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# i-SOFT DESCALER

## INTELLIGENT DESCALING WITH VISIBLE PROCESS CONTROL

INTRODUCING

A 21st Century Descaling Technology

## SCALE DOESN'T BELONG IN THE SYSTEM.

**I-SOFT® Descaler** turns remedial cleaning into a controlled, visible engineering process - dissolve the deposit, protect the metal, and watch the reaction in real time.


### 1. Dissolve & soften

A green-acid cleaning system attacks mineral deposits while the wetting package helps penetrate porous, mixed and lightly contaminated scale.

### 2. Protect the metal

A dedicated inhibitor is designed to reduce attack on compatible base metals while the cleaning reaction removes deposits.

### 3. See the strength

The active pink/red indicator gives operators immediate optical control. A shift toward yellow signals that cleaning capacity is being consumed.

## ONE POWDER. FOUR OPERATIONAL ADVANTAGES.

**Fast Make-up**
Instant free-flowing crystalline powder dissolves readily in water.

**Adjustable Strength**
Prepare 5% to 20% solutions according to deposit severity and approved procedure.

**Flexible Application**
Use controlled recirculation or immersion /soak cleaning.

**Dry product Logistics**
Easy to store and ship without transporting unnecessary water

APPLICATIONS

- Heat Exchangers
- Industrial Boilers
- Cooling Towers
- Evaporative Condensers
- Pipelines & Process Coils
- Commercial Building Systems

IAPMO R&T WATER QUALITY PLATINUM SEAL
IAPMO RESEARCH AND TESTING

PREMIUM QUALITY
MADE IN GERMANY

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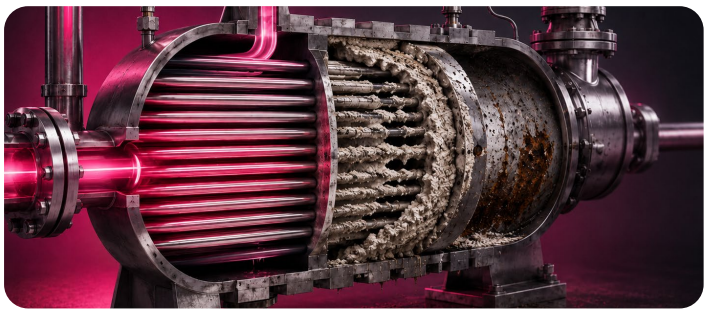
## THE HIDDEN COST OF DEPOSITS

### SCALE IS A THERMAL BARRIER - AND A RELIABILITY RISK.

**If deposits remain in place:**

- Heat-transfer resistance rises and energy is wasted.
- Pressure drop can increase as flow passages narrow.
- Under-deposit corrosion and localized damage may develop.
- Instrumentation and control can become less reliable.
- Downtime becomes longer when cleaning is postponed.



### REMEDIAL CLEANING RESTORES THE SURFACE YOU ACTUALLY OWN.

Good water treatment reduces future deposition. It cannot remove scale that is already attached. Existing deposits require a deliberate cleaning cycle, verified endpoint and complete neutralisation before return to service.

Thermal - **Recover Heat Transfer**
Expose clean heat-transfer surface and reduce the insulating layer.

Hydraulic - **Recover Flow**
Remove deposits that restrict channels, tubes and passages.

Mechanical - **Protect Assets**
Reduce the conditions that promote overheating and under-deposit attack.

## KNOW WHAT YOU ARE REMOVING

### WATER-SIDE DEPOSITS ARE RARELY ONE PURE COMPOUND.

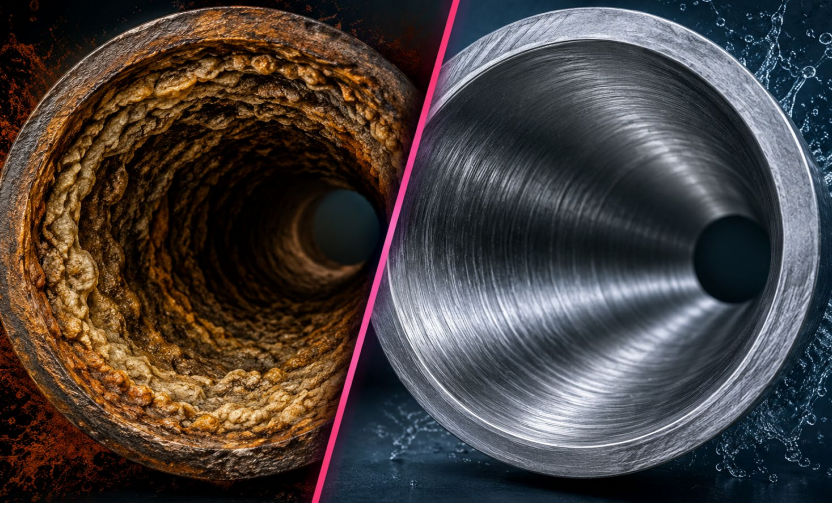
**I-SOFT® Descaler** is designed for mineral scale and corrosion-product mixtures.

| Deposit family | Typical appearance | Engineering note | Cleaning challenge |
|---|---|---|---|
| Carbonates | White, cream or tan; crystalline | Often dense but acid-responsive | Usually the first target in water-scale cleaning. |
| Sulfates | White to grey; hard crystalline | Can be more resistant than carbonates | **I-SOFT® Descaler** is positioned for enhanced sulfate-scale action. |
| Iron oxides / rust | Red, brown or black | May be compact or mixed with mineral scale | Ventilation and gas monitoring may be required. |
| Silicates | Grey, glass-like or tenacious | Often difficult to dissolve completely | Deposit analysis and compatibility testing are essential. |
| Phosphates | White, grey or hard composite | Can create highly adherent heat-transfer deposits | Avoid assuming phosphate dosing prevents every scale type. |
| Mixed deposits | Layered, porous, gelatinous or hard | Composition varies through the thickness | Pre-clean oil, grease or heavy organic contamination first. |

BEST-PRACTICE DECISION

**Analyse unknown deposits before full-scale cleaning.**

A small deposit sample, material list and system-volume check can prevent wrong concentration, unnecessary exposure time and compatibility problems. Use a site trial or coupon test whenever the deposit or metallurgy is uncertain.



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## FOUR FUNCTIONS IN ONE CLEANING SOLUTION

### A CONTROLLED SEQUENCE FROM WETTING TO VERIFIED COMPLETION.

**WET**

The wetting package lowers interfacial resistance and helps the solution enter pores, cracks and mixed deposits.

**SOFTEN**

The acidic cleaning system attacks acid-soluble mineral bonds and breaks down carbonate-rich scale.

**DISSOLVE**

Released mineral constituents move into the circulating solution; loosened residue is carried to the tank.

**PROTECT**

The corrosion inhibitor is designed to reduce attack on compatible base metal during the approved exposure.

**SIGNAL**

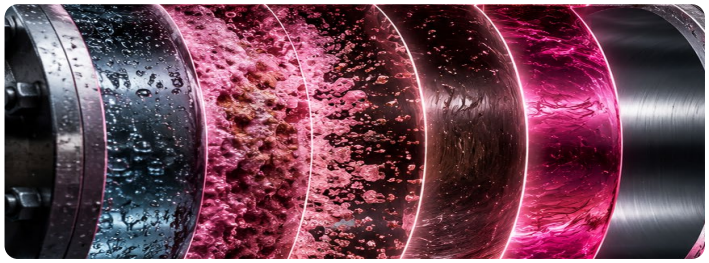
The colour indicator shows whether active cleaning capacity remains available.

**VERIFY**

A stable active colour plus no further reaction trend supports endpoint confirmation, followed by rinse and neutralisation.

**Inhibited does not mean non-corrosive.**

Exposure, temperature, concentration, metallurgy and contamination must remain inside the approved operating envelope.



## THE SOLUTION TELLS YOU WHAT IS HAPPENING

### COLOUR IS THE OPERATOR'S FAST VISUAL CHECK- NOT A REPLACEMENT FOR SUPERVISION.

PINK / RED

**ACTIVE CLEANING CAPACITY**

Record an initial reference sample. Maintain temperature, circulation and observation.

TRANSITION

**CAPACITY BEING CONSUMED**

A shift away from the original colour means the solution is reacting with deposits.

YELLOW

**RECHARGE OR REPLACE**

Restore strength only under the approved procedure. Severe deposits may require a fresh batch.

**Endpoint logic**

1. Reference: retain a sample of the freshly prepared solution
2. Observe: check colour and temperature at least hourly.
3. Respond: if depleted, add approved make-up or replace the batch.
4. Confirm: active colour for at least 1-2 hours supports completion.
5. Finish: drain, flush, neutralise and verify the final rinse pH.

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## ENGINEERED FOR THE PEOPLE WHO MUST OPERATE IT

# SIMPLE VISUAL CONTROL. FLEXIBLE STRENGTH. PROFESSIONAL SAFEGUARDS.

### INSTANT POWDER
Free-flowing dry concentrate for efficient storage, transport and make-up.

### ADJUSTABLE 5-20%
Match solution strength to deposit loading and validated site procedure.

### INTEGRATED INDICATOR
See the consumption of cleaning capacity without special colour-test apparatus.

### INHIBITED FORMULA
Designed to reduce attack on compatible metals during controlled cleaning.

### WETTING ACTION
Improves contact with porous and mixed mineral deposits.

### HEAT-ACCELERATED
Approved heating can shorten cleaning time and improve reaction

### TWO APPLICATION MODES
Use recirculation for installed equipment or immersion for removable components.

### BROAD WATER-SIDE USE
From pipelines and building systems to boilers and heat exchangers.


## CONCENTRATION AND MAKE-UP

# PREPARE ONLY THE STRENGTH AND VOLUME REQUIRED BY THE VALIDATED CLEANING PLAN.

| Nominal solution | Powder per approx. 40 L water | Powder per approx. 100 L water | Use profile |
|---|---|---|---|
| 5% | 2 kg | 5 kg | Light to moderate deposits; soak or recirculation |
| 10% | 4 kg | 10 kg | General industrial descaling |
| 15% | 6 kg | 15 kg | Heavy deposit loading under controlled conditions |
| 20% | 8 kg | 20 kg | Maximum published concentration; specialist approval |

### SAFE MAKE-UP SEQUENCE

- Confirm system volume, metallurgy, isolation and ventilation.
- Charge the mixing tank with the required fresh water.
- Start agitation or circulation before adding product.
- Add **I-SOFT® Descaler** slowly to water - never add water onto a pile of powder.
- Mix until dissolved; verify initial colour and record a reference sample.
- Heat only within the approved limit for the metallurgy and procedure.

### PUBLISHED PRODUCT DATA

**20%**
Solubility in water at 16°C

**0.7**
pH of 10% solution

### FIELD DOSING FORMULA

Powder mass (kg) ≈ target concentration (%) × water volume (L) ÷ 100

This field approximation follows the original I-SOFT make-up guidance. Confirm final volume and site procedure


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## THE CONTROLLED CLEANING LOOP

### A SIMPLE TEMPORARY CIRCUIT- ENGINEERED AROUND CONTAINMENT, VENTING AND OBSERVATION.

**MIXING TANK**
Make-up, heater, sample point

**ACID-RESISTANT PUMP**
Controlled flow

**EQUIPMENT**
Bottom-in / top-out

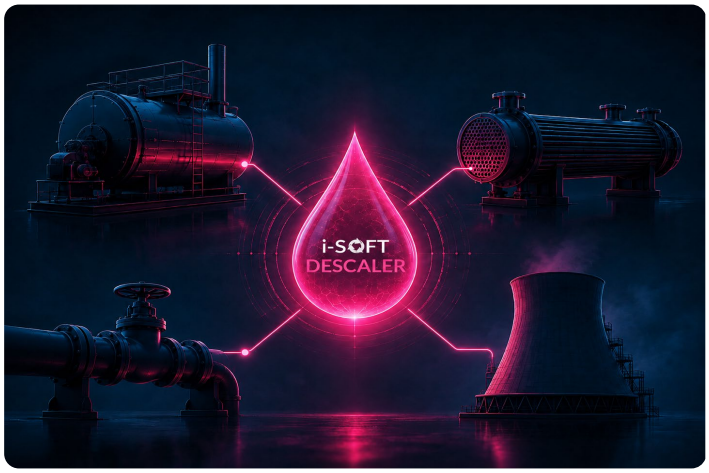
**RETURN**
Vent, sample, temperature

### MINIMUM TEMPORARY EQUIPMENT

- Compatible open or vented mixing tank with secure cover
- Acid-resistant pump sized for the required circulation
- Hoses, valves and fittings rated for chemical service
- Temperature measurement and controlled heating, if used
- Sampling point and retained initial reference sample
- Vent route and gas monitoring appropriate to the metallurgy
- Secondary containment and controlled drain destination
- Clean-water supply and approved neutralising agent

### FLOW GUIDANCE

Use enough velocity to renew solution at the deposit surface without erosion, pump cavitation or excessive foaming. Reverse circulation when useful and safe to improve coverage.




## RECIRCULATION CLEANING - OPERATOR CHECKLIST

### TYPICAL CYCLE: 2 TO 10 HOURS. MAXIMUM CONTACT TIME: 24 HOURS.

**1 PLAN**
Identify deposits, system volume, metallurgy, seals, isolation points and waste route.

**2 ISOLATE**
Shut down, depressurise, drain and lock out the selected circuit. Provide open venting.

**3 CONNECT**
Install the temporary loop so flow reaches every surface and air can escape.

**4 MAKE UP**
Prepare 5% to 20% solution by slowly adding powder to circulating water.

**5 CIRCULATE**
Maintain the approved temperature. Original guidance: circulate about 15 minutes each hour during hot fill-and-hold cleaning; continuous circulation may be specified for heat exchangers.

**6 OBSERVE**
Check colour and temperature at least hourly. Record the condition and any additions.

**7 RECHARGE**
If the solution turns yellow, restore strength only under the approved procedure; replace exhausted solution when required.

**8 CONFIRM**
Cleaning is normally complete when active colour remains stable for at least 1-2 hours and the reaction trend has stopped.

**9 DRAIN**
Transfer spent solution to the approved collection or treatment route.

**10 RINSE**
Flush thoroughly, neutralise residual acidity and verify the final rinse before return to service.

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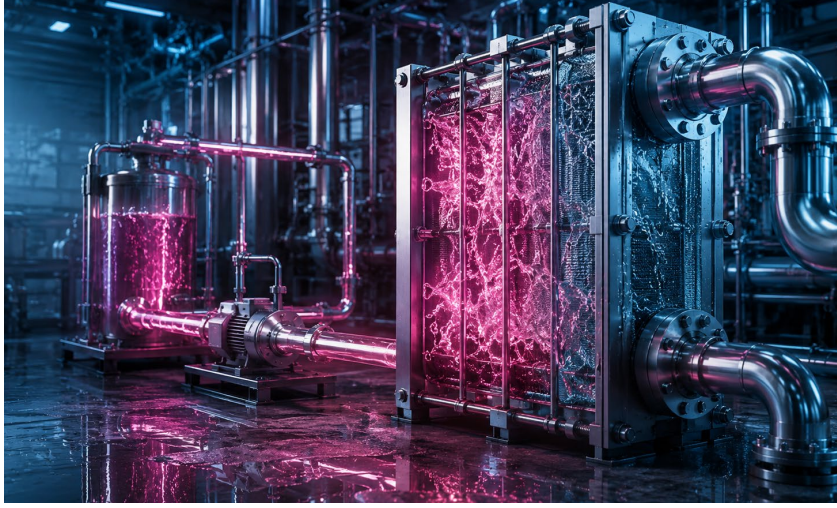

## HEAT EXCHANGERS, CONDENSERS AND EVAPORATORS

# RECIRCULATION IS THE PREFERRED METHOD WHEN A CLOSED TEMPORARY LOOP CAN BE INSTALLED.

### Recommended configuration

Connect pump discharge to the lower process-water connection and return from the upper connection to the mixing tank. Vent the high point. Use an acid-resistant pump and maintain full wetting of the scaled surface.

### Operating envelope

5-20%, 2–10 hours, up to 50–70°C*

**Temperature depends on metallurgy. Galvanized steel: never exceed 50°C; written approval recommended.*

### Procedure essentials

- Isolate and drain the water side.
- Connect bottom-in / top-out recirculation.
- Fill tank with fresh water; begin circulation.
- Add **I-SOFT® Descaler** slowly to the selected strength.
- Retain a reference sample; monitor colour and temperature.
- Replace exhausted solution if heavy deposits consume capacity.
- Stop when the active colour remains stable and the system is clean.
- Drain, flush, neutralise and inspect before reconnection.

**SEVERE DEPOSITS**

If the solution depletes rapidly after controlled make-up, drain it to the approved route and prepare a fresh batch. Do not keep adding concentrate indefinitely.

## BOILERS REQUIRE SPECIALIST CONTROL

# CHEMICAL CLEANING MUST BE ENGINEERED, ISOLATED AND SUPERVISED BY COMPETENT BOILER PERSONNEL.

**CRITICAL GAS WARNING**

Acid contact with reactive metals can generate hydrogen. Keep drum and superheater vents open as required, verify unobstructed ventilation, prohibit ignition sources and test the atmosphere before opening equipment.

### Engineered sequence

1. Review boiler metallurgy, design pressure, deposit analysis and OEM requirements.
2. Open the required vents; isolate the boiler and install the temporary circulation loop.
3. Half-fill or charge with fresh water according to the approved procedure.
4. Prepare the selected 5% to 20% solution and heat only within the permitted limit.
5. Circulate through economiser, drum and tubes with verified flow distribution.
6. Monitor colour, temperature, gas conditions and solution level throughout cleaning.
7. When the indicator remains active and deposits stop consuming capacity, drain safely.
8. Flush with fresh water; circulate approved alkaline neutraliser until the target pH is achieved.
9. Remove temporary equipment, inspect, refill with correctly treated water and complete return-to-service testing.

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## IMMERSION AND SMALL-SYSTEM CLEANING

### USE WHEN CIRCULATION IS IMPRACTICAL OR COMPONENTS CAN BE SAFELY REMOVED.

IMMERSION

**REMOVED COMPONENTS**

Place compatible parts in a ventilated, chemically resistant tank. Fully immerse the scaled surfaces, provide controlled agitation if approved, monitor colour and temperature, then rinse and neutralise.

FILL & SOAK

**INSTALLED EQUIPMENT**

Fill an isolated component three-quarters to completely full as required for coverage, keep the high point vented, maintain the approved temperature and periodically sample the solution.

- **PREPARE:** Choose 5% for light deposits and increase only when justified.
- **IMMERSE:** Ensure complete contact and no trapped air pockets.
- **OBSERVE:** Compare colour with the fresh reference sample.
- **RECHARGE:** Add approved make-up only if the indicator shows depletion.
- **COMPLETE:** Active colour holding for at least one hour supports endpoint.
- **FINISH:** Drain, rinse, neutralise, dry or refill, inspect and reinstall.

For coffee machines, domestic appliances or proprietary equipment, follow the equipment manufacturer's cleaning and warranty instructions. Do not assume all elastomers, aluminium parts, coatings or plated surfaces are compatible.

## CLEANING IS NOT COMPLETE UNTIL THE SYSTEM IS NEUTRAL

### THE ENDPOINT INCLUDES REMOVAL, RINSING, PH VERIFICATION AND DOCUMENTED RETURN TO SERVICE.

**DRAIN**
Remove spent cleaning solution

**FLUSH**
Fresh water at controlled pressure

**VERIFY**
Final rinse pH and visual condition

**NEUTRALISE**
Approved alkaline solution

**PROTECT**
Restore treatment and return to service

# PRECISION Ddescaling FOR CRITICAL SYSTEMS.

**Recommended completion logic**

- Drain to a route approved for the dissolved metals, acidity and site discharge rules.
- Flush until the discharge is visually clean and stable.
- Circulate an approved alkaline neutraliser. Sodium carbonate is commonly used; follow the site procedure.
- Original I-SOFT guidance targets a rinse pH of 7.5-8.0; a short recirculation near pH 8 may be used to neutralise residual acidity.
- Inspect accessible surfaces, strainers, low points and dead legs.
- Restore the appropriate Watch Water® scale/corrosion prevention programme and operating water chemistry.

**Never return equipment to service on colour alone.**
Verify pH, cleanliness, correct assembly, leak tightness and restored water treatment.

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## STRONG CLEANING PERFORMANCE DEMANDS STRONG CONTROL

**READ THE CURRENT SDS BEFORE HANDLING.**
**SITE RULES AND LOCAL REGULATIONS ALWAYS APPLY.**

| Material / condition | Brochure guidance | Required action |
|---|---|---|
| Carbon steel / stainless steel | Inhibitor is designed to reduce base-metal attack | Confirm grade, temperature and exposure; coupon-test when uncertain |
| Galvanized steel | Published **I-SOFT® Descaler** guidance: inhibited solution up to 50°C | Never exceed 50°C; written compatibility approval recommended |
| Aluminium, zinc, tin, plated surfaces | Compatibility is not established here | Do not use without written **Watch Water®** approval |
| Copper alloys / mixed metallurgy | Risk varies with alloy and contaminants | Review complete material list and test before use |
| Elastomers, plastics, coatings | Compatibility depends on material and condition | Verify seals, hoses, linings and coatings before exposure |
| Reactive metals / corrosion products | Hydrogen or other gases may form | Ventilate, eliminate ignition sources and monitor atmosphere |

### Minimum safety controls

- Chemical goggles plus face shield
- Acid-resistant gloves and protective clothing
- Accessible eyewash and safety shower
- Ventilation and gas assessment
- Lockout, depressurisation and secure isolation
- Secondary containment and spill response
- Controlled chemical addition and temperature
- Approved waste neutralisation and disposal

**EMERGENCY INFORMATION** | For exposure, spill, fire or accidental mixing, follow the current SDS and site emergency plan. Do not mix **I-SOFT® Descaler** with other chemicals unless the combination is specifically approved in writing.

## TECHNICAL DATA SHEET

| Property | Typical / published value |
|---|---|
| Product form | Odourless, pink/red, instant free-flowing crystalline solid powder |
| Function | Inhibited acidic descaling compound with wetting agent and visual colour indicator |
| Solution concentration | 5% to 20%, selected according to deposit loading and approved procedure |
| Solubility in water | 20% at 16°C (60.8°F) |
| pH | 0.7 for a 10% solution |
| Typical cleaning time | 2 to 10 hours, depending on deposit, temperature, flow and geometry |
| Published heated range | 50°C to 70°C where metallurgy permits |
| Galvanized-steel temperature | Maximum 50°C under the inhibited I-SOFT guidance |
| Maximum contact time | Do not exceed 24 hours |
| Endpoint indication | Pink/red active; transition toward yellow indicates depleted capacity |
| Flash point | Not applicable |
| Application modes | Recirculation; fill-and-soak; immersion of compatible components |
| Published packaging | 24 kg box, 60 kg drums |

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## REMOVE THE PAST. PREVENT THE FUTURE.

# I-SOFT® DESCALER RESTORES THE SURFACE; WATCH WATER® TECHNOLOGY HELPS KEEP IT CLEAN.

### THE WATCH WATER® APPROACH

**1. Diagnose** **2. Descale** **3. Neutralise** **4. Protect**

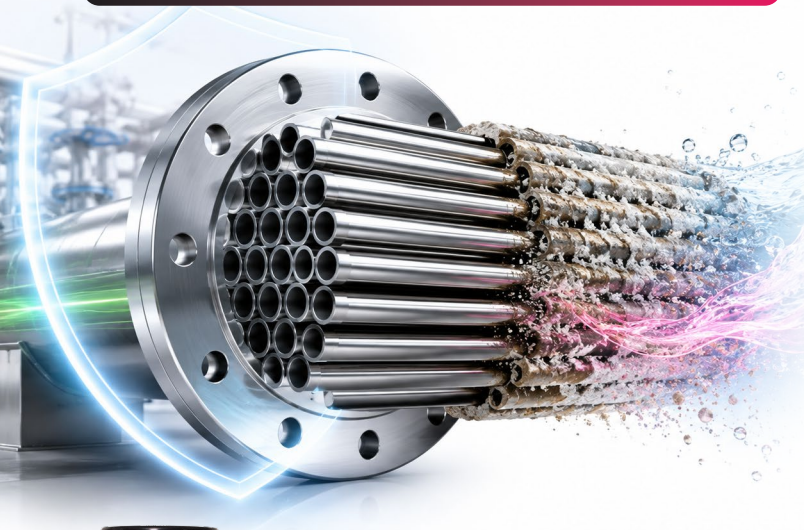
After deposits are removed, investigate the cause: hardness, concentration cycles, temperature, pH, corrosion, poor flow, phosphate chemistry or ineffective treatment. Prevention protects the recovered heat-transfer surface and reduces the next cleaning burden.

**Recommended Watch Water® follow-on technologies**
• FILTERSORB® SP3 • I-SOFT® ON
• SITE-SPECIFIC WATER TREATMENT

CLEAN
**I-SOFT® DESCALER**
Remove existing mineral scale and corrosion-product deposits through a controlled cleaning cycle.

PREVENT
**FILTERSORB® SP3**
Bicarbonate-scale prevention technology for suitable water systems.

CONTROL
**I-SOFT® ON**
Scale, corrosion and biofouling control as part of a designed treatment programme.



## YOUR NEXT CLEANING PLAN STARTS WITH FIVE FACTS.

- System volume
- Deposit analysis
- Complete metallurgy
- Operating temperature
- Waste route

**Send them to Watch Water® for application review.**

## Standard Packaging

| Packaging | Weight of product | Quantity / Pallet | Gross Wt. / Pallet |
|---|---|---|---|
| Box (4 × 6 kg buckets) | 24 kg | 48 | 1250 kg |
| Drum | 60 kg | 18 | 1163 kg |

** Other packaging can be considered on request*

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