WATCH WATER®
WATCH WATER
a Water Company

I-SOFT®

Methods Of Removal of Permanent Water Hardness Part - II

See Part – I for Treatment of Temporary Water Hardness

-by Deepak Chopra

Watch Water ® GmbH
Fahrlachstraße 14
68165 Mannheim
Germany

Web: www.watchwater.de
email: info@watchwater.de
Telefon: +49 (0) 621 87951-0
Telefax: +49 (0) 621 87951-99

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TOTAL WATER HARDNESS

Temporary Water Hardness

can easily be removel by

FILTERSORB SP3.

On the reaction,

Calcium/Magnesium bicarbonate

shifts to the right as explanied

in the previous presentation (Part I)

Permanent Water Hardness

can be removed by addition of

I *for* **rest hardness stabilization**

SOFT *for* **corrosion control**.

$$Ca(HCO_3)_2 \xrightarrow[\textit{Catalytic Crystallization}]{\textbf{FILTERSORB SP3}} CaCO_3 + H_2O + CO_2$$

Formed Crystals are water insoluble

and no longer produces Hardness.

IN WATCH® WATER „PROCESS“

I-SOFT® is a Trade name of a **Complex Salt**.

It is used for

Softening Water Hardness and to Control Corrosion

I-SOFT® , ***it*** ionizes to complex all **Anions** in water

Introduction:

Watch® 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***!

I-SOFT is a strong

"COMPLEXING – AGENT"

Watch® ***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 and toxicological properties of the **I-SOFT®** Types have been regularly confirmed by over 2500 customers worldwide. Watch® therefore recommends the **I-SOFT®** as ***replacement*** for other, less environment friendly complexing agents,

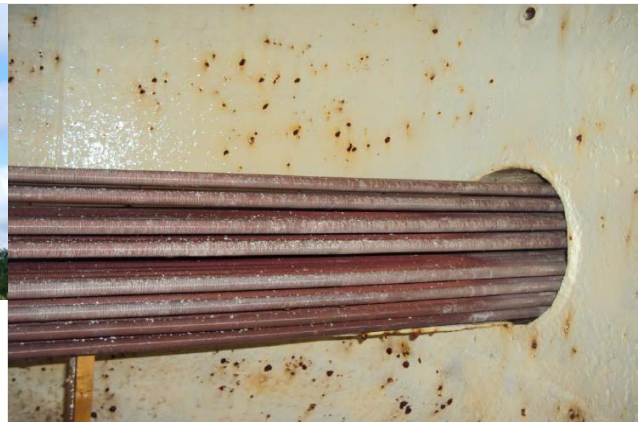
such as Phosphates, Phosphonates,

Ion-Exchange Cations, Anions and Silicates etc.

Applications

Worldwide Watch® Water team of experts are always pleased to give advice on adapting formulation for the following applications:

- **Drinking Water**
- **Process water**
- **Heating Equipments**
- **Heat Exchangers**
- **Air Conditioners**
- **Cooling Towers**
- **Boilers**
- **Steam Boilers**
- **Membrane Systems**
- **Anti-Scalants**



I-SOFT : Strong Properties

Chemical Stability:

Formulation‘s that contain **I-SOFT®** as compelxing agent remain chemcally unchanged during transport, storage and dilution, in order to be able to deliver the full potential. This ensures that all Watch formulations that contains **I-SOFT®**, remain effective over long period of time.

pH stability:

- ***I-SOFT®*** *boosts the performance of highly alkaline folmulations*
- ***I-SOFT®*** *can easily be employed in all acidic formulations*
- ***I-SOFT®*** *does not decompose even at extreme pH*
- ***I-SOFT®*** *formulations are resistant of being broken down in the whole pH range between **2** to **14**, even at elevated temperatures.*

I-SOFT : Corrosion Control

The **I-SOFT®** stabilizes all Ployvalent metal ions, which means that they can increase the rate at which the metals dissolves. Corrosion is decreased immediately if the pH is in the alkaline range and can be eliminated completely if **I-SOFT®** contains **Oxygen Scavenver** as addition, both in Hot Water Boilers and Steam Boilers.

- **I-SOFT® NO** – Non-volaitile Oxygen scavenger
- **I-SOFT® VO** – Volatile Oxygen scavenger

Both these **I-SOFT®** types are in alkaline range, which is the optimum pH range for the boilers that stops corrosion, neutralizes any kind of hardness and saves all the cleaning with acids.

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.

Phosphates: The Chemical Time Bomb!

Phosphate contained products are all

Phosphate's Chemical time Bombs

Phosphonates, Phosphates, EDTA and NTA including water soluble polymers: ask for formulation from all other suppliers.

They all use these ***time bombs*** to prevent calcium carbonate from precipitating and forming Scales. All these substances act by temporarily delaying the onset of crystallization.

I-SOFT IS SO MUCH DIFFERENT

Cations (+) → **Salts** ← **Anions (-)**

Because **I-SOFT®** prevents **salts** from precipitating and forming scale and at the same time sequestering all metal cations.

I-SOFT : Mode of Action

Applications	Mode of Action
✓ Dispersing Agent	Dispersing agent such as **I-SOFT®** is very effective to prevent the formation of scale such as barium sulfate.
✓ Scale Prevention	Displaces the equilibrium by sequestering all metal cations
✓ Corrosion Prevention	Strongly reduces the high concentrations of free metal ions to lower the solubility
✓ Stabilizing all *oxidizers*, *biocides* and other chemicals	Sequesters all reactive heavy metals (iron, manganese, lead, copper, zinc etc.) and stops the reactivity of metal ions in the presence of oxidizers like HOCl, Chlorine, Chlorine dioxide, Bromine, Peroxides and Hydrogen Peroxide.

I-SOFT : Specialty of Formulation

Preparing concentrated

Solutions of all water treatment related

Formulations

I-SOFT® can be used to re-dissolve precipitated metals salts and hydroxides. **I-SOFT®** can be used to remove old inorganic scale formed from phosphates. The rate at which scales dissolve depends on their crystal structure and age and on the temperature. Old, dried-out scale has to be treated with **I-SOFT®** for some time and we would recommend applying 5% solution like for all other-

INSTANT DOSING PRODUCTS

Important Notice

We request to all water treatment companies keeping in focus that there is absolute need for phosphate, phosphonates, poly-acrylates and silicates to be replaced in all possible applications because of ever growing concern on phosphate compounds effect on Human, Earth, Aquatic life and Good Water Quality.

The solubility of **I-SOFT®** is excellent between the pH range of ***2*** ***to*** ***14*** and it is absolutely capable of **replacing all**

PHOSPHATES & **PHOSPHONATES**

EDTA & **NTA**

Conclusion

Another Important Information: Cations such as Calcium, Magnesium, Sodium, Potassium are always 50% part of phosphates. For example, Calcium Phosphate *also forms scale* which is most difficult to dissolve.

This type of Scale is encountered in applications such as

- *Reverse Osmosis Membranes*
- *Hot Water Boilers*
- *Steam Boilers*
- *Cooling Towers*
- *Heat Exchangers*

And all other applications where phosphate is present.

The **I-SOFT®** is an effective alternative to EDTA for removing Calcium phosphate scale. Other than the Best Performance of **I-SOFT®**, this is by far the ***most readily biodegradable***.

I-SOFT® is a **High Performance Complexing Agent**
against **Permanent Water Hardness**
-Not Cations But ***ALL SALTS***!

Thanks For Reading

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