WASLIX

CLEARLY CLEAN WATER

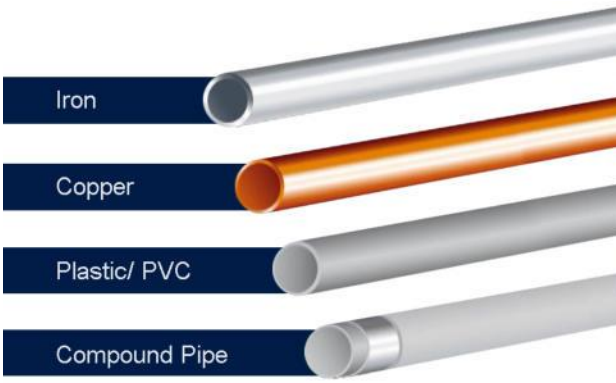
Our philosophy is to foster a strong association between how *Clearly Clean Water* will have a healthy biological influence on our bodies and preventative repairs and maintenance to our homes and businesses.

VULCAN:

wobbling impulse frequency descaler

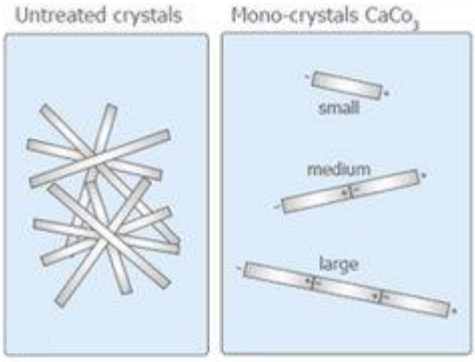
The Vulcan anti-scale system uses proprietary technology to generate 3-32 KHz capacitive electric impulse frequencies to physical change the molecular characteristics of lime scale crystals. This causes lime scale particles to lose their ability to bond to surfaces inside water pipes and on equipment components.

NO salt
NO chemicals
NO maintenance required
NO electromagnetic fields



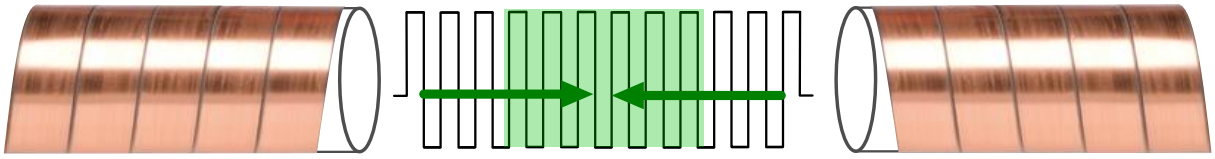
VULCAN: Science

wobbling impulse frequency descaler



Stage 1:

Impulse frequencies alter molecular structures of minerals responsible for causing hard water scaling

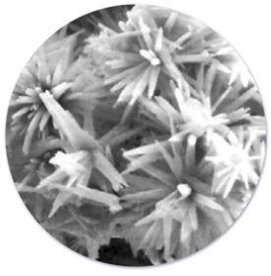


Calcium (Ca) and Magnesium (Mg) are the predominant minerals responsible for mineral scaling. The natural tendency of these heavy molecules are to bond to each other and stick to surfaces.

The impulse bands, *made from a very pure grade of copper*, get wrapped tightly around the outside of a water pipe and the impulses generated from each impulse band interact together causing an oscillating frequency-field. These colliding impulses radiate 9-16 feet on both ends of the impulse bands along a pipe length, this makes up the water treatment zone.

The Vulcan mineral descaler creates a condition in which Calcium Bicarbonate Ca(HCO3)2 is washed away with the water as smooth rod-shaped mono-crystals that do not bond to surfaces as Calcium Carbonate Crystals (CaCO3). This mono-crystal creation process is continuous and is not dependent on the water flow. When water flows past this frequency-field treatment zone, the mono-crystals created loosen existing scale deposits as the treated water flows in and out of equipment and piping. The mineral scale is washed away with the natural water flow.

BEFORE



AFTER

very detailed scientific explanation: **www.Science.Waslix.com**

VULCAN: Science

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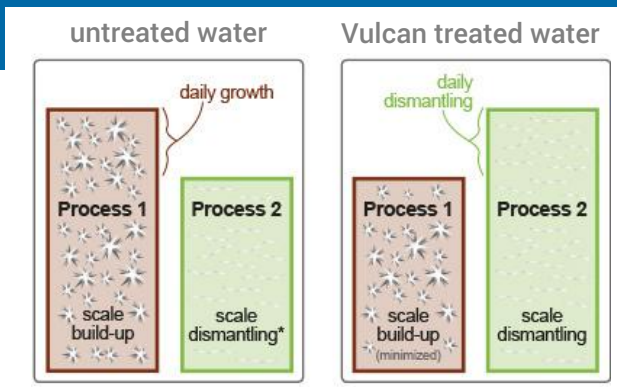


Stage 2:

The natural resolving process between scale buildup and scale dismantling is reversed

Simultaneous Processes in Untreated Hard Water:

1. Lime scale deposits result from calcium crystals bonding to each other and then adhering to surfaces. For a split second carbonic acid (H2CO3) is produced as a byproduct.

2. Carbonic acid breaks down existing lime scale deposits- referred to as the "Natural Resolving Process". The build-up process takes place much faster than the natural resolving process to dismantle sale causing a pipes' diameter to shrink.

> If there is a surplus of Carbon Dioxide (CO_2) then Lime ($CaCO_3$) is dissolved

$Ca(HCO_3)_2$ Calcium Bicarbonate + Vulcan Descaler Impulse frequencies = $CaCO_3$ Calcium Carbonate + CO_2 Carbon Dioxide + H_2O Water

The Vulcan anti-scaling technology creates a favorable environment in which there is a Carbon Dioxide (CO2) surplus to dissolve hard water mineral deposits.

H_2O Water + CO_2 Carbon Dioxide = H_2CO_3 Carbonic Acid

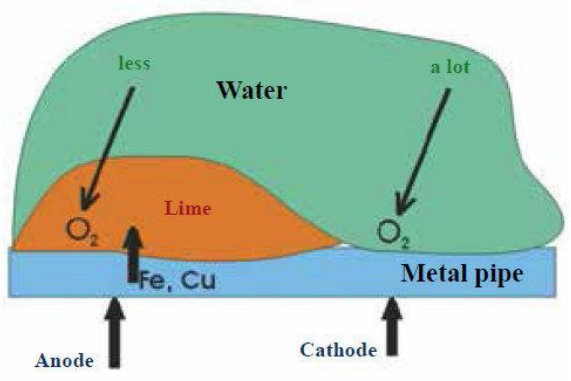
The natural Carbonic Acid (H2CO3) surplus dissolves existing scale deposits faster than it can form and the mono-crystals created in stage 1 do not bond to surfaces to create mineral deposits.

VULCAN: Science

wobbling impulse frequency descaler

Stage 3:

An electrophoresis effect creates a protective metal-carbonate shield



Electrophoresis:

a general term to describe the migration and separation of charged particles (ions) under the influence of an electric field.

Copper and/or iron oxidation occurs in all metal pipes through contact with hard water. These oxides seriously affect the pipe surfaces and may lead to corrosion.

The Vulcan descaler also helps to protect piping and water based equipment components against rust damage and perforation. When calcium carbonate / mineral scale deposits are removed from metal surfaces, a protective metal-carbonate layer (*copper-carbonate, iron-carbonate or zinc-carbonate)* is created all shiny metal surfaces. The Vulcan electrophoresis reaction protects metal surfaces from aggressive substances, which could lead to future corrosion.

BEFORE

AFTER

VULCAN: Case Study

wobbling impulse frequency descaler

4 year shopping mall field test

February 2014 - February 2018

During the 4 years no system maintenance was required and their system was not treated with chemicals. Mall administration and maintenance staff report the prevention of rust in their iron pipes.

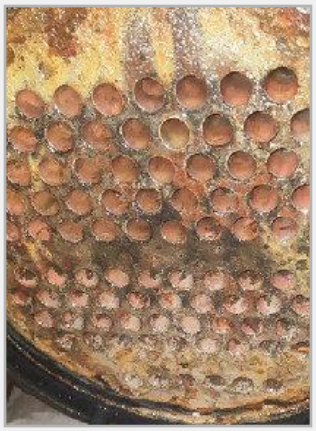
Supermal Karawaci

Significant Findings:

- No scale formation was found on the condenser heat exchanger copper tubes.
- No system maintenance was required.
- Electric Conductivity levels of up to 10,000 µS/cm can be safely ignored; including high TDS, metals, anions and many other substances
- Cooling tower water blow downs are vastly reduced because the maximum EC limit increases from 1,200 µS/cm in chemically treated cooling tower water systems to the much higher limit of EC 10,000 µS/cm for the electronic method of cooling tower water treatment. At the new 10,000 µS/cm EC limit, the need for cooling tower water blow down will likely be reduced from almost daily to once or twice per year.
- All AC compressors ran entirely at clean condenser efficiencies.
- R22 refrigerant gauges on all condensers remained at constant hot gas head pressure.

First Inspection:
March 4, 2014

The heat exchanger tube plates were removed to reveal the inside surface of the copper tubes. Tubes were manually cleaned and virtually no scale was present.



Last Inspection:
February 12, 2018

The inside surfaces of the copper tubes show zero additional scale formation after 4 years in the test period.

VULCAN: Case Study

wobbling impulse frequency descaler

shopping mall 4 year field test

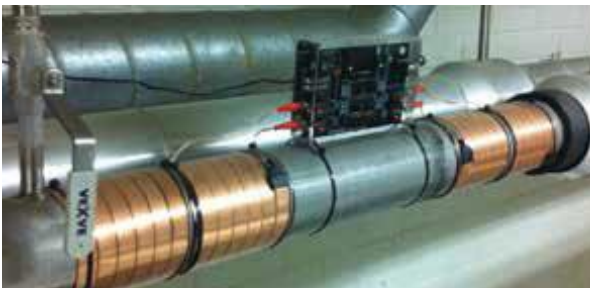
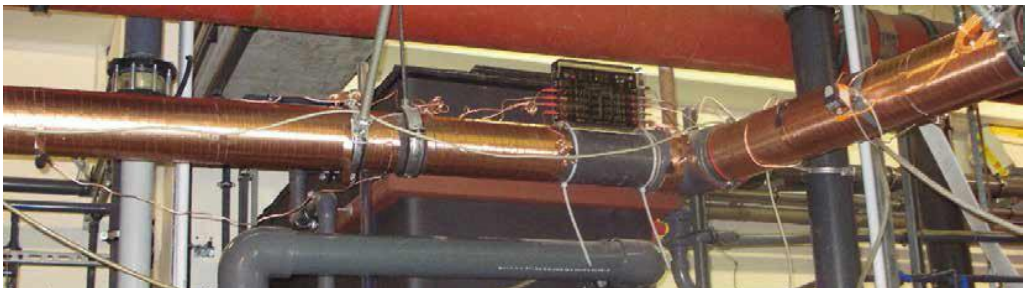
Benefit Summary:

- Large savings on chemicals.
  The complete elimination of chemicals in this cooling tower operation during the field test supports the fact that Vulcan is eco-friendly and would meet the Leeds and Green Mark Building Criteria required for “Green Building” designation anywhere in the world.
- Rust prevention in iron pipes is an added benefit of the Vulcan system.
- Scale formation was eliminated. Refrigeration compressors operated at peak efficiency due to no scale in the condensers.
- Huge savings on blow down water consumption.
  Significant energy and water savings due to clean condenser tubes and no need for water blow downs below electric conductivity 10,000 µS/cm levels with the electronic cooling tower water treatment system – representing alone a saving of virtually all previously wasted water due to blow downs.
- Savings on payroll – no operational stoppages required for condenser cleaning, less testing and fewer inspections needed.
- Savings on supervision – engineers appreciate the “set and forget” of this automatic water treatment system. Frequency of inspections and laboratory expenses for cooling tower water testing are reduced due to the safety and reliability of the electronic systems.

Eco-Friendly Anti-Scale System









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