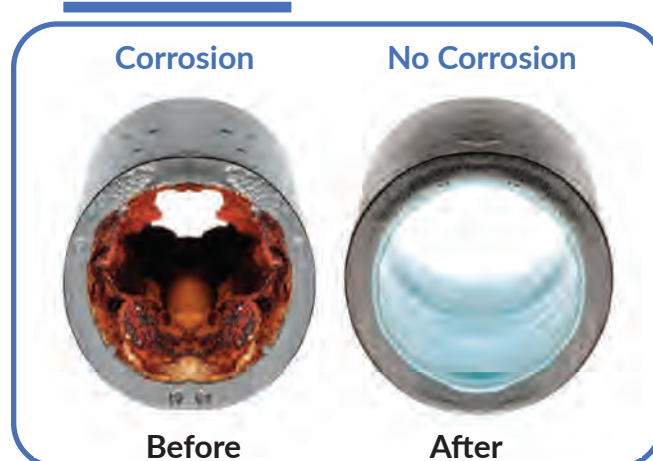
### SILICATRAPP

- Removal of Silica



## Passivation & Corrosion Prevention

**CORRTRAPP** products are non-hazardous environmental-friendly, safe and cost-effective treatment options for **Alkalinity** addition and pH adjustment without using phosphates for drinking water treatment pipes and equipment. Environmental regulations have become increasingly severe regarding the types and amount of pollutants that may be released into the environment. In particular, phosphates are commonly restricted. Often phosphates dosing is not completely successful in reducing metal corrosion in the drinking water pipes and equipment (like heaters). The adsorbent used to avoid corrosion is a **Novel Magnesium** based adsorbent from **Watch Water® Mannheim**, that has been used to avoid any corrosion and simultaneously neutralizing acidic components from water to stop all corrosion process.



## Technical Description

Chemical and Physical Properties	Magnesium Oxide (MgO)	Typical 80%
	Calcium Oxide (CaO)	10%
	Proprietary	10 %
	Chemically inert, no metals present.	
Bulk Density	Grade 2-5 mm and 5-8 mm beads	
	SI 1300 kg/m <sup>3</sup>	
	US 81.16 lb/ft <sup>3</sup>	
Packaging Standard	28.3 liter/bag*	
Storage	Store in a dry place.	

Just to  
Fight  
Climate  
Change

Carbontrapp chemistry is to make urea relatively simple. Mix Water, waste water high Ammonia (NH<sub>3</sub>) with Carbon dioxide (CO<sub>2</sub>) to get urea (NH<sub>2</sub>CONH<sub>2</sub>) and Magnesium.





# TITANICARBON

Titanium Dioxide Coated Carbon

## Adsorption

Due to the necessity to remove Fluoride from all water in a cost effective and time efficient way.

**Watch Water®** researched for one of the fastest technology called **Adsorption** based on **titanium dioxide** and **Activated Carbon**. The new **Adsorber technology** is highly efficient in cost and has low time contact. **Watch Water®** uses powdered **activated carbon** with the highest surface area and mixed it with **Titansorb** and activate it by heating at 90°C for 24 hour's. Dried the material crushed it to 3 different sizes and prepared the **Titanicarbon Adsorber**.

## Fluoride

**Fluoride** is an **acute toxin** with a rating slightly higher than lead and is present in ground water and surface water naturally or artificially.

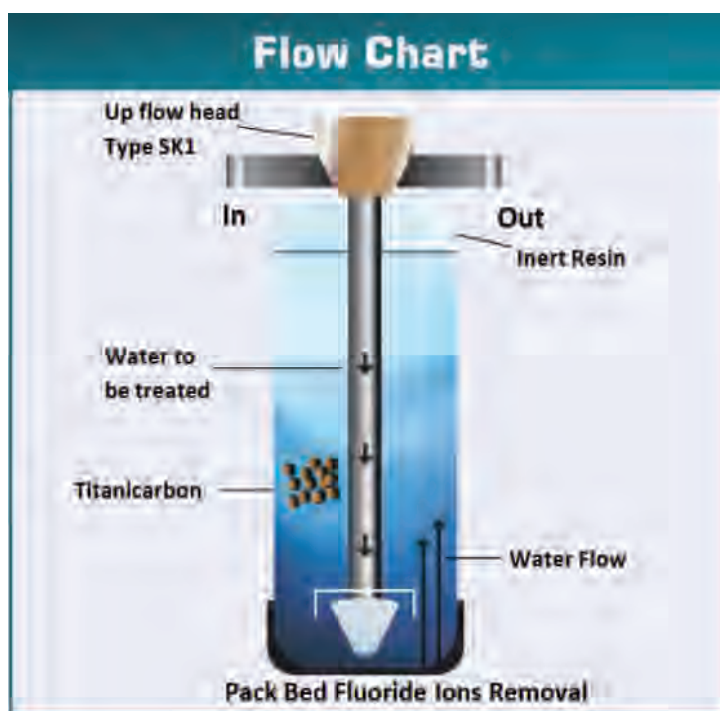
**Fluoride** concentration in water depends on several contributing factors such as pH, total dissolved solids alkalinity and hardness. The pH of water is a dominant factor influencing **fluoride adsorption**.

**Fluoride adsorption** is highest at pH 6.9 to 7.2. The **Adsorbent's Capacity (Titanicarbon)** is selective for fluoride ions at pH 6.9. Titanium Carbon Adsorbent in a granular form has the **Highest Adsorption Ability** for fluoride ion's. **Titanicarbon** Adsorber can remove fluoride ion's below 0.5mg/l from water with an initial fluoride concentration of 50mg/l. **Adsorption Capacity of 90 grams/l of Titanicarbon** which is the highest in the water treatment industries.

Technology	Name	Efficiency	Cost
Membrane	Nano-Filtration	40%	High
Membrane	Reverse-Osmosis	85%	High
Ion-Exchange	Anion's	90%	High
Activated Aluminum	Adsorber	92%	High
Ferrox	Iron Based	92%	High
Titanicarbon	TiO <sub>2</sub> based Plus Carbon	98%	Low

**The Fluoride Removal Efficiency**

There are technologies like Nano-filtration, Reverse Osmosis, Ion Exchange and these are some how efficient but very expensive, time consuming and creates concentrates and chemical use. Only Adsorption technologies are most efficient, cost effective and very easy to install



## Do you know?

Fluoride in water is linked to:

- Thyroid problems
- Low IQ
- Brain Damage in infants
- Cancer in various forms
- Neurological Damage & many more...

# NITROTRAPP

## Adsorption and Deadsorption of Nitrates

World's first High Capacity Adsorber plus De-adsorber to selectively **Trapp Nitrates**. It has 5 times higher capacity than any other commercially available adsorber in the market. **NitroTrapp** is certified and has been specially manufactured to meet Drinking Water standards and has passed.

**NitroTrapp** is different from all other **nitrate removal systems**, available in the market in several aspects. The custom designed adsorber removes not only **nitrates** from drinking water, but also provides healthy bicarbonates. "This can't be achieved simply by any other media, which are based on Ion Exchange or Reverse Osmosis." Anion exchange for nitrate removal is similar to a water softener, where relatively large amount of sodium chloride are typically used.

### APPLICATIONS



Municipal Systems



Point-of-Entry (POE)



Point-of-Use (POU)



Aquafarm's & Fish Farming



Waste Water



Iodide Removal from Drinking Water

### Deadsorption using

- Potassium Chloride
- Magnesium Chloride
- Magnesium Bicarbonate
- Potassium & Magnesium Hydroxide

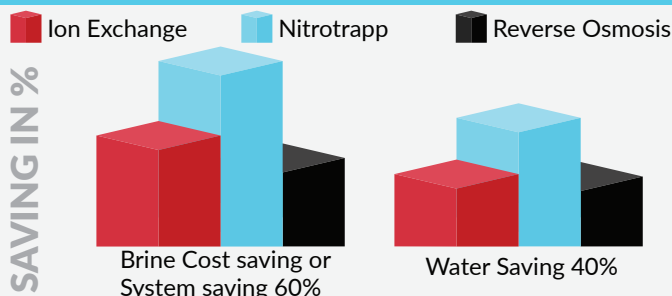
### Adsorption of

- Nitrates from Aquarium and fish farming water & waste water, drinking water

### Nitrate Health Issues

Nitrate is one of the most common groundwater contaminants in rural areas. It is regulated in drinking water primarily because excess levels can cause methemoglobinemia, or "blue baby syndrome" disease, in which blood lacks the ability to carry sufficient oxygen to the individual body cells causing the veins and skin to appear blue. Nitrate do indicate the possible presence of other more serious residential or agricultural contaminants, such as bacteria or pesticides. Nitrate is converted to nitrite after ingestion, This nitrite reacts with both natural and synthetic organic compounds to produce nitroso compounds in the human stomach. Many of these nitroso compounds are carcinogenic in humans and high nitrate levels in drinking water may increase cancer risks.

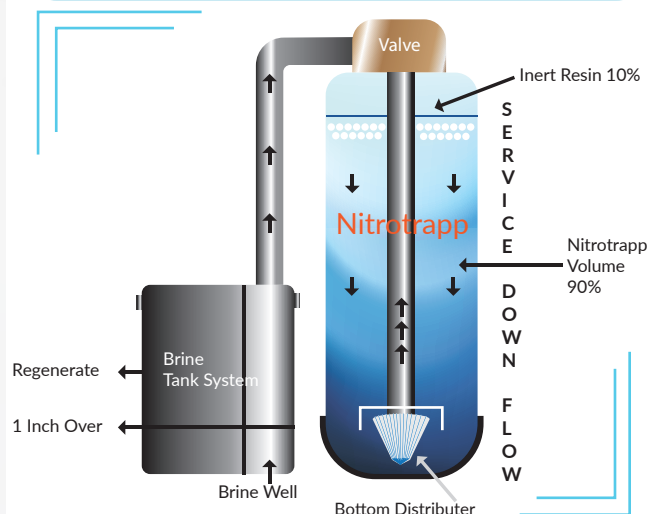
### SAVING'S per SYSTEM



## NitroTrapp-New Method of Purifying Water

- Passing the water through Adsorber in packed bed vessel to **TRAPP NITRATES** on Adsorber in down flow direction.
- Periodically regenerating the Adsorber by passing a volume of a very harmless brine solution through the Adsorber in opposite direction to release **TRAPPED Nitrates** into the valuable **Fertilizer** solution.
- Rinsing the Adsorber of residual with deadsorb solution by passing five bed volumes of clean water through the Adsorber. The rinse water is either feed water or purified feed water without nitrates.
- This feed water can be; ground water, surface water, agriculture field drainage, process feed water for food, beverages, process waste water, water from aquarium's or fish farms. The concentration of Nitrates in the feed water can be up to 1000 mg/l or ppm. The concentration of Nitrates in the feed water is reduced to 99% or more. The waste water is 100% commercial fertilizer.

- High Capacity
- Selective Trapp Nitrates
- No Toxic Waste



# INSTANT I-SOFT

A Solid Comprehensive Dosing Range (Antiscalants)



Watch Water® INSTANT dosing chemicals are manufactured in our plant in Mannheim, Germany. INSTANT I-SOFT with an addition of highly concentrated scale inhibitors, corrosion inhibitors, dispersants, oxygen scavengers (Volatile and Non-Volatile), biocides (Oxidizing and Non-oxidizing) for any Residential, Industrial or Commercial applications are proven to be the most environmental friendly and safe products available in Water Treatment industry.

Watch Water® is the only producer of INSTANT complexing Agent. In addition to the I-SOFT (complex), we also offer corrosion inhibitors, Biocides, Oxygen Scavengers, Cleaning agents, Descalers and strong Oxidizers – and all of these products are biodegradable! Watch Water® does not supply Phosphates, EDTA, NTA, Phosphonates or Complexing agents which are not Biodegradable.

The performance of the I-SOFT Instant type is much higher and the biggest advantage for customers is not to buy 95 % of expensive water, which involves higher transport costs and handling costs. It solves the problem of storage as well. The excellent ecological properties of the I-SOFT have been confirmed by numerous customers worldwide. Watch Water® therefore recommends the I-SOFT as replacement for other, less environment friendly complexing agents, such as Phosphates, Phosphonates, Ion-Exchange Cations, Anions and Silicates etc.

## Watch-Water Scale-Prevention Solution:

Hard Water contains salts of Cations and Anions	Water Hardness	Treatment Method
Ca <sup>2+</sup> Mg <sup>2+</sup> + HCO <sub>3</sub> <sup>-</sup>	Temporary / carbonate water hardness	Treated with FILTERSORB SP3 by converting the bicarbonates into insoluble carbonate crystals (Directed NAC)
Ca <sup>2+</sup> Mg <sup>2+</sup> Ba <sup>2+</sup> Sr <sup>2+</sup> + SO <sub>4</sub> <sup>2-</sup> SiO <sub>2</sub> <sup>2-</sup> PO <sub>4</sub> <sup>2-</sup> F <sup>-</sup>	Permanent / noncarbonate water hardness	Treated by addition of I-Soft for permanent I SOFT for rest hardness stabilization for corrosion control

Will you pay for the "Water" in the chemicals ?

A 5 kg INSTANT bag makes 100 liters of dosing chemical



The difference between instant dosing technology and other products is 95 % less water and cost

## APPLICATIONS

- Drinking water
- Process water
- Heating equipments
- Heat exchangers
- Air conditioners
- Cooling towers
- Boilers
- Steam boilers
- Membrane Systems
- Anti-Scalants

## FEATURES

- Correct Dosing/Continuous Operation
- Controlled Concentration of products
- Personnel Safety
- Cost effectiveness
- Low Toxicity Technology
- Lower CO<sub>2</sub> Emissions
- 100% Recyclable Packaging
- Ease of Disposal
- Convenience
- No Service and Maintenance Costs

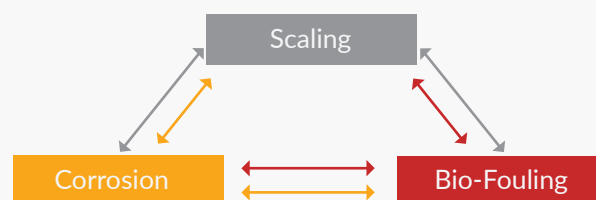


2 x 20 kg Instant chemical boxes can provide 800 liters of dosing chemical



Less product, less waste and maximum efficiency

#### Problems in All Water Treatment Industries



#### Very important for the environment !

There is absolute need for ion exchange softeners, phosphates, phosphonates, EDTA and NTA to be replaced in many applications, because of issues concerning the effects of salt rejection and phosphorus compounds on aquatic life and water quality. All these products are not biodegradable.

## INSTANT I-SOFT FAMILY

Form	Product Name	Addition	Function
INSTANT	I-SOFT	-	<ul style="list-style-type: none"> <li>Municipal, Residential, Industrial, Commercial Water Application</li> <li>Scale &amp; Corrosion inhibitor for all pipes and equipments.</li> </ul>
	I-SOFT	DW	<ul style="list-style-type: none"> <li>Drinking Water applications, Food &amp; beverage Industries</li> <li>Scale &amp; Corrosion inhibitor for all pipes.</li> </ul>
	I-SOFT	ON	<ul style="list-style-type: none"> <li>Scale &amp; Corrosion inhibitor with Non-volatile Oxygen scavengers.</li> <li>FDA approved multi-purpose Hot Boiler Water Treatment.</li> </ul>
	I-SOFT	OV	<ul style="list-style-type: none"> <li>Scale &amp; Corrosion inhibitor with Volatile Oxygen scavengers.</li> <li>Multi-purpose Boiler (Steam Boilers) Water Treatment.</li> </ul>
	I-SOFT	NB	<ul style="list-style-type: none"> <li>Cooling Water, Heat exchangers, Air conditioners</li> <li>Multi-functional Scale and Corrosion inhibitor with Dispersant and non-oxidizing biocide for high silica and sulphate content in feed water.</li> </ul>
	I-SOFT	OB	<ul style="list-style-type: none"> <li>Cooling Water, Heat exchangers, Air conditioners</li> <li>Most effective non-hazardous oxidizing biocide in the market. High Cycle chemistry!</li> </ul>
	I-SOFT	RO	<ul style="list-style-type: none"> <li>Guaranteed one dosage and all prevention of scaling &amp; fouling, such as Silica, Sulphate including Barium and Strontium scales.</li> </ul>
	I-SOFT	ROB	<ul style="list-style-type: none"> <li>Prevention of Silica, Sulphate, Barium and Strontium scaling and Bio-fouling</li> </ul>



Advantages: Solutions that contain **I-SOFT** are much less corrosive to aluminum if their pH is adjusted to 5 – 7.  
One of the biggest advantage to soften water and stop scale and corrosion is that **I-SOFT** contains a very low content of chlorides.

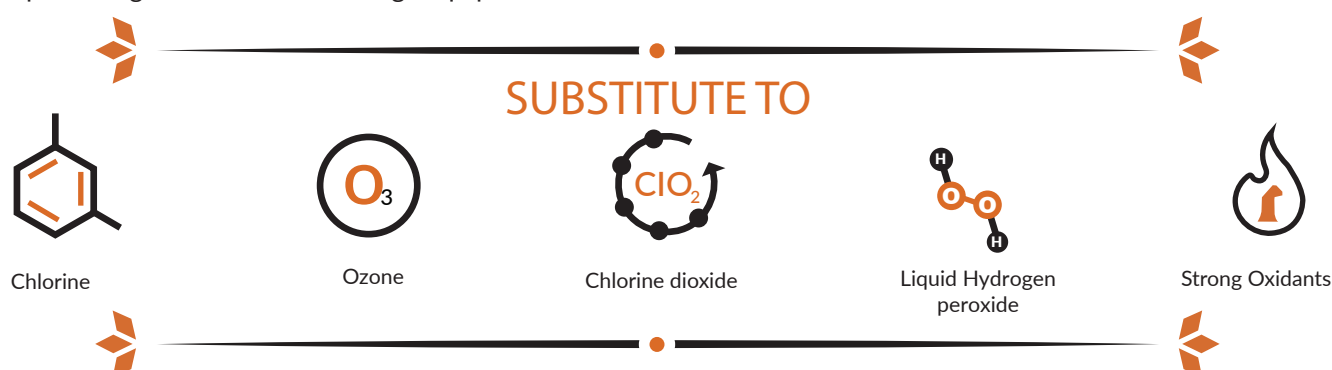
# INSTANT OXYDES

## The Source of Oxygen

**INSTANT OXYDES®** is an absolute white food grade biocide in odorless, crystalline powder form which, when added to water dissolves easily and releases hydrogen peroxide which is stabilized to work as very strong and powerful disinfectant. It has very wide range of applications and uses. Since it's approved for any food applications, it is used in drinking water applications, Resin and Membrane cleaning applications, disinfectant for all surfaces, barrels, pressure vessels, lines and pipes, tanks and complete range of Food and Beverage equipment's.

It is the best Biocide and Disinfectant for cooling towers and swimming pools.

**INSTANT OXYDES®** is the best disinfectant which breaks down to oxygen, water and carbonates and the decomposition happens without the formation of any residues or toxic contaminants unlike chlorine, chlorine dioxide and potassium permanganate..



## Directions of Use

**Surface disinfection:** Wash surfaces to remove any residue (ANY!) and thoroughly spray a diluted solution 100 grams of **INSTANT OXYDES®** in 5 liters (1.5 gallons) of water as 1:50 ratio in a barrel. after 5 minutes rinse with clean water spray.

**Water disinfection:** Dilute 50 grams of **INSTANT OXYDES®** to keep water disinfected for a long time and use it for any application. Since it is approved for use around food it is naturally the best choice for use in residential, industrial and all commercial applications.

## Properties:

Name	INSTANT OXYDES®
Applications	Substitute to <ul style="list-style-type: none"> <li>• Chlorine</li> <li>• Ozone</li> <li>• Chlorine dioxide</li> <li>• Liquid Hydrogen Peroxide</li> <li>• Strong Oxidants</li> </ul>
Bulk Density	0.8 - 1.05 g/cm³
Active Oxygen	17%
Moister	20% (Max.)
pH Value (3% solution)	10.2 (approx.)
Contains	Stabilizer*

\* **INSTANT OXYDES®** is always sold as powder with Stabilizer to maintain the stability of the Biocide chemical.

## INSTANT OXYDES® as 5 STAR

**INSTANT OXYDES®** also is one of the 5 STARS disinfectant agent which can actively destroy:

★ Coli-form

★★ Staphylococcus

★★★ Hepatitis Bacterium

★★★★ All kind of Biofilm bacteria

★★★★★ Disinfection of Dental water lines and Dental hygiene equipment.



## PRODUCING INSTANT OXYDES®

**OXYDES®** is made in a crystallization process from Stabilized Hydrogen Peroxide (SHP) in an agitated reaction vessel containing a mother liquor at a temperature from 15 to 30 °C with formation of **OXYDES®** which precipitates out of the solution. The precipitated **OXYDES®** powder is separated from the liquid and recovered as product.

**OXYDES®** contains a stabilized based in tri-sodium salts with an amount of 1% of its own weight. **OXYDES®** has the best oxidant and disinfectant qualities.



# INSTANT OXYDES-P

Powerful Oxidizer for Microbiological Oxidation

**OXYDES®-P** reacts with added sodium chloride (NaCl) salts to create chlorine, a very strong Sanitizer that removes any additional contaminants found in water.

**Watch Water®** presents– A new methodology of Green Chemistry that has several Advantages over the Salt Generator.

**Watch Water®**'s inexpensive reagents and the use of H<sub>2</sub>O as a sole solvent, reaction at the room temperature (not higher than 90°C) and short reaction time to kill any microbiological contamination via Electrochemical reaction.



## ACTIVE OXYDES®-P

- **OXYDES®-P** is a term used to describe a **Powerful Oxidizer** ( $\cdot\text{OH}$ ) derived from normal salt and water ( $\text{NaCl} + \text{H}_2\text{O}$ ) and it is very much different from producing Oxygen ( $\text{O}_2$ ) derived from Hydrogen peroxide ( $\text{H}_2\text{O}_2$ ).
- **OXYDES®-P** creates high energy into the water which breaks apart water molecules. Without the **OXYDES®-P** there is not enough energy to split apart water and create strong Oxidizer.

**No other salt water chlorine system can create this particular oxidizer**

- This process mentioned as “**Powerful Oxidation**”, can be used to disinfect water and waste water in any industry. Food and beverage industries have been waiting for this process for generations.
- The benefits of **OXYDES®-P** is that it disinfect organics and inorganics completely with very high levels of Oxygen, leaving behind **Carbon dioxide** ( $\text{CO}_2$ ) and **Water** ( $\text{H}_2\text{O}$ ). It does not leave behind any kind of chloramines or other disinfection by-products (DBPs) that can cause and strong smell.
- If the water smells bad, many odors like sulfur, sulfides and chlorine is the cause. These odors can be removed by **Catalytic Carbon** and can be regenerated with **OXYDES®-P**.



## APPLICATION/ FEATURES

OXIDATION OF CONTAMINANTS USING **OXYDES®-P**

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>● Aromatic Aldehydes</li> <li>● Disinfection</li> <li>● Control of Microorganisms</li> <li>● Removal of ammonia</li> <li>● Control of taste and odor</li> <li>● Color reduction</li> <li>● Destruction of Organic Matter</li> </ul> | <ul style="list-style-type: none"> <li>● Hydrogen Sulfide Oxidation</li> <li>● Iron and Manganese oxidation</li> <li>● Pool and Spa application</li> <li>● Cooling Tower shock-treatment</li> <li>● Oxidizing Antimicrobials</li> <li>● Other uses and effects of <b>OXYDES®-P</b></li> </ul> |
|--|---|



# INSTANT BIOXIDE™

*Slimicide, Biocide, Bio-Dispersant, Bio-Oxidation*

Watch-Water® BIOXIDE™ is a very high class bactericide, fungicide and Algaecide that kills the growth of microorganisms without any harms on the environment and considered as GREEN BIOXIDE™.

INSTANT BIOXIDE™ is an instant granular non-dusting white biocide compound. It is free flowing and very easy to handle. All the inert ingredients in INSTANT BIOXIDE™ have status as drinking water treatment disinfection and food processing chemical.

INSTANT BIOXIDE™ is a combination of OXYDES™ and other ingredients. It dissolves into water rapidly to release high oxidation energy and oxidize with its powerful peroxide capabilities every bacteria, viruses, fungus, algae and slime. INSTANT BIOXIDE™ cleans all surfaces and removes scale, corrosion and biofouling without any chemicals. It has a very added value of having no odor and being nontoxic and nonpolluting chemicals under standard 60 of the National Sanitation Foundation and/or have either generally recognized as safe (GRAS) food additive clearances.

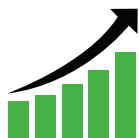
## FEATURES



No Corrosion



Cost-Effective & Safe



No Toxic DBP's



Simple & Fast



Halogen-Free Disinfection



Oxidizes

**Killing the Bacteria is NOT Cleaning**



Green Biocides  
Protecting the World's Environment



## APPLICATIONS

- Paper Industry Biocide
- Oil and Gas industry
- Disinfection of fruits and vegetables
- Food industry
- Livestock industry
- Hospitals and Hotels
- Fishing industry
- Wastewater disinfection
- Reverse Osmosis
- Ion Exchange Resins

## ADVANTAGES

- Technical
  - De-greasing properties
  - Easily soluble
  - Non-Liquid
  - Non-corrosive
  - Non-flammable
- Compatible with commonly used metallic and non-metallic materials.
- Environmental safety
  - Non-toxic
  - Non-Ozone depleting
  - Environmentally safe
  - Disposable
  - Contains no Volatile Organic Compounds
- Surface's to be cleaned
  - Inner
  - Outer
  - Rough surfaces

# ROSOFT

## Antiscalant for Reverse Osmosis Membranes

**Watch Water® ROSOFT®** is replacing the use of **water softeners** as a pretreatment for **reverse osmosis**. Now there is no requirement for regeneration processes, salt and downtime to operation which in return will generate a fast return on investment. Compared to phosphonate based antiscalants **ROSOFT®** will not lead to any **eutrophication** and time saving technology. In addition to the broad-spectrum protection, **ROSOFT®** provide from small to large flow applications and the cost of softening becomes prohibitive. The comparison table shows an overview of the costs associated to operating a water softener system compared to that of applying **ROSOFT®** dosing at various concentrations of Water Hardness.

**ROSOFT®** has the ability to inhibit and disperse scale forming compounds such as;

- Calcium Sulfate
- Calcium Phosphate
- Barium and Strontium Sulfate
- Metal Oxides
- Virus and Bacteria

Pretreatment : Water Softener				VS	Pretreatment : ROSOFT			
Hardness (mg/l)	Capital Cost (Equipment)	Salt Cost (\$/year)	Equipment Life (Years)		Hardness (mg/l)	Capital Cost (Equipment)	ROSOFT® Cost (\$/year)	Equipment Life (Years)
10	\$25.000	\$1.800	10		10	\$2000	\$1200	20
20	\$25.000	\$3.600	10		20	\$2000	\$1200	20
50	\$50.000	\$9.000	10		50	\$2500	\$1200	20
100	\$50.000	\$22.500	10		100	\$2500	\$1500	20
250	\$50.000	\$45.000	10		250	\$3000	\$1750	20

**ROSOFT®** is a multifunctional antiscalant for RO membranes allowing operations at high recovery rates from various feed water sources.

### Applications



Waste Water



Seawater

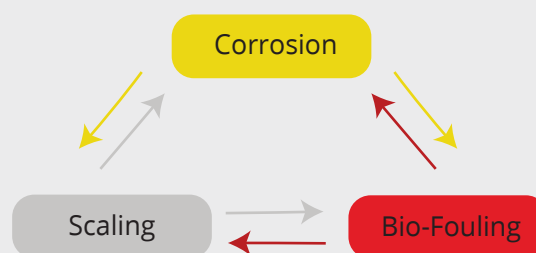


Surface Water



Brackish Water

**ROSOFT®** blended for Multifunctional antiscalant to protect membranes from Scale, Corrosion and Biofouling.



### Key Benefits

- **ROSOFT®** multifunctional antiscalant performs much better than phosphate blended antiscalants
- Does not lead to eutrophication & dramatically reduces waste water
- **ROSOFT®** keeps the scaling and fouling forming ion's (Cation's & Anion's) soluble in the super saturated concentrate for 2-3 pass through reverse osmosis
- Minimal weight transportation and product replenishment increase to low transportation cost and operational cost
- Accurate dosing formulations to increase efficiency and effectiveness with simple adjustment



# GREEN ACID

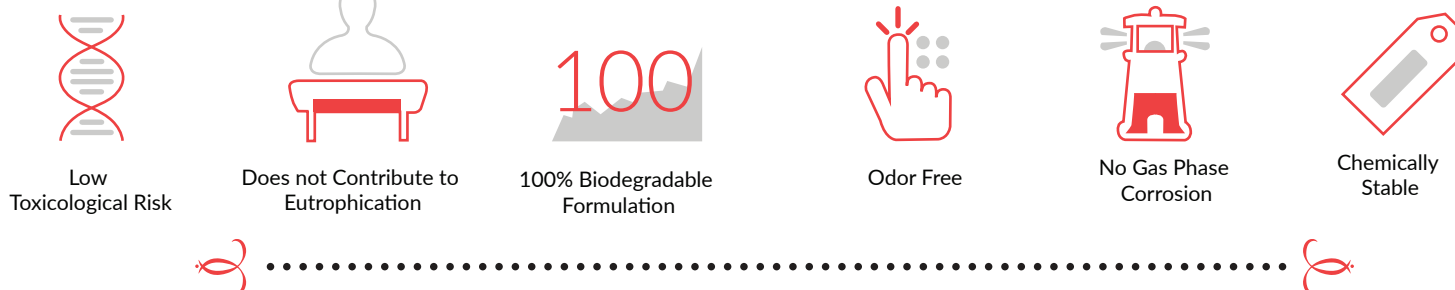
*Catalyzed Acid- The Fastest De-scaling Solution for Water Treatment Industry*

Only 5% of **Green Acid** can remove severe calcite scale, gypsum, calcium phosphate and calcium oxalate scales just in few minutes. **Green Acid** can de-rust any equipments made of any metals because it contains the best Biodegradable corrosion inhibitor.

Stop using traditional dirty strong mineral acids like Hydrochloric acid (HCl), Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) or Phosphorus acids. These acids have destroyed the world environments.

**Green Acid** is a product well suited to every application because it is a very strong which contains Scale Inhibitors, Corrosion Inhibitors including Trace Color to take the maximum efficiency from its strength, while it's not corrosive and safest to handle than any traditional acids in the market. This acid can de-scale any thing! Anything you just want neat and clean, fast and safe without damaging future generations environment.

## BENEFITS



### Application

- Cleaning & Disinfection of:
  - Membranes (any)
  - Pipelines (any)
  - Heating Systems
  - Heat Exchangers
  - Boilers
  - Cooling Towers
  - Chillers, pumps
  - All Beverage equipments

### Solution strength

**Green Acid** in ready to use is 10% solution as the active acid. **Green Acid** is a 100% active solution as supplied. A dilution factor of 10% gives a 10% ready to use solution. Concentration can be varied to provide an adequate amount of reagent and a suitable volume of solution to ensure adequate contact time

### Contact time

Depending on the scale composition and site specific conditions the required contact time may vary from a few minutes to few hours. Compared to all other acids, **Green Acid** is not corrosive: if long contact time is applied, the corrosion rates of **Green Acid** are still zero. Never compare all other acids like Sulfuric Acid or Hydrochloric acid even nitric, formic or citric acids. The corrosion impact is zero because of high purity corrosion inhibitor in its formulation

*Only One Cleaning for  
Descaling – Derusting - Biocleaning*

Watch-Water® Scale Solutions business offers a unique range of green Chemicals and technologies to improve process efficiencies.



# I-SOFT DESCALER

## Heavy Duty Instant Descaler

Maintenance of an effective water treatment system is essential to **minimize scale and corrosion problems** in all industrial systems. Hard scale deposit that have already formed, requires remedial cleaning with **ISOFT Descaler**. Scale built up will impact the efficiency and effectiveness of any water treatment system and safety of operational personnel through equipment damages.

The deposit that occurs in water system are mostly inorganic mineral salts and corrosion products. Deposit composition range from very dense crystallite structures to very porous and loosely bound material to gelatinous slimes. Almost all the deposits formed from water constituents consists of corrosion products which as chlorides, sulfates, iron and copper oxides. The deposits which imposes hard cleaning are silicates, sulfates, phosphates.

Cleaning procedure with **ISOFT Descaler** is a **Green Technology** and performs very effective cleaning including the ability to remove hard scales and color indicator. Special inhibitor that are compatible with **ISOFT DESCALER** to prevent damaging the base metals while allowing the cleaning process to continue effectively and clean all hard scale. **ISOFT DESCALER** is combine with color indicator to constantly detect the efficiency of **DESCALER** and save time. **ISOFT DESCALER** is a direct replacement of HCL and  $H_2SO_4$  cleaning process.

Highly Efficient

Saturated

## APPLICATIONS



Cooling  
Tower



Evaporative  
Condensers



Pipe  
Lines



Commercial  
Buildings



Low  
Pressure  
Boilers



High  
Pressure  
Boilers



Heat  
Exchangers



Residential  
System

## FEATURES

- Free flowing Instant Powder.
- Contains Color indicator, does not require special test apparatus.
- Concentrate can be prepared according to the scale deposits.
- Contains the best corrosion inhibitor I-SOFT.
- Contains a wetting agent.

## BENEFITS

- Easy to ship, handle, mix and use.
- Easy determination of solution strength.
- Reduces cleaning time, very cost effective.
- Avoid any metal attack during cleaning, softens scale, can be used in any applications.
- Penetrates light, organic film and quick removal of scale.

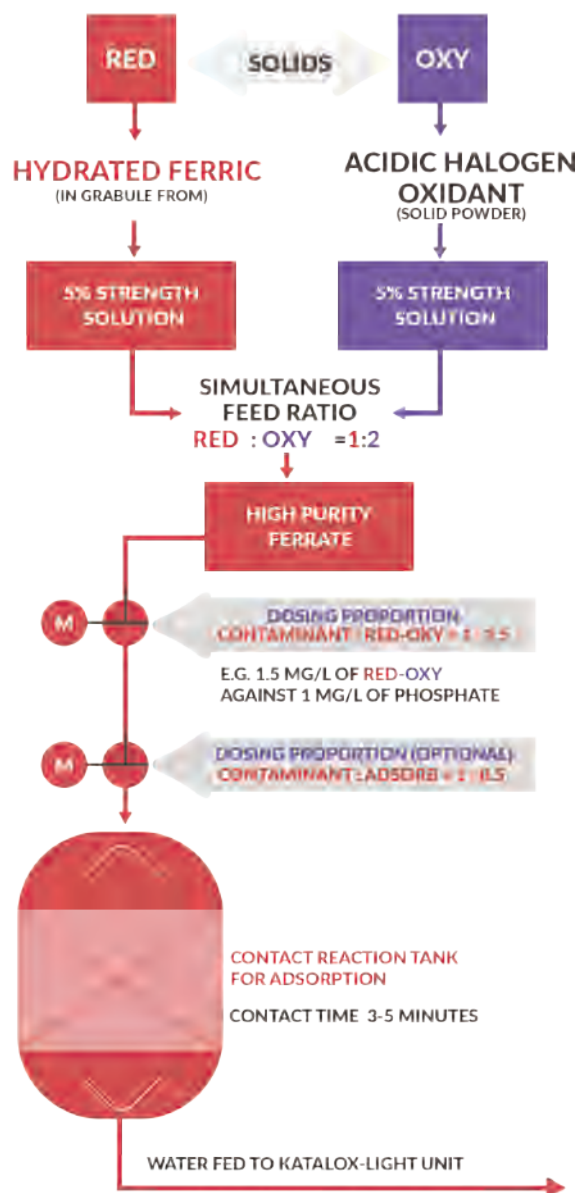


# REDOXY

## Oxidation - Adsorption - Filtration

**Red-Oxy®** Generated Ferrate with **Watch-Water®** process is the most stable form of Ferrate (VI) because it is generated with Ferric Hexahydrate granules. The oxidant used in this process is a strong acid halogen which generates high voltage of oxidant without any DBP's. **Red-Oxy®** potential of the oxidant is as high as Hydroxyl Radicals. **Watch-Water®** has no doubt that its proprietary process will be commercialize world-wide with its own branches or through very close partners

### RED-OXY® PROCESS



### What is Red-Oxy® ?

Generated Ferrate with its proprietary process of ONLY TWO COMPONENTS uses

HEXAHYDRATE GRANULES ↔ RED<sup>X</sup>

+

ACIDIC HALOGEN OXIDANT ↔ OXY<sup>X</sup>

**Red-Oxy®** spontaneously decomposes in the presence of all contaminants, in any kind of water into strong oxygen and the most powerful Adsorbent based on ferric hydroxide with the surface area of 3500 m<sup>2</sup>/gram. The chemical formation reaction is



This reaction is the strongest for the Oxidation- Adsorption of metals, non-metals and or organic contaminants in water and wastewater treatment. These include ammonia, cyanide, thiocyanate and very high concentration of hydrogen sulfide. As many of the reactions are pH based reaction it can be controlled in the process with OXY<sup>X</sup> (the most powerful oxidant and disinfectant against viruses and Coli-form Bacteria). Inactivation of viruses and all kind of bacteria occur faster as the pH drops, a phenomenon that has been attributed to mono-protonated form of HFeO<sub>4</sub>-

*We bring you the possibilities!*



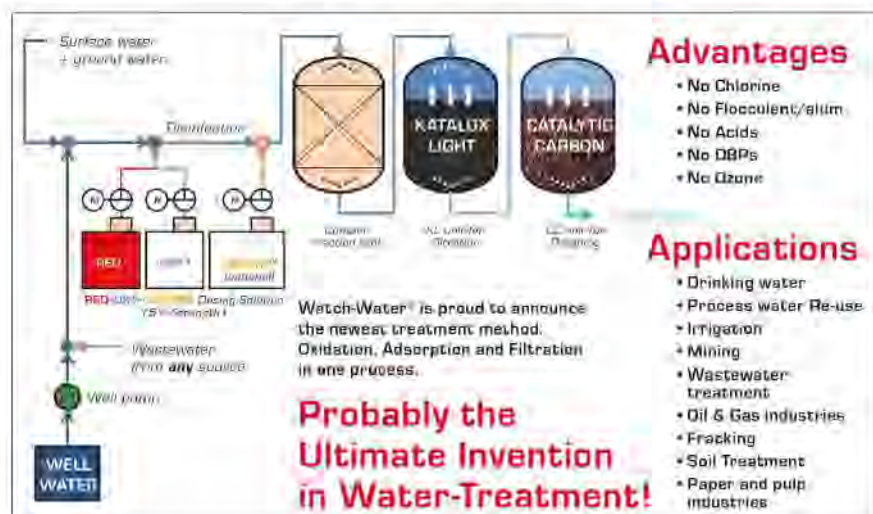
**RED-OXY** Technology :  
The ultimate invention in Water-Treatment

The Dosing table\* proportion according to the upper limit TDS is as below.

Parameters	Drinking water	Brackish water	Water/Sea water	Sewage/waste water
TDS limit	Up to 2000 mg / l	Up to 10000 mg / l	Up to 40000 mg / l	Up to 50000 mg / l
Dilution strenght	5%	5%	5%	5%
RED <sup>X</sup>	50 ml/m <sup>3</sup>	125 ml/m <sup>3</sup>	200 ml/m <sup>3</sup>	250 ml/m <sup>3</sup>
OXY <sup>X</sup>	100 ml/m <sup>3</sup>	250 ml/m <sup>3</sup>	400 ml/m <sup>3</sup>	500 ml/m <sup>3</sup>
ADSORB <sup>X</sup>	50 ml/m <sup>3</sup>	125 ml/m <sup>3</sup>	200 ml/m <sup>3</sup>	250 ml/m <sup>3</sup>
Total Dosing	200 ml/m <sup>3</sup>	500 ml/m <sup>3</sup>	800 ml/m <sup>3</sup>	1000 ml/m <sup>3</sup>

\* Adjustment might be required to achieve the desired performance.

## ALL CONDITIONS → ONE SOLUTION



## Red-OXY® Chemistry

The element of **RED<sup>x</sup>** is iron which is one of the metals in periodic table that is named as "Transition Metal". This is the secret of **RED<sup>x</sup>** that it exhibit multiple oxidation states. In fact, theoretically the valence up to +8 can be generated. But the most stable valence is +6 which is called Ferrate ( $\text{FeO}_4^{2-}$ ).

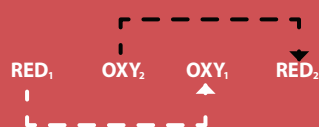
Ferrate is a very powerful oxidizing compound that can be utilized in many applications. Ferrate has Oxidation Potential of 2.2 Volts under acidic conditions. As one of the most practical and powerful transition metal Ferrate [ $\text{Fe(VI)}$ ] can be utilized to create Fenton's Reaction (activation of  $\text{H}_2\text{O}_2$  with **RED<sup>x</sup>**) with its modification to Hydroxyl Radicals (HRs) with an extra oxidation potential of 1.8 – 2.7 Volts (depends on the pH and dosing of **OXY<sup>x</sup>** values).

Since **RED<sup>x</sup>** has now been changed to a catalyst all sulfates in composition of **OXY<sup>x</sup>** generates Sulfate Radicals (SRs) with a redox potential of 2.5 – 3.1 Volts. Heterogeneous generation of Sulfate Radicals has now changed dissolved **RED<sup>x</sup>** ions

### Explanation I

**RED** is to reduce  
Extremely Toxic organics and  
Disinfection of water  
with  
Oxidation potential of over 8.5 V  
Xtremely high sulfate and hydroxyl radicals  
Yielding breakthrough in chemistry

### Explanation II



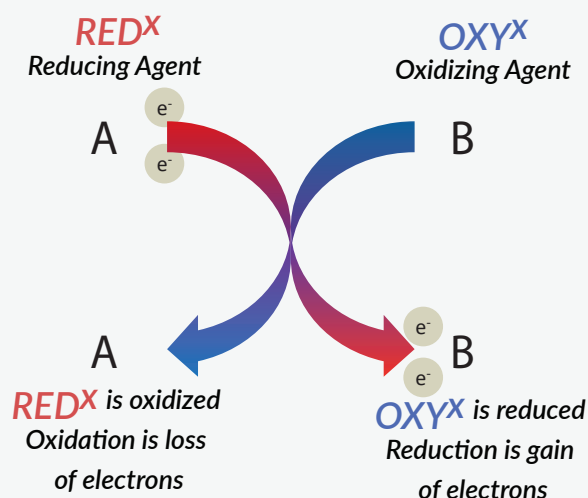
**RED<sub>1</sub>** and **RED<sub>2</sub>** are both Reducers  
**OXY<sub>1</sub>** and **OXY<sub>2</sub>** are both oxidizers  
Each pairs **RED<sub>1</sub> / OXY<sub>1</sub>**  
**RED<sub>2</sub> / OXY<sub>2</sub>** are corresponding pairs  
Oxidizers give electron (-) and Reduce  
Reducers takes electron (+) and Oxidize  
This process is called REDOXY Reaction

## Oxidation and Reduction

The reaction mechanisms of **RED<sup>x</sup>** + **OXY<sup>x</sup>** + **ADSORB<sup>x</sup>** which makes REDOXY based Advanced Oxidation Technology unique.

The highest oxidation reduction potential (ORP) 2.2 (Ferrate) + 2.7 (HRs) + 3.1 (SRs) = 8.0 for the followings,

- Removal of Toxic Cations
- Removal of Toxic Anions
- Oxidation of inorganic
- Oxidation of Organic Contaminants
- Destroy Pharmaceuticals and Personal Care products
- Destroys endocrine disrupting chemicals
- Removal of pesticides fungicides and herbicides
- Destroys all bacterial and viruses
- Destroys Petroleum Hydrocarbons



\* Note: Red-Oxy Lab are also available, Please contact us for more information.

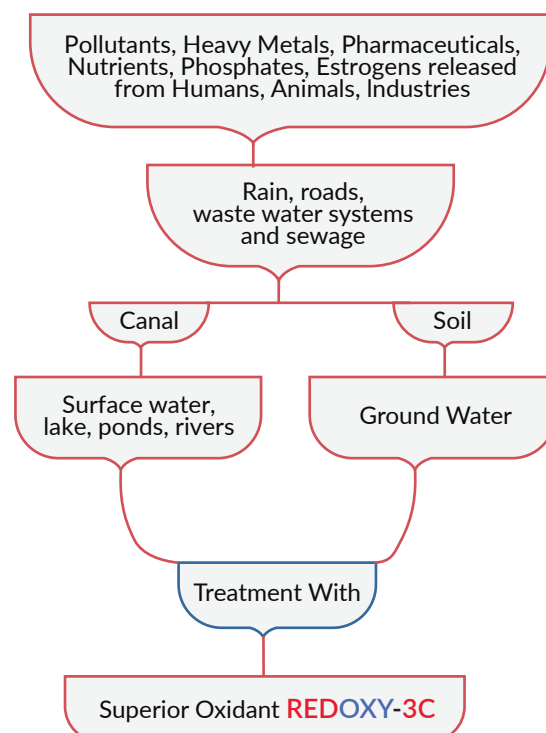


# REDOXY-3C

## Granules Dosing Technology for Water Body Purification

Combined Fenton-like-Oxidation and Iron ferrates for chemical oxidation of contaminants avoiding Dosing Pumps by spreading evenly (hand) to achieve better results.

Watch-Water® now provides special REDOXY Combine treatment of Surface water and Ground water remediation. In combined remediation technologies such as mixing, diluting and Dosing using Pumps and to treat, and induction of Oxidative or Reductive conditions are very cost effective and time consuming. However, these applications are dependent on circumstances, and therefore REDOXY-3C has proved to be cost prohibitive and very effective at contaminated sites without injection/ and mixing.



REDOXY-3C core technology is a proprietary catalyst material, an assembly of three different particles that purifies water without being degraded. OXY<sup>x</sup> is the only formulation which has to be applied again. RED<sup>x</sup> and ADSORB<sup>x</sup> can be used multiple times by minimizing waste and disposal problems associated with physical water treatment technologies which collects and adsorbs contaminants and OXY<sup>x</sup> breaking them down

## Dosing of REDOXY-3C

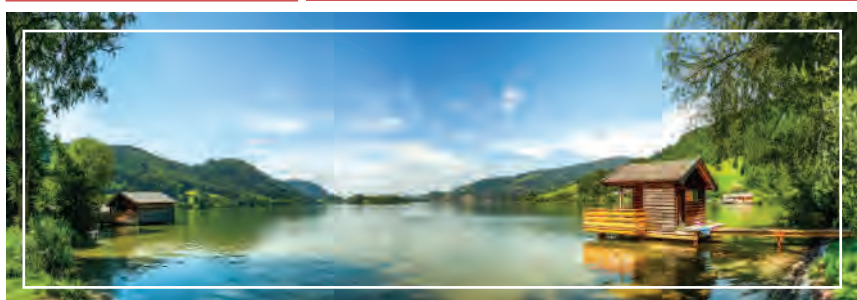
REDOXY-3C works in wide range of pH and can be use for odor removal, Turbidity, Coagulation, Color removal, nutrients removal, Hydrogen Sulfide removal, Phosphate removal and heavy metal removal

Dosage Max 30 mg/liter OR  
30 grams/m3 of water OR  
waste water treatment

All Wastewater treatment Plants, Sewage Plants and Surface water/lakes, rivers and ponds needs RedOxy-3C

## Product Specification

Dosage	30 gram Max/m <sup>3</sup> of water
Appearance	White/Grayish Granules
Total Redoxy	100% Total
	RED <sup>x</sup> 60%
	OXY <sup>x</sup> 30%
	ADSORB <sup>x</sup> 10%
Bulk Density	1.2 kg/liter
Particle size	3-5mm

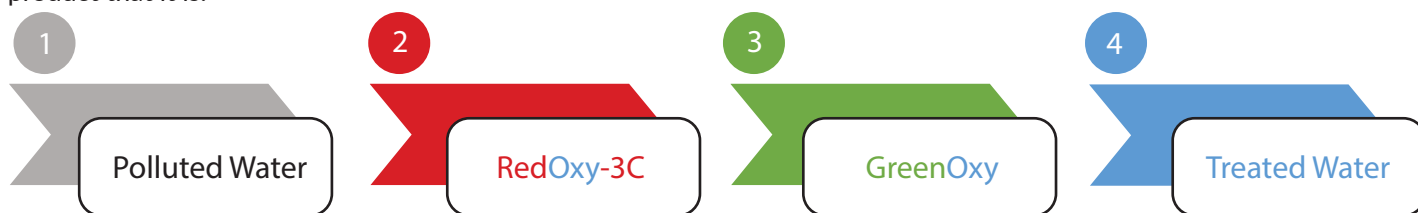


# GREENOXY

## Oxygenated Water for Biological Treatment

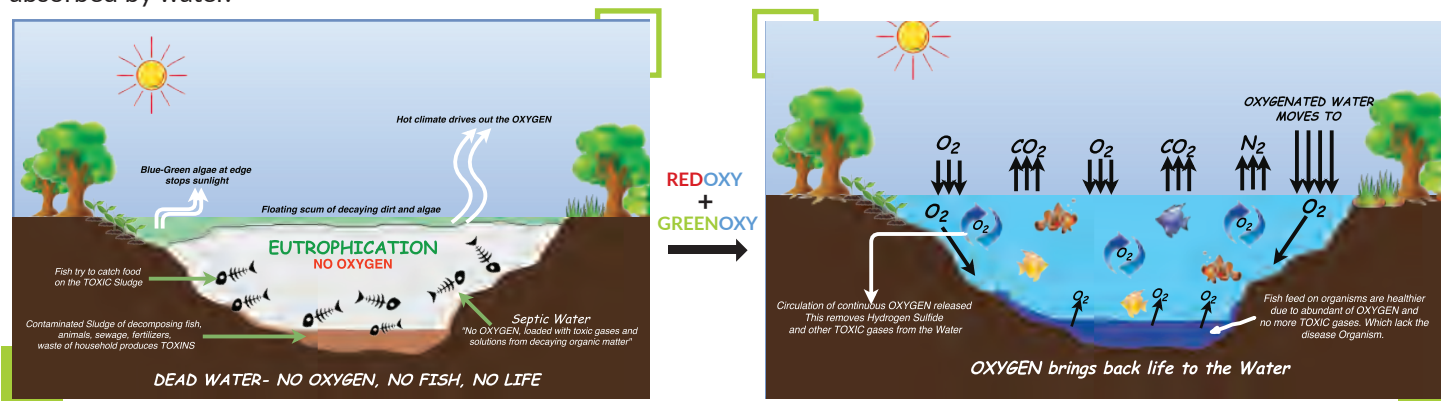
### WHY GREENOXY ?

Due to very heavy load of pollution from nutrients overloading, many waters become out of balance, large algae blooms start to overtake the cleaning process. Attributed by photosynthesis, DISSOLVED-OXYGEN levels starts to decrease, making it hard to clean pollution. **GreenOxy** application sink the killed algae and weeds to the bottom where the natural process is breaking down the waste. This is what GreenOxy process does at the bottom of the polluted waters. **GreenOxy** process gets Oxygen to the sediment layers of the bottom, than augmentation with beneficial bacteria takes place, Water Quality improves, and the Algae will disappears. For this reason **RedOxy-3C** can clean every lake, pond or wastewater as a unique product that it is.



### WORKING PRINCIPLE

As the Oxygen bubble, release from the **GreenOxy**, Oxygen is immediately transferred to the water from bubbles. This steady release of Oxygen from **GreenOxy** move water gently to surface and across the surface where additional Oxygen is absorbed by water.



### FEATURES



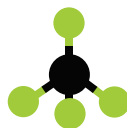
Odor Control



Heavy Metal Removal



Bio-Remediation



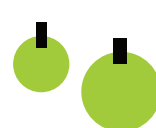
Adsorption of Phosphate



Adsorption of Nutrients



Oxygenate water for biological treatment



Steady continuous oxygenation

### Physical Property

Appearance	Dry, Free, Flowing granules
Color	Off-White
Physical State	Dry Powder
Odor	Odorless
pH	1% Solution (11.5-11.8)
Properties	Strong Oxidizer
Water Solubility	Mildly Soluble
Hazard Polymerization	Does not occur
Properties	Release Oxygen
Bioaccumulation	Does not bio accumulate
Chronic Health Hazard	No





# REDOXY-4C

## Biological Treatment Facility

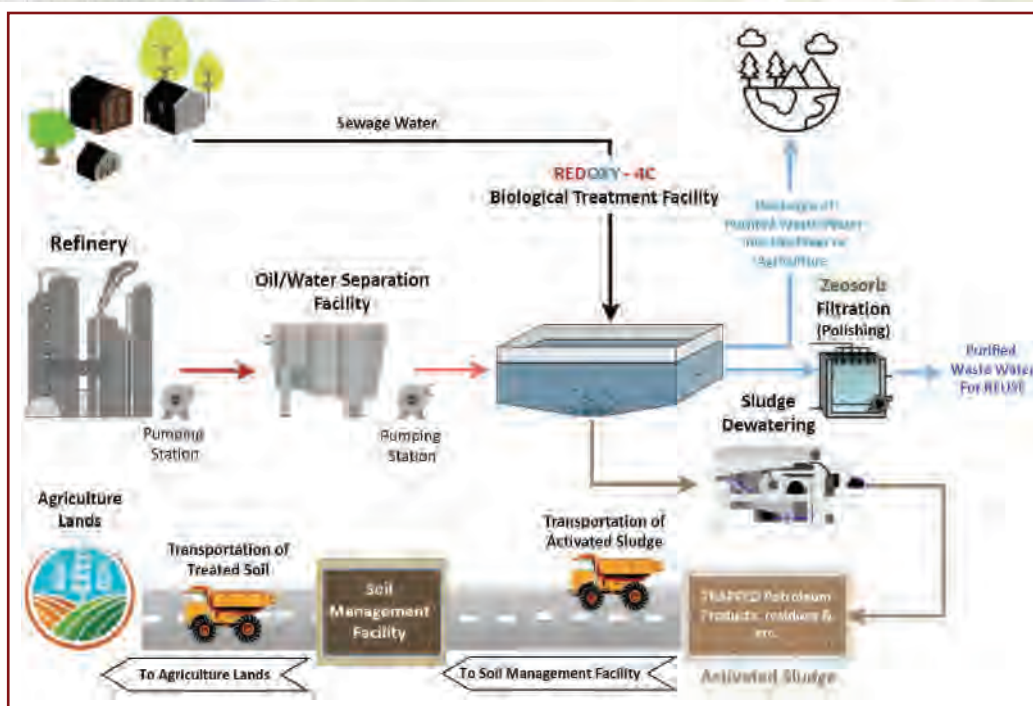
The biological treatment facility is intended for any waste water treatment using **UNIQUE Technology** from **Watch Water®**. The most rapid and complete degradation of the majority of organic and inorganic pollutants including **Fats, Oils and Grease (FOG)** is only possible with application of **RedOxy-4C** under aerobic conditions.

**RedOxy-4C** uses very Advanced Oxidation Process making it possible to intensify the processes by manyfold excluding the secondary sludge basins from the process chart, remove suspended substances by 100%, **Chemical Oxygen Demand (COD)** by 90.1%, **Biological Oxygen Demand (BOD)** by 90.1% and reduce the space occupied by 6 times compared to traditional waste water treatment plants.

Using **RedOxy-4C (Biological Treatment)** will save the **Refineries, Petrochemical Industries** and any other Industries to build bulky secondary sludge basins for trapping activated sludge after **Oxy-3C** treatment, this will reduce huge investments and half the cost's – Area used will reduce up to 4 - 5 times.

### Major Pollutants in Petroleum Industry

- High TDS
- High BOD
- High COD
- Sulfides
- Phenols
- Chlorides
- Mercaptans
- Hydrogen Sulfide (H<sub>2</sub>S)
- Ammonia
- Free Oil
- Suspended Solids



## “RedOxy-4C Granules for Bioremediation”

### Features and Benefits

- Removal of BOD and COD
- Very fast
- Very Effective
- Very Economical
- Reduction of sludge
- Green Technology
- Very Powerful

### HOW MICROBES WILL CLEAN UP THE WASTE FROM EVERY POLLUTED WATER?

Organics, Inorganics including carbohydrates from Petroleum Hydrocarbons (PH) bacteria and other microbes are the only quick solution that will ultimately clean up the ongoing difficulty of Microplastics, Pharmaceuticals waste, PFOA's, BPA and Hydrocarbon problems in all wastewater system. To achieve the most effective results with bacteria and microbes, the requirement of continuous oxygen release is necessary. OXY-Three will give trillion of Bacteria, and Microbes a steady oxygen to consume the contaminants. OXY-Three will break the Fat, Oil and Grease into tiny carbohydrates that can be easily consumable by bacteria. RedOxy-4C is the next generation of wastewater remediation.



# FERRIC-SG

## Ferric-Sulfate Granules

**Ferric-SG** is a **controlled release granule of Ferric Sulfate**. Unlike powdered or liquid grades which are very dangerous to handle in small, medium-size and large **waste water treatment** facilities. The controlled release granule is ideally suitable due to easy handling and widely suitable for any application from small to large water treatment facilities.

**Watch Water® FERRIC-SG** is a light maroon Granules of Ferric-Iron, manufactured to strict specifications from high quality certified materials. **Watch Water's®** unique manufacturing process renders a superior **ferric-sulfate** Granular that is stable at concentration up to 19.5% Ferric Iron, because all of the free acid is consumed by **Geopolymerization of Iron**.

**Watch Water® FERRIC-SG** is very effective as a coagulant in Oily and detergent water clarification. Great features in turbidity control and best coagulant for the removal of color and suspended solids. Excellent for the **Removal of Phosphorus, Chromium lead** especially **Arsenic** and **Selenium** and many **Heavy Metals**. **FERRIC-SG** is widely used for sludge dewatering, as well as resulting in sludge volume reduction up to 60% of its weight.



Ferric Sulfate Granules is the most efficient flocculant for the treatment of any water treatment with pH level around 8 or above and with the combination of ADSORB<sup>x</sup> or ADSORB<sup>3x</sup>

## FEATURES AND BENEFITS

- ★ Algae Control
- ★ Arsenic Removal
- ★ COD Removal
- ★ Phosphorus Removal
- ★ Ammonia Removal
- ★ Coagulation/Flocculation
- ★ Colour Reduction
- ★ Disinfection by-product
- ★ H<sub>2</sub>S Removal
- ★ Nutrient Removal
- ★ Only Waste Separation
- ★ Heavy Metals Separation
- ★ Sludge Conditioning
- ★ Suspended Solids Removal
- ★ TOC-Total Organic Removal
- ★ COD/BOD Reduction
- ★ Waste Water Clarification
- ★ Water Clarification
- ★ 100% Chloramine Reduction

**High Capacity FERRIC-SG is 100% Aluminum & Copper Free**

## APPLICATIONS



Sewage Purification



Waste Water Treatment



Drinking Water Treatment



Industrial Water



Water Reuse Application

## TYPICAL ANALYSIS

Concentration (% Fe <sup>+3</sup> )	Specific Gravity 10% (% Fe <sup>+3</sup> )	Free Acid	pH	Appearance	Mesh
19.5-20%	1.4-1.5	Nil	7.0	Reddish Green	1-2mm

## PRODUCT SHIPPING

30 kg bag

40 bags on Pallet

Big Bags of 1000 kg

# BLACKOXY

## Leachate Black Out

Two-stage Treatment of **Landfill Leachate** is named **BLACK-OXY** by **Watch-Water®** Mannheim, Germany. Every Landfill of waste leads to the production of Leachate which usually has a very high BOD and COD together with high amount of Heavy metals, Inorganics and organic halides . Leachate contains high amount of **Nitrogen, Phosphates, Ammonia and Hydrogen Sulfides**. All these above contaminants make the color of water Black and Jet Black. Landfill and climatic/-seasonal effects being amongst the most important

### FEATURES

- Reduces BOD & COD
- Reduces all Pollutants and contaminants
- Meets local water discharge legislation
- Treat all types of leachate
- Most cost effective technology with minimum space requirement



### BENEFITS

- One step BlackOxy mixing Black + Oxy onsite treatment reduce costs treat all kinds of Leachate without pre-treatment, reduce costs.
- Treat all kinds of Leachate with pre-treatment
- Very simple and safe
- Reduce Ammonia and Hydrogen sulfide smell
- Lowest operating costs for Leachate treatment
- The only true zero Liquid Discharge Technology
- Treat Organics and Inorganics in the same process
- Treat industrial wastewater
- 100% Biological treatment, with nitrification/denitrification process, generation of harmless, organically-based Oxygen and Nitrogen forms
- Membrane Technology is an Unjustified waste of money
- And high concentrates of Reverse-Osmosis organic strengths can persist for at least several decades

No	Type	Contaminants	Removal
1	Municipal Wastewater	Ammonia	92%
		Total SS	95%
		BOD	99%
		COD	85%
2	Landfill Leachate	COD/ BOD	80%
		Ammonium	60%
		Phosphate	68%
		Total Nitrogen	95%
3	Textile Effluent	Total Organic Carbon	75%
		Color	95%
		COD	80 to 90%
4	Tannery Wastewater	COD	90%
		Ammonia	85-90%
		Volatile Solids	70%

LEACHATE TREATMENT BY BLACK OXY IS THE MOST COST EFFECTIVE AND SUCCESSFUL TECHNOLOGY



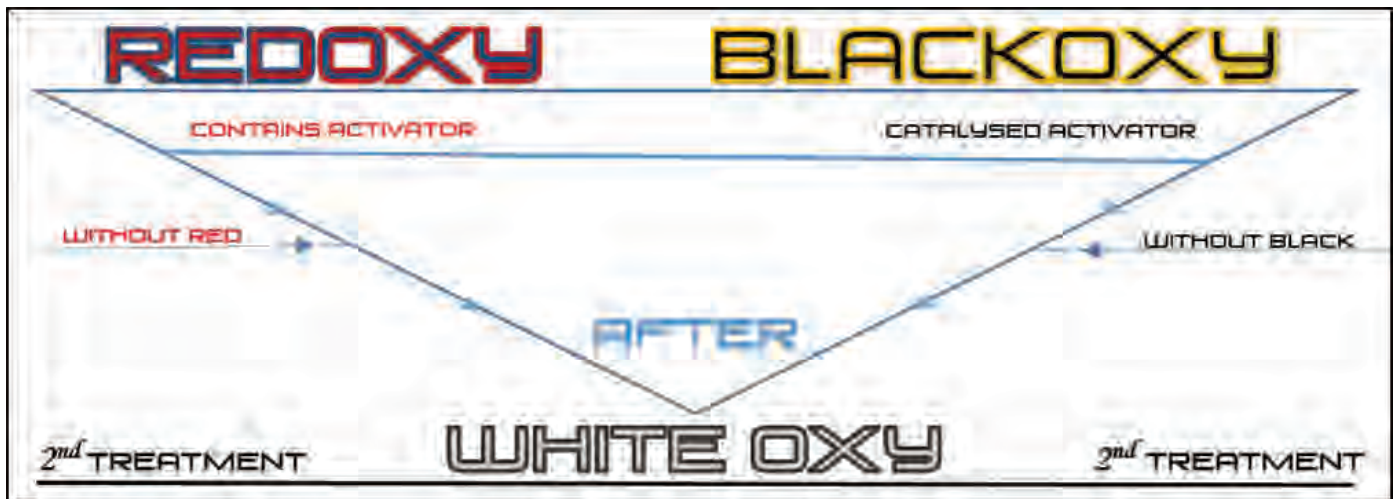
**BLACK OXY**  
LEACHATE BLACK OUT

# WHITEOXY

## Oxidation Agent For Waste Water Treatment

Watch-Water® a leader in **Advanced Oxidation technologies** for all contaminated water's introduces; "WhiteOxy" Catalysed Oxidizer for Chemical Oxidation of organics, hydrocarbons including heavy duty waste water. By design, WhiteOxy simplifies the activated oxygen process to reduces costs and handling by offering all environmental professionals a new, two in one reagent without a built-in-activator.

There is no hazardous chemical involved in this process, and its performance is equivalent to the first treatment with REDOXY & BlackOxy. In the field, the material is easily sprayed over the contaminated area using common **Granules Dozers** or spraying tools.



*"A New Technology from Watch-Water® for Waste/Ground Water, Surface Water & Sludge treatment without Activator for second and continuous treatment"*

## IMPORTANCE OF WHITEOXY

Both REDOXY and BlackOxy will chemically oxidize organics, Hydrocarbons and inorganic including phenol compounds. Depending on the mass of contamination and remediation objectives, WhiteOxy can be applied as second treatment to destroy further contaminants to sludge, soil and waste-water in order to deep ground water clean. White is definition of keeping water clean forever.



## FEATURES

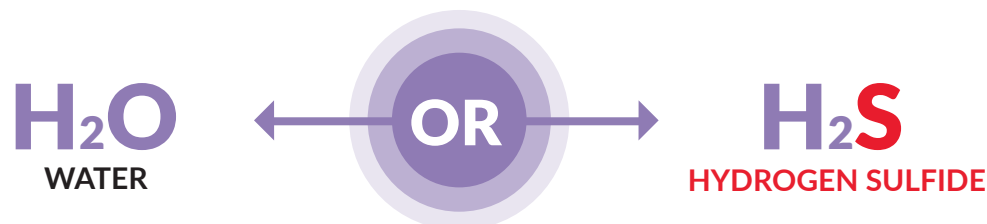
- Adsorption of nutrients to enhance biodegradation
- Supplying oxygen for 365 days a year
- For this particular application only injection of WhiteOxy a proprietary formulation of Watch-Water® Germany, Mannheim will solve any oxygen problem for 365 days a year. A total volume of 50 grams per cubic meter of contaminated water will be sprayed, which is capable of destroying target contaminants at any sort of water or waste water including soil & sludge.
- The high quality water of any state (in the world) will be maintain. That smell, odor, which is disturbing for people will be removed. The water quality will be dramatically better.
- The purpose of using RedOxy or BlackOxy followed by WhiteOxy is to accelerate and clean water problems caused by waste water or other contaminants discharge for the health benefits of (people of the country), state village or community. WhiteOxy is the best practicable and assure protection of water quality.



# OXYSORB

## The Green Revolution for Water Bodies

OXY (Oxygen Release), SORB (an Adsorber) is a proprietary formulation of Watch-Water Germany. OXYSORB™ granules in water produce a controlled release of Active Oxygen for periods of up to one whole year on a single application. The core of granules OXYSORB™ is a non-hazardous, food grade adsorber to bind and scavenge grade Phosphate, Nitrates, Hydrogen sulfide including (TOC) Toxic organic compounds. Watch-Water's OXYSORB™ has another name "magic bullet" solution in a single dosing oxidation and adsorption. OXYSORB™ technology and the process work to destroy contaminants in just a short period of time



### Why OXYSORB™?

**Answer:** Only because of eutrophication. Eutrophication and algae blooms in the frequent outbreak have become a major environmental problem facing the world. Outbreaks of algae blooms in the agriculture, tourism landscape, drinking water have a serious impact. Watching these problems, it has shown that an outbreak of Cyanobacteria control 80% produce toxins, and these toxins

can go directly to the source of drinking water and harm human health, but also in the aquatic food chain (fish, shrimps and so on) through water enriched products, thus directly or indirectly threat-en human health. OXYSORB™ is the most efficient, simple, environment friendly, low cost method to adsorb nitrogen and phosphorus and stop algae blooms and all the current problems are solved

## FEATURES

- Improves water quality
- Removes odor
- Reduces hydrant overloading
- Reduces Geosmins, Trihalomethanes and Chloramines
- Reduces heavy metals
- Reduces organic muck and harmful gases (like  $H_2S$ )
- Reduces volatile organic compounds
- Kills coliform bacteria
- Reduces nutrients like nitrogen and phosphorus
- Stops nuisance Algae growth



Using OXYSORB™ in lakes, ponds, rivers, reservoirs and wastewater will immediately reduce **Geosmins**, **Trihalomethanes**, **Chloramines**, **Phosphates**, **Nitrates** and improve taste and odor from water reservoirs!

## The Green Revolution

The Green Revolution refers to a new research that increase water production and agricultural production worldwide. **OXYSORB™** by Watch-Water is the "Product of the Green Revolution" that will save over a billion people from starvation. Water with eutrophication, phosphorus, nitrogen and algae can be now used for drinking and agriculture. We call it green revolution.

## Let's Stop Eutrophication



What is green infrastructure?

- ✓ Improve water quality
- ✓ Reduce hydrant overloading
- ✓ Reduce heavy metals
- ✓ Reduce volatile organic compounds
- ✓ Reduce nutrients like nitrogen and phosphorus

## IMPORTANCE OF OXYSORB™

It adsorbs up to 99% of phosphorus and nitrogen in the bottom section of the water body where it becomes food for beneficial muck consuming bacteria and insects. The insects then become one of the best foods for fishes, improving healthy fish growth. Water pH stays around 7.6 all the time when treated with **OXYSORB™**

**OXYSORB™** is a fine Ion-Exchange capable, yellowish and odorless granules, which is slightly soluble in water. Oxyperoxide exchange shows a very high adsorption of phosphates and nitrate stability

Compositions	unit	value
Oxyperoxide	(w/w)	75%
Available oxygen	(w/w)	20%
Adsorption granular	(w/w)	5%
Moisture	(w/w)	0%
pH1 (0.05%) - application	-	7.5
pH2 (1%)	-	11.5

## APPLICATIONS



Oceans, seas, lakes



Ponds, wetlands



Rivers, streams, canals



Reservoirs, basin, aquifers



Harbor, lagoons

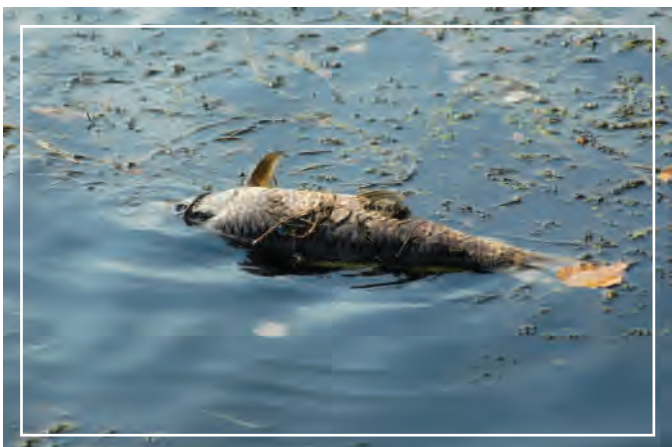


Water as well as for water reuse



Surface and ground waters

## OXYSORB™ brings life to the water

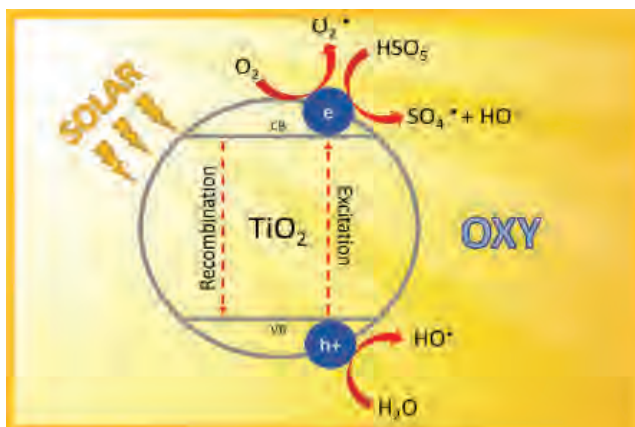


# SOLAROXY-3C

## Solar Disinfection through Photocatalytic Degradation

**Watch Water®** has created a proprietary innovation Solar Engine for molecular chemistry. In the water treatment industry, product discovery never stops. Rather than relying on off-the-shelf treatment, **Watch Water®** constantly seek for new treatment that could make for better results. **Watch-TiO<sub>2</sub>** is used in various applications for its **PHOTOCATALYTIC** properties. In these applications, **Watch-TiO<sub>2</sub>** in the presence of light catalyzes the degradation or other reaction of undesired chemicals or microorganisms.

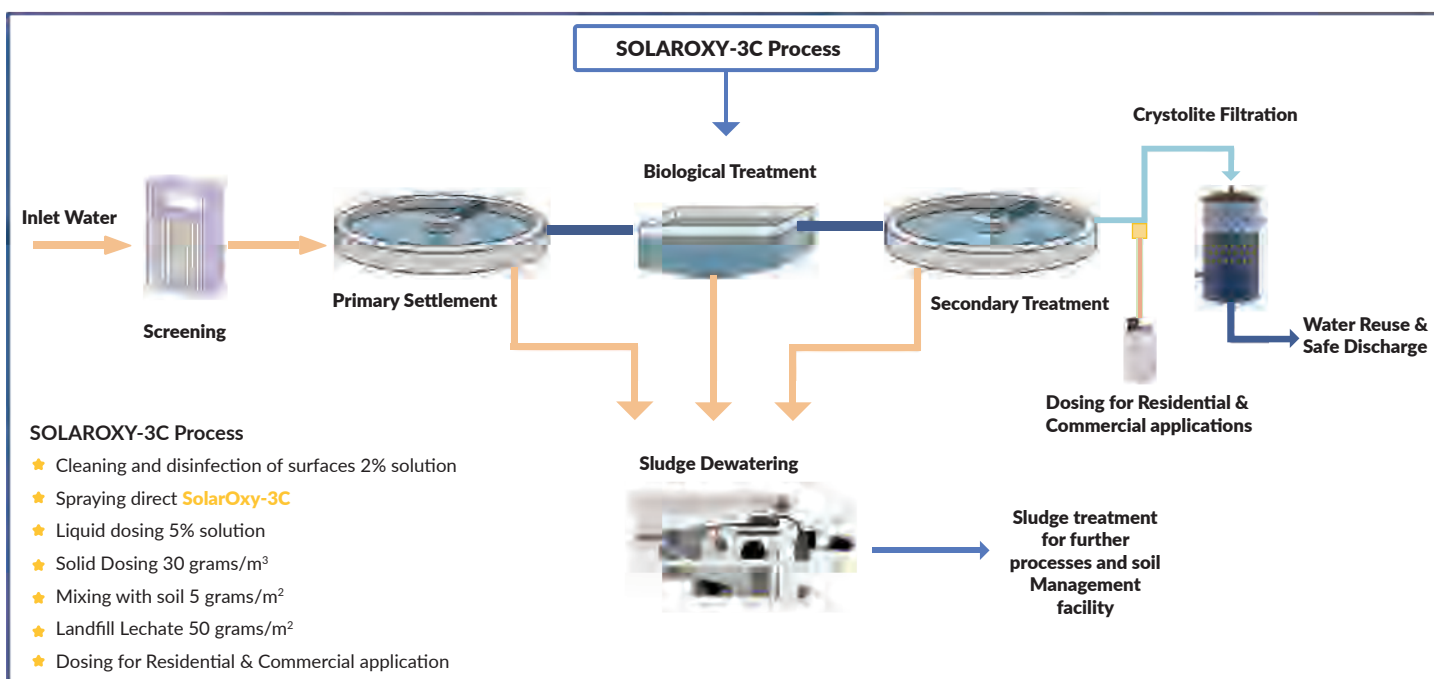
**UV-Oxidation** treatment is getting bigger and brighter for over last 100 years – but – their electrical bill and operational cost has also increased and going higher and higher. Solar treatment requires no power and is energy saving alternative.



Only Solar treatment is **Green Treatment** for water and wastewater. **Watch Water®** introduces **SOLAROXY-3C** that emit ultraviolet (UV) light which could improve treatment processes for removing micropollutants in water and wastewater, including harmful pesticides and organic matter.

Watch - TiO <sub>2</sub>		
Titansorb	Adsorber for Heavy Metals	Granules
CarbonBlock-TS	Removal of organics and inorganics. Regenerable.	Block
SolarOxy	Regeneration of Activated Carbon	Powder

### Schematic of the Watch Water SOLAROXY-3C process

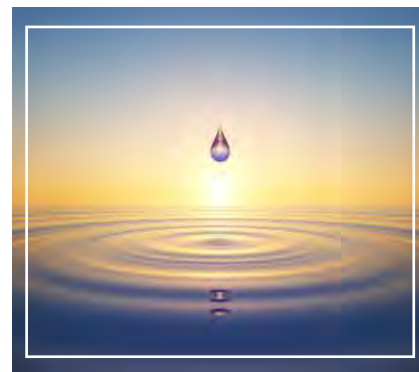


#### Applications

- Drinking Water
- Ground Water
- Surface Water
- Sewage Water
- Rainwater Drains
- Ponds
- Lakes
- Rivers
- Aquatic Ponds
- Swimming Pools
- Municipal Sludge
- Landfill Leachate
- Blackwater
- Infected Surfaces
- Cooling Water
- Algae Growth inhibitor
- Wastewater
- In Disinfection

#### Removal of

- Organics
- Nitrogen based contaminants
- Antibiotics
- Pharmaceuticals
- Microplastics
- Oder and Pathogens
- Removal of COD and BOD
- Removal of heavy metals and metallic oxyanions





# SOILOXY

## Soil Bioremediation

**SOILOXY** is a stable **OXYGEN** granule use in **SOIL** to increase production of agriculture farming through healthy **SOIL** and **ROOTS**. **OXYGENATED SOIL** assist organism to up take more carbon which consequently increases the aerobic process in soil and reduces odors by anerobic conditions. Biodegradation of increase organic carbon, nitrogen and phosphorous increases the uptake of **CARBON** and maintain a healthy ecosystem with **SOILOXY**.

The controlled release of **OXYGEN** assist microbes in aerobic degradation of nutrients and contaminants into non-toxic end products. The controlled release of **OXYGEN** is beneficial for increasing production in aqua farming and agriculture worldwide by maintaining a balance of **OXYGEN** for oxidation and aerobic degradation.

### APPLICATIONS



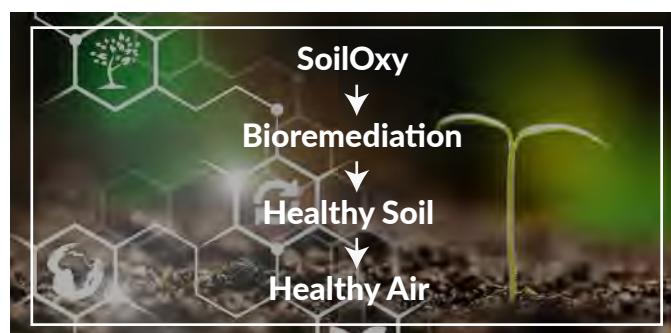
Agriculture Farming



Soil Remediation



Biological Treatment



- Give plants the ability to adsorb  $\text{CO}_2$ , water and nutrients and use them more efficiently.
- Speed aerobic and biological activities at high moisture conditions
- Increase total soil microbes population to reduce carbon and help to protect climate change
- Improve the hydraulic conductivity of the soil allowing more efficient movement of oxygen and nutrients. This effect is especially useful in soils with high phosphate and nitrates. (Heavy Soil)
- Soiloxy is activated by sulphides moisture and acidic conditions which initiates the regeneration of Active oxygen from the Soiloxy leading to the oxidation of poly hydrosulfides.
- Maintain and protect healthy plant roots
- Enhance enzyme diversity
- Soiloxy accelerate the natured attenuation of all contaminated soils, for soil amendment in agriculture, horticulture and forestry applications of oxygen and nutrients to microbes

## Future Agriculture Extreme Low Oxygen in the Soils

Low **Oxygen** in the soil produce greenhouse gases. **Oxygen** in the soils is not vital to most soil organism, but its chemistry also affect the chemistry of the soil and the atmosphere above. In Agriculture and forest regions with very little **Oxygen**, for example, large amounts of the potent of greenhouse gas **Nitrous Oxide** are produced via biogeochemical processes can then be released to the atmosphere.

Extremely low **Oxygen (O)** in the soils are called "**Dead Agriculture Zones**" which are uninhabitable for most agricultural products like wheat, rice and corn. Dead zones are areas of the earth depleted of **Oxygen ( $\text{O}_2$ )**. In addition to the environmental impact, dead zones are a food concern for commercial and agriculture, with very low **Oxygen ( $\text{O}_2$ )** concentrations having linked the reduced yield in the Asia and other parts of the World. The newly discovered "**SOILOXY**" is unique, which in process form **Oxygen**.

The land where **SoilOXY** is used remains rich in **Oxygen** for some year's and this supports intense "**Plant Growth**" and with the help of bacteria in the deeper soils consuming the available **Oxygen** decompose the sinking **Plant** and **Carbon** matter.

# IN FLOW SEWERAGE TREATMENT

## Sewerage Treatment

Just below your feet or below the surface, our streets are literally bubbling with activities . Pipes cross under, over or even through each other carrying our **Drinking Water, Waste-water** and **Stormwater drainage** from **roads, our homes, businesses, along curblines, rooftop down spots** and through sump pump connections. Yet, these pipes and the essential services they provide are often forgotten or underappreciated. In entire world, average sewer collection system pipe is around 100 years old and when pipes gets old, they corrode, break and collapse. All old pipes have capacity issues as population has increased dramatically.

Over the past 40 years **Watch Water®** and municipalities have made significant progress in protection of lakes, drinking water pipes and public health by developing new and innovative technologies. Due to capacity issue of existing pipes and the wastewater treatment plants, **Watch Water®** has developed a revolutionary **In-Flow technology®** to improve the existing treatment capacity by 70% without any investment.

### POLLUTION SOURCES

#### Road

- \* Motor oil
- \* Paved areas
- \* Streets
- \* Side walks
- \* Parking lots
- \* Vehicles (cars, trucks, tractors and etc.)

#### Residential Areas

- \* Wastewater from
- \* Kitchens
- \* Baths
- \* Toilets
- \* Washing machines
- \* Dishwashers
- \* Roofs & sinks
- \* Pet waste
- \* heavy metals

#### Industrial Manufacturing Operations

- \* All kinds of toxic
- \* Industrial wastewater
- \* Chemicals
- \* Heavy metals
- \* Metals like copper
- \* Arsenic
- \* Chromium
- \* Mercury and etc.

### FEATURES

- \* In-Flow Sewage Treatment
- \* Treatment from source
- \* Low capital investment
- \* Upgrade existing technology
- \* Instant results
- \* Immediate Return On Invest (ROI)
- \* Automatic Dosing system/Manual dosing system



"Larger Capacity with Same Infrastructure"



# IN TANK TREATMENT

## Affordable Solution to Improve Water Quality

In all the buildings, houses around the world, there are millions of water storage tanks for municipal water use. Water is used for drinking, cooking and bathing. **The storage tanks are placed on**

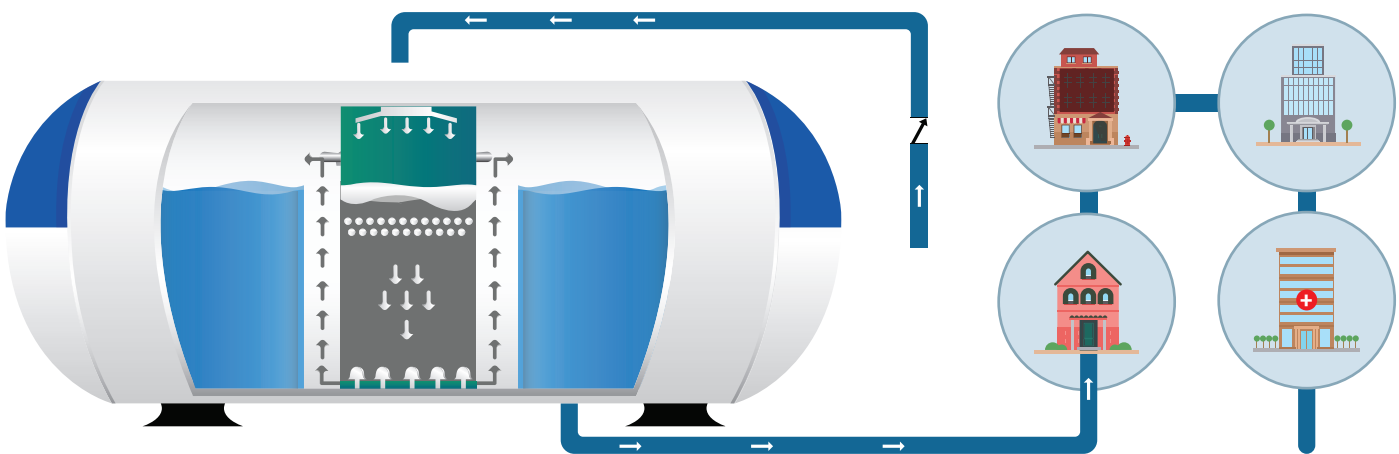
The Roof

Under the Roof

On Ground

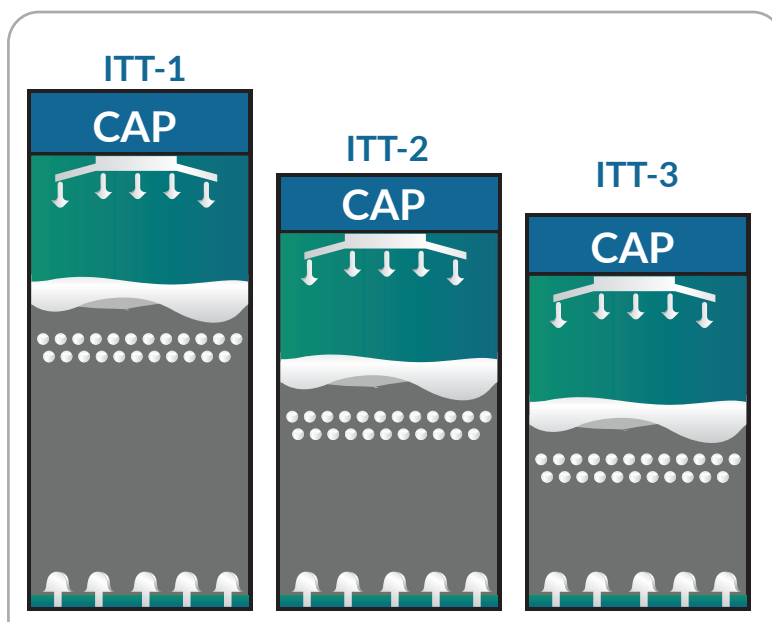
Under the Ground

The most reliable filters in the world is to use gravity, without electricity and pressure to remove heavy metals, organics and toxins from city water. City water has a big journey which brings all kind of contaminants with very low water quality. 80% of world's city water contains harmful contaminants including **Arsenic, Lead and Radioactive waste.**



All of these tanks have a Line in to supply the tank with water and naturally a Line out to the building or house to supply water for daily use.

### PROTECT HUMAN AND AQUATIC HEALTH WITHOUT EXPENSIVE TREATMENT PLANTS



“The First method used is **Titansorb-P** to adsorb **Arsenic, Phosphates** and some **Nitrates** including **Radioactive** elements like **Uranium**. **Second step** to **polish** water from **Micropollutants** such as **pharma canticles, hormones and microplastics**. Even different types of **Bacteria** and **Viruses**. The **zero valent** from coated **activated carbon** and **Crystolite** are most effective removing the pollutants in 10 minutes with 95% to 99% effectiveness, Respectively with only 1 micron of water filtration. **Watch Water®** have also used **Trappsorb** as media to **adsorb Ammonia** and release the **World's No.1 Magnesium Mineral** to have a decent **Mineral Water** at home. Removing pollutants and contaminants from water using **Watch Water® Multi Media Technology** that is sustainable and affordable technology.”



# SALT-FREE WATER SOFTENER®

Alternative to Water Softener

## RAPIDSOFT

RAPIDSOFT (SOFTNOR) is Scale Prevention system based on Nucleation Assisted Crystallization Technology (Filtersorb-SP3). Salt-Free Scale Prevention technology to prevent scaling and eliminate previous scales over a period of time.



## RAPIDSOFT PLUS

RAPIDSOFT-PLUS is a Scale Prevention system combine with Corrosion Control (TRAPPSORB). The perfect alternative to conventional water softener by maintaining necessary minerals. RAPIDSOFT-PLUS performs passivation by adding Magnesium in water.



### Applications

#### RESIDENTIAL

- Whole house Scale Prevention
- Water Heaters
- Tank-less water heaters
- Bath and shower

#### COMMERCIAL

- Hotels, Hospitals
- Car washes
- Catering services
- Cooling Towers
- Evaporators & Humidifiers
- Coffee and Tea Brewers
- Espresso Machine
- Steam ovens

BENEFITS
Remove pre-existing scale
No Regeneration
No Salt
No Backwash
No Electricity
Easy Installation



## COMPARISON SALTLESS WATER SOFTENER vs. SALT-BASED WATER SOFTENER

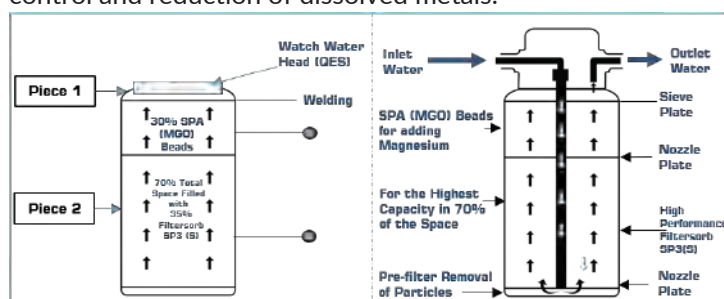


Conventional water softener solutions based on ion exchange only focus on removing the Calcium ( $\text{Ca}^{2+}$ ) Ion from hard water and replacing it with **Sodium or Potassium ions** that do not stick to surfaces. However, a clean and environmental friendly method is available with **Filtersorb SP3** for alternative solution to stopping calcium carbonate from sticking to surfaces

Nucleation Assisted Crystallization (NAC) Alternative Solution with **RAPIDSOFT & RAPIDSOFT-PLUS**

## SCALETRAPP

Watch Water® has introduced **SCALETRAPP** for a breakthrough in **Scale Prevention & Passivation Technology** with a complete unit of **TWO-STAGE** water filtration system. **SCALETRAPP** system consists of **Filtersorb - SP3** for scale prevention of temporary hardness in **stage ONE**. In stage **TWO SPA(MGO)** filter material for enhancing the corrosion control and reduction of dissolved metals.



**SCALETRAPP** system takes advantage of this electric sorting by drawing the temporary hardness in the first chamber and splitting the water into second chamber. One chamber with **Filtersorb SP3** for temporary hardness and the second chamber with **Filtersorb SPA (MGO)** to treat permanent hardness with highly advanced surface for anionization process to make clean and healthy water because the system does not have any **Ion-Exchange**, membrane or mechanical filter.

Two Stage  
Water Filtration ...

- 1 Filtersorb SP3 (S)
- 2 SPA (MGO) Beads adding Magnesium

### APPLICATIONS



Washing Machine



Dish washer



Steam Oven's



Water Heaters



Vending Machine



Coffee Machines



Home Appliance's



Drinking Water

### ADVANTAGES

- Zero operating cost
- Corrosion Control
- Residential and Commercial
- Quick Exchange system
- Highly efficient scale prevention
- Healthy Minerals



# SPECIAL FILTER

Reduction of Scale and Chlorine

## What is Special Filter?

High Capacity in reduction of Scale, Chlorine, Lead and Heavy Metals, Bad Taste and Odor, Cysts and organics. Built-in Scale Inhibitor with **FILTERSORB SP3**.

BEST CARBON FILTER

BEST HARD SCALE PROTECTION

BEST MINERAL IN WATER



"You will never drink bottled water again"

You will try **SPECIAL™** Filter water and you will never drink bottled water again. You would realize adding a filter to your drinking water is an obvious choice. First, in the long run our filter will make you healthy, second, it saves lot of your money. Third, buying water in a plastic bottle can be bad for your health as hundreds of reports have shown and certainly is not good for our environment. Once again we have found that **SPECIAL™** Filter is the best value available on the market today.



### KEY FEATURES

- Quick Change Cartridge
- Auto water shut off
- Up to 25,000 liters capacity
- 3/8" push fit, John Guest Connection
- Prevents scale
- Phosphate
- No Sodium
- No Bypass, 100% filtration
- pH Stable

Model	SP 510	SP 520
Height	280 mm	480 mm
Width	75 mm	75 mm
Depth	75 mm	75 mm

If Calcium and Magnesium are put into the Coffee - "it changes the Coffee"





## IMPORTANCE OF SPECIAL FILTER

To get a Special flavorful coffee, there must be mineral content in the water.  
If the water has been decarbonized or softened (decarbonization or softening is the process of removing minerals), the extraction will be weak and the beverage will be relatively flavorless – as food can be if no salt is used!

For good Tee or Coffee preparation a minimum mineral content of 150 – 200 mg/L (8.4 – 11.2 grains/gallon) is essential for a good extraction.

Water which is high in H<sup>+</sup> ions or Na<sup>+</sup> ions will result in weak and flavorless coffee. These Ions-Exchanged Hydrogen Ions and Sodium Ions will also corrode the internals of the machines. All Beverages should have water pH between 7.1 and 7.5.

If the water pH drops below 7.1 all beverages cause ACIDOSIS.



Special Filter			VS	Bottled Water		
One	Alkaline	Economical		Hundreds	Acidic (Mostly)	Expensive
The Decision is Yours!						



Model	Description	Reduction Parameters				Capacity	Temp	Pressure	Flowrate	Filtrtion	Box qty.
Model	Description	Chlorine, taste and odor	Sediment	Scale Prevention	B, T & D*	liters	°C	bar	lpm	µm	pcs.
SP 510C	SP 510 (complete with head)	Yes	Yes	Yes	Yes	12000	5 - 37.8	2 - 7	3.7	5	9
SP 510R	SP 510 (Replacement cartridge)	Yes	Yes	Yes	Yes	12000	5 - 37.8	2 - 7	3.7	5	9
SP 520C	SP 520 (complete with head)	Yes	Yes	Yes	Yes	25000	5 - 37.8	2 - 7	6.5	5	9
SP 520R	SP 520 (Replacement cartridge)	Yes	Yes	Yes	Yes	25000	5 - 37.8	2 - 7	6.5	5	9

# CARBONBLOCK TS3®

Activated Carbon and Titansorb Based Filter Cartridge

CARBONBLOCK-TS3 Is the first ever **Activated Carbon** Filter combined with **Titansorb Crystalline Powder** for high capacity of **Heavy metal** removal. The benefits of high removal of Organics as well as self-regenerable through **Photocatalyst** properties. The direct replacement for unnecessary reverse osmosis for drinking water.



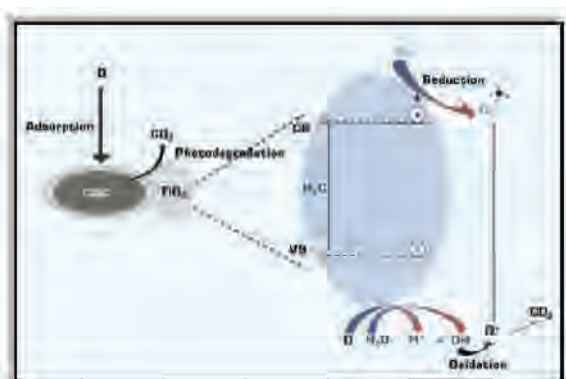
CARBONBLOCK-TS3 cartridges are considered to be the most advanced method for reducing a broad spectrum of toxic contaminants based on organics and inorganics including prescription drugs and BPA.

CARBONBLOCK-TS3 cartridges implement two different filtration stages, combining **Activated Carbon** and **Titansorb** with both **electro kinetic adsorption** and **physiochemical adsorption**. Titansorb-P is the most effective due to its **high photocatalytic activity**, chemical stability, nontoxic nature and its **highest adsorption capacity**.



## REGENERATION OF CARBONBLOCK TS3®

For Regeneration of CARBONBLOCK-TS3 **UV light** is required (**48 h Visible light**), the regeneration is limited to max. 2 times.



**Photodegradation** of organics and adsorption of inorganics to achieve Adsorption-Desorption equilibrium using powder activated carbon as Catalyst support the increase of Photodegradation



Activated Carbon Block manufactured based on **Titansorb-P** are showing increasing attention for the degradation of the following contaminants:

- ◆ Humic Acids, Fumic Acids
- ◆ All Phenolic Compounds
- ◆ Pesticides and Chlorinated Compounds
- ◆ All sort of Dyes
- ◆ Microplastic Compounds
- ◆ Antibiotics & Pharmaceutical
- ◆ Pathogenic Bacteria
- ◆ Provide a simple, highly effective heavy metal removal mechanism
- ◆ Easy Exchangeable cartridge
- ◆ Can be used in industrial applications that require part per billion concentration like Arsenic, Uranium, Chromium, Radium, Copper, Mercury, Nickel, Fluorides, Radioactive metals and Lead

## WATCH WATER'S LATEST INNOVATION



**Remove 99% of Heavy Metals from Water**  
Rapid removal of Organic Micropollutants from Drinking Water



**Remove particle down to 10 micron**  
Remove most of volatile organic chemicals (VOC's)



**Self Regenerating CARBONBLOCK TS3**

### Best Features:



**Easy and Best Suitable**



**NO Power Needed**



**NO Chemical in Water**



**Saves Beneficial Mineral in Water**

### Latest News:

Now Watch Water CARBONBLOCK's are also available as CB-KL (CARBONBLOCK combined with Katalyst Light Crystalline Powder) for iron and manganese removal.

**Please contact us for more information...**



# SPECIAL MAGIC

## Magnesium In Cartridge

### Water Without Magnesium

All water without **added magnesium** are dangerous and is set to shock water-safety experts worldwide. Watch Water® have been contacted several times from the world of Magnesium experts to introduce our Special Filter which adds **Magnesium** in Water. All studies have proved that Magnesium deficiency causes heart disease and water with **Magnesium** is the simple solution..

Hopefully the rest of the world will look at the **Press-Release** which you can read online and identify the contribution factor of low levels of magnesium in our water to our overwhelming epidemic of heart disease.

## MAGNESIUM IN WATER. THE NUTRIENT THAT COULD CHANGE YOUR LIFE

### Think of what water you are drinking now?

- Is it softened extensively?
- Subjected to reverse osmosis?

Both technologies exchange and remove good minerals along with the bad? For example, sodium which exchange with essential minerals like **Calcium** and **Magnesium** or reverse osmosis which removes all essential minerals. Through drinking water, we are supposed to receive **Magnesium**, **Calcium** and all our other minerals but unfortunately, we no longer have this luxury due to water softener and reverse osmosis.

### Special Magic Filter

To protect you from many diseases caused by **Magnesium** deficiency. The best available source of **Magnesium** is with **Special Magic Magnesium in Cartridge Filter!**



MG 510

MG 520

FILTERS THAT  
LACK  
MAGNESIUM CAN  
CAUSE HEART  
ATTACK!

**MAGNESIUM IN CARTRIDGE:  
HEALTHY & HAPPY FUTURE**

# NITRO-SOFT

## Two-in One Process of Nitrates Removal & Water Softening

The **Watch Water® NitroSoft** treatment system features a cabinet mounted **Nitrotrapp media** and units are sized for one family house, two family house and for a maximum design flow of 3 m<sup>3</sup>/h (13.2 gpm) for three family house. The models **NitroSoft One, Two and Three** uses **NitroSoft** media in a single fibre glass composite vessel. Each tank contains **Watch Water® NitroTrapp and HardnessTrapp** media in a ratio of 50:50. Both medias are supplied in the chloride form as moist, tough as uniform spherical beads. The **Watch Water® Nitrate and Hardness** removal system featured with a mixing valve that blends treated and untreated water to attain a blended nitrate concentration at set point less than 5 mg/liter. **NitroSoft** systems are equipped with a regeneration/brine well and brine valve system to regenerate the **Watch Water® NitroSoft systems**.

### Never use Water Softener Alone When Nitrates in Water

Because softening resin is loaded with Sodium (Na<sup>+</sup>) all Calcium nitrate, Magnesium nitrate and Iron nitrate ions are exchanged as follows  $\text{Ca}_2^{2+} + \text{NO}_3^- + \text{Mg}^{2+} + \text{NO}_3^- + \text{Fe}^{2+} + \text{NO}_3^-$  are exchanged into very toxic  $\text{Na} + \text{NO}_3^-$ . Sodium nitrate water is considered as irritant to the respiratory tract which cause shortness of breath and coughing. Water softening alone when presented with high nitrates are result in water pollution & contamination of drinking water sources.

### NitroSoft Systems



NitroSoft model	Size of Household	Type	Flow	Connection	DxWxH	Nitrosoft Inside
ONE	One Family Household (2 – 6 person)	POE	1 m <sup>3</sup> /h	1"	56 x 31 x 74 cm	10 L
TWO	Two Family Household (6 – 12 person)	POE	2 m <sup>3</sup> /h	1"	56 x 31 x 120 cm	20 L
THREE	Three Family Household (12 – 18 person)	POE	3 m <sup>3</sup> /h	1"	56 x 31 x 120 cm	30 L

"Two-in One Process of Nitrates Removal & Water Softening"

### FEATURES

- Easy and user-friendly operation
- High quality brand components
- Available in different sizes
- Suitable for small, medium-sized and large household



Soft water without NITROTRAPP can be toxic to humans. Nitrate contamination of freshwater streams and rivers is also a raising concern. The impacts of sodium nitrates on human health are potentially significant. Following consumption, the human body reduces nitrate to nitrite, which has been linked to Methemoglobinemia, a potentially fatal condition whereby nitrates interfere with oxygen uptake within the body. Sodium Nitrates can be further reduced to nitrosamines, a class of compounds considered to be carcinogen. NITROSOFT is your solution to healthy drinking water for whole house.

# AMBERSOFT

## Packed Bed Water Softeners

Watch Water® AMBERSOFT® uses **Packed Bed Design**. When the water enters the bed during the service cycle, it progressively comes into contact with more highly regenerated resin, which ensures production of a high quality **softened water**, minimizes chances of ionic leakage and maximizes resin bed operation capacity. Regeneration can be performed faster and more efficiently, with reduced chemical consumption, less rinse water, reduced waste disposal requirements, and lower overall expense.

### SPECIALTY

- Packed bed units
- Low operating costs
- High exchange capacity
- State-of-the-art treated water quality
- Efficient and simple backwash capability

### APPLICATIONS



Commercial



Industrial

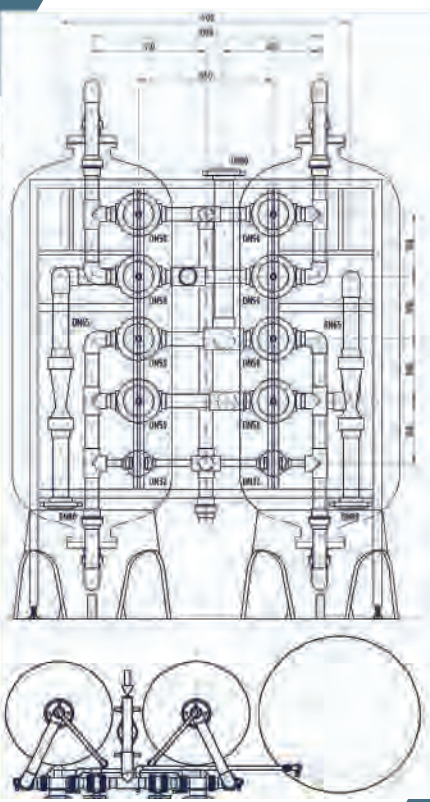


### PRE-TREATMENT

Pretreatment requirement depends on the raw water analysis. If **Iron and Manganese** contaminants exceeds control limits, pre-treatment is mandatory with **Katalyst-Light** to provide better resin lifetime and efficiency. Please contact us for more information on pretreatment processes.

### BENEFITS

1. Improved effluent hardness quality based on the bleed concentration of hardness from the softener. This is due to the bottom of the resin tank being cleaner in the up-flow design than typical down-flow systems.
2. Improved effluent iron quality for systems operating on high levels of ferrous iron. The same benefits of improved hardness removal also enhance the system's ability to remove elevated levels of iron.
3. Reduced salt consumption since units operate more efficiently. The overall salt consumption of a **AMBERSOFT®** system can be up to 50% less than in a similar downflow system.
4. Reduced water consumption per regeneration cycle.
5. Environmental benefits are also addressed, as counter current systems are inherently more efficient and less wasteful than downflow designs. **AMBERSOFT®** technology can be deemed the greenest softener design.





# Introducing Watch Water's Skin Care Division

## CLEAN-SKIN BATH

Skin Calming bath  
for Eczema Patients

*If your skin looks old,  
dirty and you have eczema  
Watch Water® CLEAN SKIN BATH  
helps you to get rid of Atopic Dermatitis.*

Get your  
Sample box

**for free**

### Magnesium bath for Eczema

Magnesium is an essential nutrient for more than 300 bicellular processes in the body. Magnesium helps to reduce inflammation, which is a key symptom of Eczema and psoriasis. It can also help to decrease skin stress and anxiety, which is a major advantage of **Component A** high capacity food grade magnesium. It will help to prevent future flare-zups and inflammation.

Watch Water® new **Skin Care** department has introduced a revolutionary product for Atopic Dermatitis (Eczema) along with other bad skin conditions. **CLEAN-SKIN BATH** will help to get rid of Atopic Dermatitis, to calm your skin and makes you feel young again. No more sleepless nights with scratching **Watch Water® CLEAN-SKIN BATH** is going to end your itching desperation and giving you smooth and flaw-less skin

### CLEAN-SKIN BATH

- Pure form of selected salts without fragrance or soap. Both fragrance and soap are leading to inflammation, eczema and bacteria growth on your skin that can cause skin aging and infections.
- Helps to reduce the number of bacteria, dirt, and germs on the skin. This can help to preventing Eczema flares. Regular use of Watch Water® CLEAN-SKIN BATH improves aging generally.
- Also recommended for other skin conditions, such as recurrent skin infections.
- For treating Eczema use a gentle mixture of Component A and B into ration of 80% - 20% dilution, both the components are safe and replicate the salts in the Dead Sea.



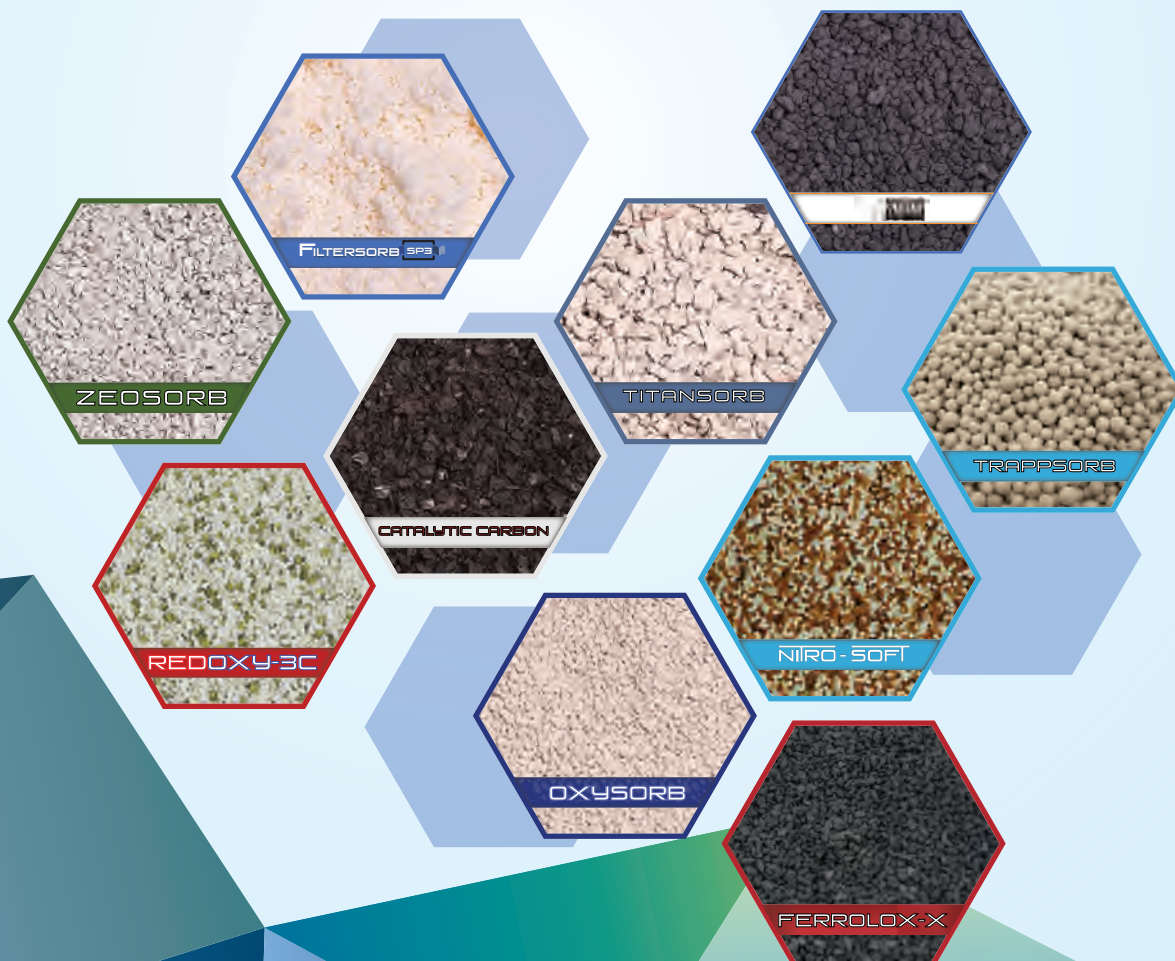
### Antimicrobial Properties

**CLEAN-SKIN BATH** possesses incredible antimicrobial properties that make it so useful for skin and eczema treatment. **Component B** is a hydrated salt that can adsorb moisture quickly and change the magnesium salt into hygroscopic.

**CLEAN-SKIN BATH** contains magnesium in **Component A** and Oxygen and sulfur in **Component B**. These minerals components have plenty of uses in beauty, health and fitness. Both components have similar appearance but functionally both are entirely different. Additionally, they are great for taking care of skin troubles.

# WATCH<sup>®</sup> ER WATCH WATER

*a Water Company*



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