

REDOXY TREATMENT

FILTRATION

ADSORPTION

FILTERSORB

INSTANT PRODUCTS

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



## SILICATRAPP

INNOVATION FOR SILICA REMOVAL

Developed in the laboratories of WATCH WATER in Germany, SILICATRAPP is an innovative and unique filtration which can reduce the silica content in the water **by as much as 70%**, thus offering great benefits for water consuming processes, such as reverse osmosis, cooling towers and steam boilers.

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## INNOVATIVE TECHNOLOGY FOR SILICA REMOVAL

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In areas where the groundwater contains high silica levels with concentrations between 50 and 100 ppm, the potential of silica-scale deposition represents a serious problem in water-dominated production processes. Silica solubility in water generally is 150 ppm to 180 ppm depending on the water chemistry and temperature. Deposits of silica-scale are particularly hard and even hazardous to remove.

This leads to consuming either enormous amounts of water due to an operation at low concentration cycles and recovery rates or significant amounts of water treatment chemicals that pre-

vent silica-scale formation. Thus, the inhibition of silica-scale becomes one of the most important drivers for operation costs of evaporative cooling systems, vapor boilers and/or reverse osmosis systems.

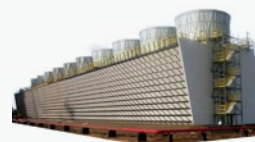
SILICATRAPP by WATCH WATER is an innovative process which allows to significantly reduce the concentration of reactive and colloidal Silica. Depending of the water chemistry this process can remove up to 70% of the total Silica content.

### BENEFITS



#### REVERSE OSMOSIS

- Higher recovery rates
- Lower SDI
- Less membrane fouling
- Reduced anti-scalant consumption



#### COOLING TOWERS

- Higher concentration cycles
- Less water consumption
- Reduced anti-scalant consumption



## THE SILICATRAPP PROCESS CONSISTS OF 2 STEPS:

1

### FIRST STEP

Preconditioning of the water  
with TRAPPSORB.

**TRAPPSORB**<sup>®</sup>

**TRAPPSORB** is an adsorber filter material designed and produced by **WATCH WATER**.

Its uniform beads contain MgO and CaO with a purity of 99.9%. Thanks to our unique manufacturing process, **TRAPPSORB** has a higher porosity and unique surface which **allows** a quick and efficient reaction with the Silica in the water.

2

### SECOND STEP

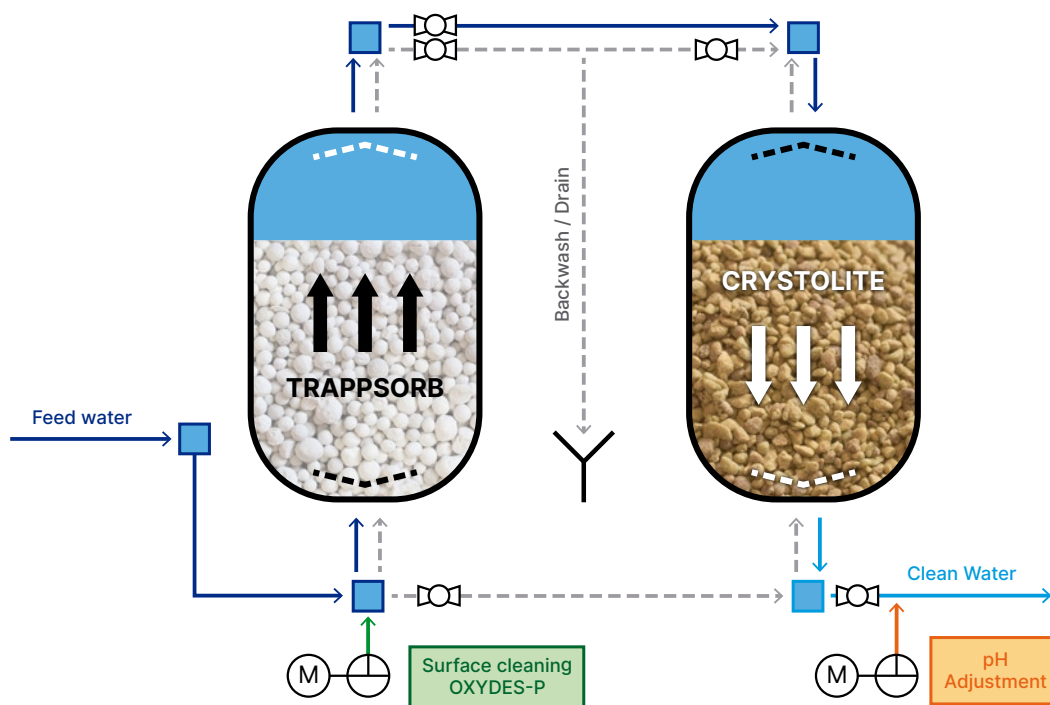
Filtration with CRYSTOLITE.

**CRYSTOLITE**<sup>™</sup>

**CRYSTOLITE** is a high-capacity filter material with one of the highest filtration efficiencies in the market. Allowing to **retain particles down to 0.5 micron**, it delivers exceptionally clear water and is used whenever a combination of a superior filtration performance and lower operating costs is required. **CRYSTOLITE** filtration media can provide an excellent alternative to a microfiltration.

<b>Appearance:</b>	Grey beads
<b>Bulk density:</b>	1,300 Kg/m <sup>3</sup>
<b>Mesh size:</b>	2 a 5 mm
<b>Contact time:</b>	6 min
<b>Service velocity:</b>	10 – 15 m/h
<b>Backwash velocity:</b>	25 – 30 m/h

<b>Appearance:</b>	Reddish granulate
<b>Bulk density:</b>	1,050 Kg/m <sup>3</sup>
<b>Mesh size:</b>	0.5 a 1.2 mm
<b>Contact time:</b>	75 a 120 cm
<b>Service velocity:</b>	20 m/h
<b>Backwash velocity:</b>	20 – 25 m/h



**OXYDES-P:** Oxidizing agent for surface cleaning. Depending on the water chemistry, it may be necessary to clean the surface of Trappsorb with OXYDES-P when the removal performance decreases.

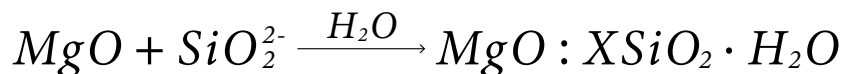
**pH adjustment:** Necessary if a certain pH is desired at the outlet of the system. Depending on the water chemistry the pH at the outlet of the SILICATRAPP process may vary between 9 and 11.

## PROCESS DESCRIPTION

The **SILICATRAPP** process consists of 2 steps: a preconditioning of the water with **TRAPPSORB** and a subsequent filtration with **CRYSTOLITE**.

During the first step **TRAPPSORB** enriches the water with Magnesium and increases the

pH. Under these conditions the reactive part of the Silica is converted into **Magnesium Silicate**. The so formed silicates are filtered afterwards by **CRYSTOLITE** thanks to its capacity to retain particles in the sub-micron range



In addition, the innovative **SILICATRAPP** process also allows for removing up to 60% of the hardness and reducing turbidity by more than 96%, which makes it the best available pre-treatment for reverse osmosis as well as for industrial cooling systems.

## REMOVAL EFFICIENCY

70%

REMOVES SILICA  
UP TO 70%

60%

REDUCES WATER  
HARDNESS BY AS  
MUCH AS 60%

96%

REDUCES TURBIDITY  
BY MORE THAN 96%



Service Flow GPM	Connections		TRAPPSORB					CRYSTOLITE			
	In-/Outlet	Drain	Tank	Bags	Weight (Kg)	Backwash Flow (GPM)		Tank	Bags (ft³)	Backwash Flow (GPM)	
						Min	Max			Min	Max
3	1	1	13x54	2.5	92.5	11	15	10x54	1.5	4	6
5	1.25	1	16x65	4	148	17	22	13x54	2.5	7	9
7.5	1.25	1.25	18x65	6	222	21	28	14x65	3	9	11
10	2	1.5	21x62	8	296	29	39	16x65	4	11	14
15	2	1.5	24x72	12	444	38	50	21x62	7	19	24
20	2	2	30x72	18	666	59	79	24x72	10	25	31
30	3	2.5	36x72	25	925	85	113	30x72	15	39	49
45	3	2.5	42x72	35	1,295	116	154	36x72	20	57	71
55	3	3	48x72	45	1,665	151	201	42x72	30	77	96
80	3	4	60x94	65	2,405	236	314	48x72	40	101	126
95	3	4	63x83	75	2,775	260	364	48x72	40	101	126

**BACKWASH**

**TRAPPSORB**

**Weekly** or when the removal performance decreases.

**CRYSTOLITE**

**Every 24 to 72 hours** or if the differential pressure of the filter **exceeds 10 PSI**.

**PERIODIC REFILL**

**TRAPPSORB**

The material is consumed slowly, and a refill of the filter is recommended after **30 to 40% of the initial volume** have been consumed. In most of the applications a refill is necessary **within 12 months**.

**PH ADJUSTMENT**


In order to take advantage of the highest removal efficiency and minimize the fouling of the **TRAPPSORB** surface, **WATCH WATER** recommends adjusting the pH between **6.5 and 6.8**. On the contrary, the surface of the **TRAPPSORB** beads can be cleaned soaking the filter bed with a **1%** solution of **OXYDES-P**, in case the removal efficiency decreases.

**FLOW DIRECTION**

**TRAPPSORB**

- Hardness < 85ppm: down- or up-flow
- Hardness > 85ppm: up-flow

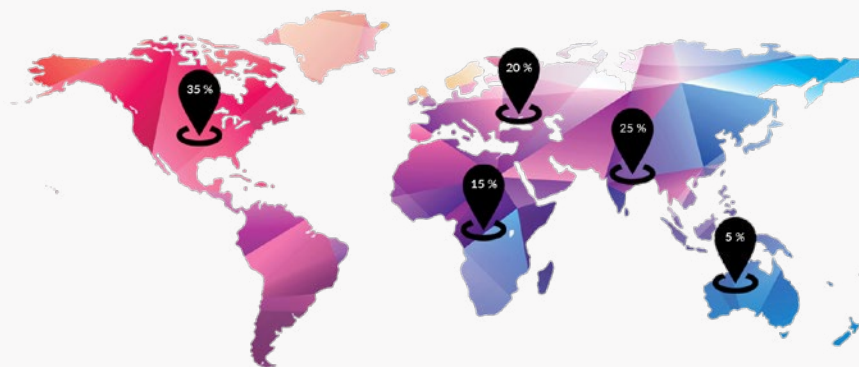
**CRYSTOLITE**

**Down-flow**



Watch Water® with its headquarter in Mannheim, Germany, is one of the fastest growing companies in manufacturing solutions for Scale Prevention, INSTANT Dosing, Adsorbers and Filter Media for water and waste water treatment industries. **We have more than 45 branches** working throughout North and South America, Europe, Asia, Africa and Australia to best serve our customers' needs.

We are passionate about improving water conditions and would be happy if you chose us as your trusted water treatment partner.



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OXY TREATMENT	FILTRATION	ADSORPTION	FILTERSORB	INSTANT PRODUCTS
RedOxy	Katalox Light	Titansorb	Filtersorb SP3	Rosoft
RedOxy-3C	Zeosorb	Titansorb P	Filtersorb CT	Instant I-soft
RedOxy-4C	Crystolite	Ferrolox	Scaletrapp	Instant Oxydes
Solaroxy-3C	Special Filters	Ferrolox-G		Instant Oxydes-P
Oxysorb	Watch uf 2500	Ferrolox-X		Bioxide
Greenoxy		Carbonblock TS		Cleaning Agent
		Activated Carbon		Isoft Descaler