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.
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 prevent 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 on the water chemistry this process can remove up to 70% of the total Silica content.
THE SILICATRAPP PROCESS CONSISTS OF 2 STEPS:

1. **FIRST STEP**
   Preconditioning of the water with TRAPP Sorb.

   **TRAPP Sorb** 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, **TRAPP Sorb** 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** 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.

### Specifications:

**TRAPP Sorb**
- **Appearance:** Grey beads
- **Bulk density:** 1,300 Kg/m³
- **Mesh size:** 2 to 5 mm
- **Contact time:** 6 min
- **Service velocity:** 10 – 15 m/h
- **Backwash velocity:** 25 – 30 m/h

**CRYSTOLITE**
- **Appearance:** Reddish granulate
- **Bulk density:** 1,050 Kg/m³
- **Mesh size:** 0.5 to 1.2 mm
- **Contact time:** 75 to 120 cm
- **Service velocity:** 20 m/h
- **Backwash velocity:** 20 – 25 m/h
REDOXY TREATMENT | FILTRATION | ADSORBION | FILTERSORB | INSTANT PRODUCTS

**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 and are filtered afterwards by **CRYSTOLITE** thanks to its capacity to retain particles in the sub-micron range.

\[
MgO + SiO_2 + H_2O \rightarrow MgO \cdot XSiO_2 \cdot H_2O
\]

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.

**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.

**REMOVAL EFFICIENCY**

- **REMOVES SILICA UP TO 70%**
- **REDUCES WATER HARDNESS BY AS MUCH AS 60%**
- **REDUCES TURBIDITY BY MORE THAN 96%**

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### 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

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<th>Service Flow GPM</th>
<th>Connections</th>
<th>TRAPPSORB</th>
<th>Backwash Flow (GPM)</th>
<th>CRYSOLITE</th>
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Watch Water® with its headquarters 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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