# HIGH CYCLES, ZERO SCALE, STABLE SYSTEMS.

## The Right Solution for Evaporative Humidification Systems

WATCH WATER
a Water Company

**THE CHALLENGE**
Up to 6 cycles of concentration create high hardness, scaling, biofouling and corrosion risks.

**THE GOAL**
Protect equipment, pads and nozzles while maintaining efficient operation.

**THE SOLUTION**
Watch Water SCB system with proven scale, corrosion and biofilm control.

## WHAT HAPPENS AT 6 CYCLES OF CONCENTRATION?

**Very high hardness supersaturation**
Increases the risk of calcium carbonate scale on pads, nozzles and heat transfer surfaces.

**Fouling & Biofilm Formation**
Organic matter and nutrients promote biofilm, slime and foul odors.

**Corrosion Risk**
High TDS and biofilm accelerate corrosion of metal components.

**Reduced Efficiency**
Scaling and fouling reduce airflow, evaporation efficiency and increase energy consumption.

## CAN SP3 HANDLE 6 CYCLES?

**YES – BUT WITH CONDITIONS**

SP3 uses NAC (Nucleation Assisted Crystallization) to convert hardness into non-adherent aragonite microcrystals, preventing scale formation.

**SP3 WILL**
- Prevent hard scale adhesion
- Keep heat transfer surfaces clean
- Reduce fouling significantly
- Work effectively up to high cycles of concentration

**SP3 WILL NOT**
- Remove hardness
- Reduce TDS build-up
- Prevent suspended solids accumulation

At 6 cycles, suspended crystals and pad fouling risk still increase without proper system management.

## SHOULD THEY USE SCB INSTEAD OF SP3?

**YES – SCB IS THE RECOMMENDED SOLUTION**

SCB
Scale
Corrosion
Biofilm

Evaporative systems need more than just scale control. SCB provides complete protection for high cycles.

**SCALE CONTROL**
SP3 technology prevents scale adhesion and keeps surfaces clean.

**CORROSION CONTROL**
Protects metals from corrosion in high TDS and chloride environments.

**BIOFILM CONTROL**
Prevents biofilm, slime and bacteria growth in pads, basin and distribution lines.

At 6 cycles, SCB ensures complete system stability, maximum efficiency and reliable operation.

## EVALUATING OTHER OPTIONS

| OPTION | PROS | CONS | RECOMMENDATION |
|---|---|---|---|
| **IX** (Ion Exchange) | Removes hardness | • Adds sodium<br>• Increases TDS<br>• High operating cost<br>• Not ideal for evaporative use | Not Recommended |
| **RO** (Reverse Osmosis) | Removes dissolved solids | • High water rejection<br>• Expensive<br>• Overengineering for this application | Not Recommended as Primary Solution |
| **UF** (Ultrafiltration) | Removes particles and some organics | • Does NOT remove hardness<br>• Does not prevent scale | Support Only |
| **NF** (Nanofiltration) | Partial hardness reduction | • Expensive<br>• Not necessary for most HVAC systems | Possible but Usually Not Needed |
| **Settling / Side-Stream Filtration** | Removes suspended crystals and debris | • Additional equipment<br>• Needs regular maintenance | Strongly Recommended (with SCB) |

## RECOMMENDED SOLUTIONS

**OPTION A**
**BEST BALANCE**
SCB System (Primary)
+ Optional Side-Stream Filtration (Crystolite®)
No scale adhesion
Controlled biofilm
Stable at high cycles

**OPTION B**
**HIGH PERFORMANCE**
SCB System
+ Side-Stream Filtration
+ Blowdown Optimization
Maximum protection
Cleaner system
Longer equipment life

**OPTION C**
**IF "CLEAN WATER" IS REQUIRED**
SCB or SP3 Pre-Treatment
+ Low-Recovery RO
(Partial Stream Only)
For special applications only (e.g. pharma, semiconductor and air)

## KEY TAKEAWAYS

- At 6 cycles, scaling, corrosion and biofouling risks are severe.
- SP3 prevents scale, but SCB delivers complete system protection.
- IX and RO are not ideal primary solutions for evaporative systems.
- Side-stream filtration enhances performance by removing SP3-generated crystals and particles.
- SCB + good water management = reliable, efficient, and maintenance-free operation.

## PROTECT YOUR SYSTEM. MAXIMIZE PERFORMANCE.

Trust Watch Water for complete evaporative system solutions.

SCALE FREE SURFACES
CORROSION PROTECTION
BIOFILM CONTROL
HIGHER EFFICIENCY LOWER COSTS


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