DeCalon (DCI)

Introduction

Evaporative cooling towers are very popular as they provide the most cost effective cooling technology for industrial processes and commercial air conditioning.

The treatment and control of cooling tower water is often neglected, which is then responsible for substantial problems due to increased energy and water usage, downtime, equipment breakdown, environment violations and safety/health hazard.

Where there is need for cooling water, corrosion, bio-fouling, algae and scale will cause major problems including:

- Health hazard
- Reduction in cooling efficiency
- Increased energy and water consumption
- Reduced equipment life expectancy

Before DCI, the common method of treatment for these problems required the use of chemicals which are expensive, ineffective and environmentally unfriendly or by worthless pseudoscientific Non Chemical Devices (NCD). DCI uses simple and yet effective electrolytic chemistry. No magic!

Electrochemical Process

Using our unique patented and Singapore Green Building Council **(SGBC)** accredited process, DCI, effectively deals with the above problems eliminating the use of harmful chemicals. DCI also produces biocides mainly chlorine and hydrogen peroxide which by itself would disinfect the bio-species such as Legionella Bacteria, Algae and Bio-film.

However, due to bio-mutation that would resist sterilization over time under the same environment, we recommend occasional dosing of another biocide, at various shock/shot dosage from an external source (a requirement by most Government Health/Environment Agencies regardless of treatment method adopted) to effectively disinfect the water at all times.

Benefits of DCI-All in one

- 30-50% decrease in water consumption
- 10-25% energy reduction
- Chemicals saving- such as anti-scalant, corrosion inhibitors and etc.
- Reduction in labour cost
- Consistent manufactured product quality
- Longer chiller equipment life expectancy
- Green Technology

For more information, please contact:

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SINGAPORE GREEN BUILDING PRODUCT

SGBP DC14-227

DeCalon™

Singapore Green Building Product Certificate: SGBP DC-14-227
Patent No: PCT/SG2102/000420

The Eco Sustainable Approach to Cooling Water Management

- **Cost Effective-short ROI**
- **Low Operating and Maintenance Costs**
- **Saves Money and Protects Environment**

Scaling/Fouling will increase the operation costs due to:

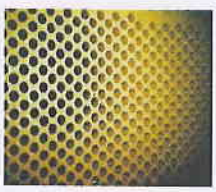
- Pressure increase
- Flow decrease
- Poor heat transfer
- Loss of throughput
- Premature equipment and pipe replacement
- Maintenance shutdown
- The use and disposal of costly and toxic chemicals

Even though anti scaling chemicals may help, scale deposits still build up on heat exchanger tubes, pipes and cooling towers which then require hazardous chemical cleaning and flushing to prevent scaling/fouling.

This compromised situation cannot be solved by continuing the same practice. This is why eco friendly **DeCalon (DCI)** is now introduced.

Scaling/Fouling is very common in condenser of air conditioning system and industrial heat transfer process, but can be prevented by DCI. In addition, the existing scales will be dissolved and removed. Also, corrosion is now under control in a reduced Oxidation Reduction Potential (ORP) environment.

A badly scaled/fouled heat exchanger



A well maintained heat exchanger

SGBP DC14-227

Your Ultimate Solution to Scaling Problem

Decalon removes scales by electrolysis according to:

- $Ca^{2+} + HCO_3^- + OH^- = CaCO_3 \downarrow + H_2O$
- $Mg^{2+} + 2OH^- = Mg(OH)_2 \downarrow$

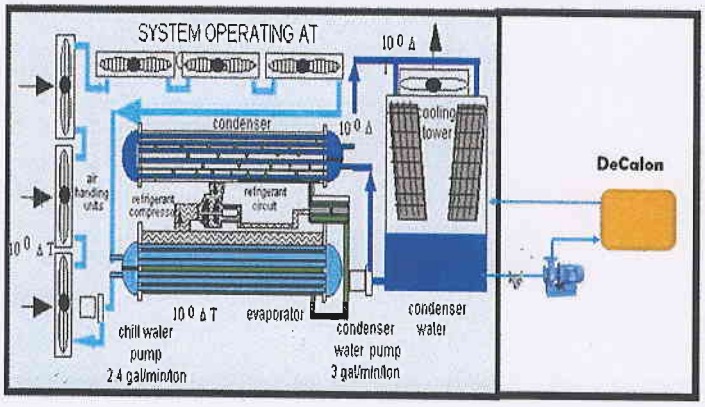
Also, SiO_2 is removed.

The main causes of scaling in water system i.e. Mg^{2+} and Ca^{2+} are dissolved from the pipes, heat exchanger and cooling tower, deposited on cathodes, dislodged and blown down automatically. Anti-scalant and corrosion inhibitor are no longer needed. Some free chlorine is also produced when sufficient chloride ion is present in the cooling water.

How does DCI work?

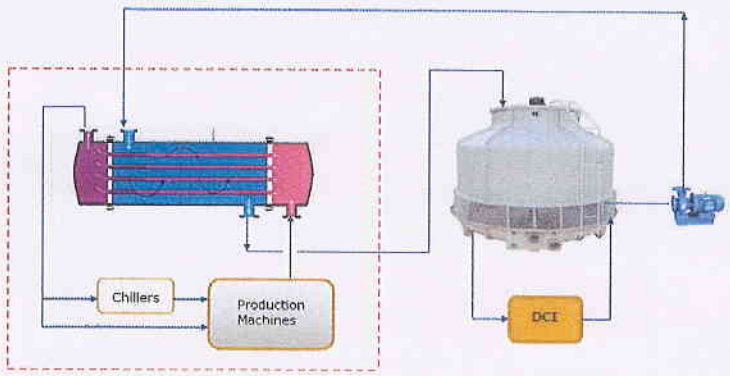
- It increases $CaCO_3$ solubility
- Existing Hardness scales are dissolved & deposited
- Scales automatically dislodged and discharged
- Auto mechanism regenerates and maintains the system's performance.
- It decreases ORP, hence corrosion is brought under control

Scale Removal for Chiller Plant in Commercial Building



DeCalon improves heat transfer substantially and hence increases chiller efficiency resulting in lower Condenser Approach Temperature

Scale Removal for Industrial Applications



DeCalon improves heat transfer efficiency considerably in Cooling System for Production Machines, Air Compressor and etc

Design Features of DeCalon

- Auto Electrodes Regeneration
- Auto Scale Dislodge and Discharge
- Auto Conductivity Control
- Auto Amperage Control

Benefits of DeCalon

30-50% Water Savings

10-25% Power Savings

Higher Product Yield resulted from efficient cooling

Consistent High Product Quality due to efficient cooling

Chiller Plant Maintenance and shutdown frequency reduced

Stand-alone Installation

Very little After-Sales Service

Good Return Of Investment: 0.5 to 2 years

General Specifications

Dimension (~mm)-overall	L = 700 B = 380 H = 1200
Weight	~50 Kg
Max Power Consumption	~600 W
Max Operating Amp (DC)	15 A auto adjustable
Max Flow	2.25 m^3/h
Operating Pressure	1 bar
Input Power Source	Single Phase AC 120-240V, 50/60Hz

Specifications subject to change without notice

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