INDUSTRIAL WATER INNOVATIONS

Designed, Machined, and Assembled in the USA

Dual Treatment Water Conditioner. The Ultimate in Scale Control.

Environmentally friendly water treatment where traditional methods have failed.

Why Does the Dual Treatment Unit Excel?

The dual treatment unit is the result of years of development coupled with decades of experience in treating industrial water systems.

Developed using a twin catalytic effect. The first is the shape of the catalytic core, which creates turbulence and a very small pressure drop (much less than a softener). The second effect is the proprietary alloy acting as a battery, generating a very small electrical current as water makes contact with the alloy.
The electric current creates the condition needed to rearrange the limescale molecule to a benign soft non-bonding crystal. The electric charge combined with turbulent flow related pressure drops causes an important change to take place. A percentage of the Calcium and Bicarbonate in the water comes out of solution and goes into suspension forming Calcium Carbonate in the Aragonite state.

Microscopic Aragonite crystal formations remain suspended in the water and pass harmlessly through the system. Changes in temperature or pH no longer lead to hard limescale deposits. The Calcium Carbonate that is placed in suspension as stable Aragonite crystals is no longer available in solution to be deposited as Calcite.

As the process repeats itself, newly created Aragonite crystal formations are continually produced thus preventing limescale deposits. The process also continues to gradually remove any limescale that may have accumulated in the past. **This is due to the water now being under saturated with dissolved calcium and bicarbonate increasing its capacity to act as a solvent.**

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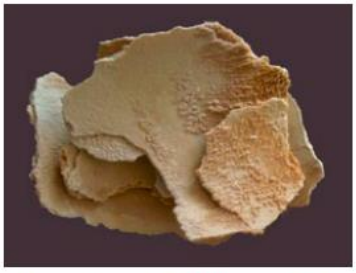

Calcite, a form of calcium carbonate, is what we call limescale or scale. When calcium carbonate precipitates as calcite it forms a hard deposit that causes numerous problems adhering to any receptive surface requiring acid or a significant mechanical effort to remove.

Aragonite, another form of calcium carbonate, has very different characteristics to calcite. When calcium carbonate precipitates as argonite it forms a non-adhering harmless insoluble crystal that is either consumed or carried through the system to the drain.

These suspended soft crystals just stay in the water instead of sticking to pipework and other surfaces, passing harmlessly through the system and down the drain.

The dual treatment unit successfully eliminates or substantially reduces chemical and CO2 dosing while extending time between or, eliminating cleaning procedures in process equipment, pipelines, heat exchangers, etc.
The dual treatment unit treats water without polluting or sacrificing any elements into the stream, making it totally environmentally friendly, eliminating the need for treating water to remove chemicals before it is rejected out of the system.

Applications

The versatility of dual treatment unit is such that it has numerous applications. Here's just a selection of systems it can treat:

- Heat exchangers, plate or tube type
- Humidifiers (air washers)
- Wet-pad air handlers
- Condensers
- Spray Nozzles
- Pumping stations
- Cooling towers
- Desalination systems / Evaporation systems
- Vacuum pumps
- Reverse Osmosis membranes

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Examples of Dual Treatment Success

There are over 1 million installations worldwide, even on household applications. Some of the most notable examples are:

Tanganyika Wildlife Park, Wichita, KS

The park was experiencing a major algae problem in the pool in the penguin exhibit. The water had turned so green and thick because of the algae growth that the penguins would not even get close to the pool. Manually scrubbing the pool sides and bottom would not work and harsh chemicals were not a viable solution because they could possibly harm the penguins. The water supplied to the pool was so hard that scale was building up on the pool's interior which, in turn, provided food for the algae to feed on. The park installed a 3" scale preventer in the main pool plumbing system in 2015. Within one week, the pool was crystal clear. Because the treatment unit eliminated the scale problem, the algae had nothing to 'feed' on. This is a salt water based pool which before, required a descaling procedure every 2-3 weeks on the chorine generator. After the unit was installed, they have completely done away with this descaling procedure. Other than regularly changing the water in the exhibit, because of fish remains from feeding times, and the penguin wastes, the pool in the penguin exhibit has continued to remain crystal clear with no problems with algae growth.

Cotto Tiles, Thai Cement

Cooling water circuit for tile mold making machines was heavily contaminated with oil and had silica and calcium deposition in pipelines.

A number of chemical and non-chemical treatments were used to try to prevent the problem but failed.

Following installation of a dual treatment unit**,** scale ceased to deposit and within just 6 months 70% of the existing scale had been removed.

Prior to installation

6 months of dual treatment with over 70% scale removed

Cooling tower in Arizona.

A food processing plant in Arizona with a cooling tower necessitating a large amount of chemicals to prevent scale buildup. The dual treatment unit, which is part of Industrial Water Innovations Cooling Tower Conditioning System has been protecting the tower fill and the plant's plate heat exchangers showing impressive results. The plant's plate heat exchanger used to be cleaned every 3 months, now a yearly inspection and clean without major disassembly and decompression in-place.

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FAQ About the Treatment Unit

Is anything added to the water?

No. The catalytic unit utilizes non-sacrificial components so nothing is added to the water in the process.

What happens to the treated Calcium Carbonate?

The conditioner causes calcium carbonate to precipitate as an insoluble crystal. Calcium carbonate is still CaCO3 just in an altered way. Think of water itself, its H2O but can take the form of water, ice, steam or snow. Many other compounds are the same and the conditioner exploits the ability to create a stable, non-adhering form of calcium carbonate. Once precipitated, calcium carbonate remains as microscopic crystals in suspension in the water, it will float around and eventually exit a drain or bleed valve. If treated water is remaining in a static environment for a prolonged period of time then this crystal suspension can often settle out and take the form of very fine powder or soft sludge. There is no record of this deposition having enough consistency to cause blockages in valves or outlets.

Is the treatment unit considered "green"?

The Conditioners can be considered amongst the greenest water treatment available. It is a completely power free system and has no sacrificial components requiring regular replacement. There is no salt required, no wasted water for backflush and our conditioners require no replacement parts.

Is the treated water safe to be consumed or for food contact?

These systems have been used in potable systems for over 40 years and have received numerous safety certifications like NSF.

What is the life expectancy of the treatment unit?

Depending on use, a minimum of 10 years can be expected however it is not uncommon for conditioners to last between 15-20 years.

How long will it take before a difference is noticed following installation?

Depends entirely on frequency of use and if there are significant limescale deposits already present. If significant scale is already present it can take several months before any difference is noticed. However, in some cases results, our clients have reported results seen in a matter of weeks.