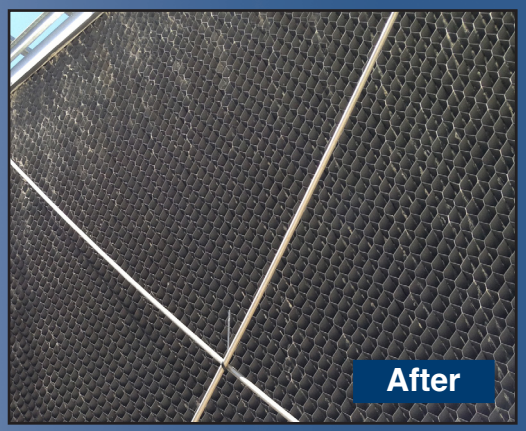
Manufactured Since 1942 by: Apex Engineering Products Corporation

RYDLYME®

World's Leading Biodegradable Descaler

Cooling Towers

RYDLYME *dissolves water scale, lime, struvite, vivianite, mud and rust deposits safely, quickly and effectively!*



*the **solution** to your water scale problems*

Calcium Build Up in Cooling Towers

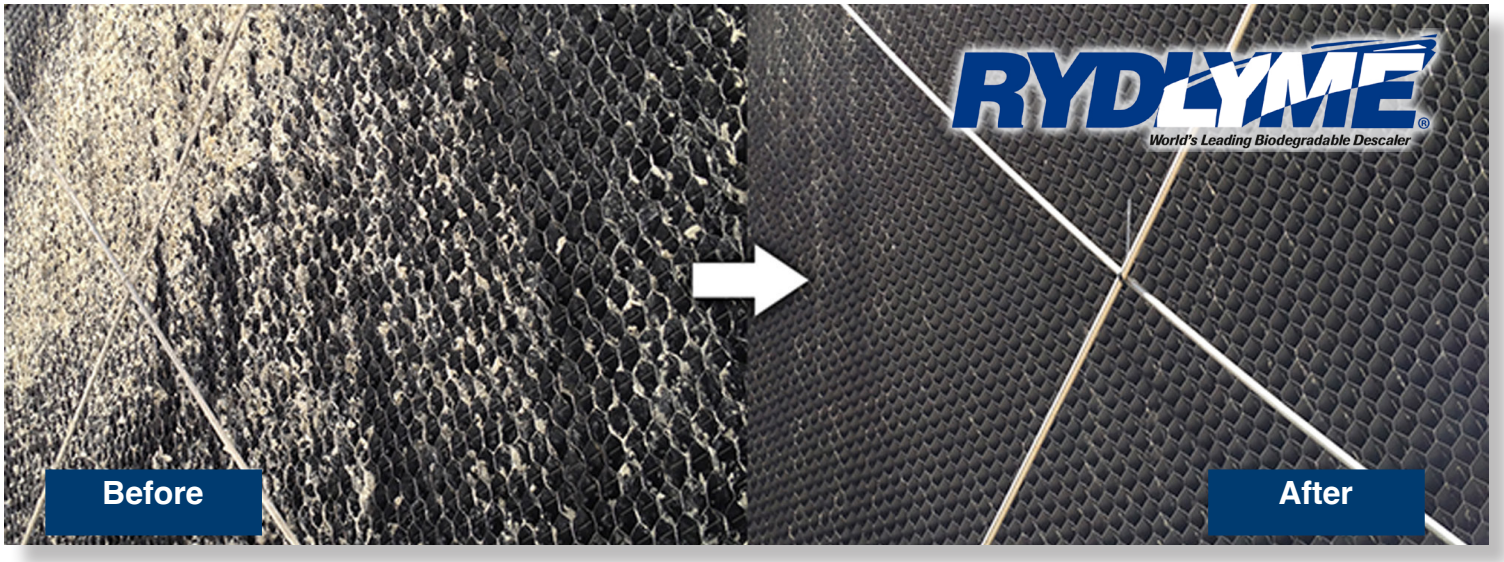
Calcium scale, a common issue in cooling towers, is primarily composed of calcium carbonate, a hard, crystalline substance that forms when calcium ions in water react with carbonate or bicarbonate ions. This process is accelerated in cooling towers due to the evaporation of water, which increases the concentration of dissolved minerals.

Water scale buildup on cooling tower fill

As water circulates through the cooling tower, it absorbs heat from the system and partially evaporates, leaving behind these minerals, which gradually accumulate as scale on the tower's surfaces. This scaling not only reduces the overall heat exchange efficiency by acting as an insulating barrier but also constricts water flow through pipes and other components. As a result, the cooling tower's performance is significantly hindered, leading to increased energy consumption and operational costs. Moreover, severe scale buildup can lead to the complete malfunction of key components, necessitating costly repairs and maintenance.

Calcium scale buildup in cooling towers has a pronounced impact on their efficiency and flow. This buildup forms an insulating layer on heat exchange surfaces, significantly reducing thermal conductivity. For instance, even a thin layer of 1/16th of an inch of scale can reduce heat transfer efficiency by up to 40%.

This inefficiency forces cooling systems to work harder, leading to a marked increase in energy consumption. Studies have shown that for every millimeter of scale thickness, energy consumption can increase by approximately 10%. Furthermore, scale constricts flow in pipes and channels, decreasing the cooling tower's capacity to circulate water effectively. This reduction in flow can lead to as much as a 30% drop in cooling efficiency.



The cumulative effect of these issues not only leads to a spike in energy costs – often increasing operational expenses by up to 25% – but also escalates the need for frequent maintenance and repairs, further adding to the operational burden. These statistics underscore the critical need for regular maintenance and effective scale removal strategies to ensure optimal cooling tower performance.

Adding *RYDLYME* to a Cooling Tower to Descale Water Scale

Adding ***RYDLYME*** to the cooling tower basin allows the tower's transfer pump to circulate the solution throughout the entire cooling system while in operation. This can all be accommodated during the normal operation of the cooling tower without shutdown! It is imperative when calculating a required amount of ***RYDLYME*** needed for a cooling tower system to include enough ***RYDLYME*** for the equipment load of the tower.

Add RYDLYME to the basin of the tower

RYDLYME circulating through a cooling tower via the tower's pump

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Recommended *RYDLYME* Quantities

TONNAGE	EVAPORATIVE CONDENSERS	COOLING TOWER AND THE LOAD	CIRCULATING HOURS
10	4	7	3
25	10	20	4
50	20	35	4
75	30	55	4
100	40	70	5
125	50	90	5
150	60	105	5
200	80	140	5
250	100	175	5
400	160	280	5
500	200	350	6
750	300	525	6
1000	400	700	7
2000	800	1400	7
3000	1200	2100	8

The following is a detailed procedure for cleaning a cooling tower system or a cooling tower with ***RYDLYME***. To ensure a successful cleaning, please contact Apex Engineering Products Corporation for technical assistance prior to starting the cleaning procedure.

1. Close make up water valve to tower basin.
2. Turn off all chemical or non-chemical water treatment, conductivity meters and pH meters.
3. It is recommended that all loose water scale, lime, mud, rust and other foreign matter be manually removed from tower basin prior to starting the cleaning.
4. Lower the water level in the tower basin to a point where the pump can maintain circulation without cavitation and close the bleed-off valve.
5. It is recommended that the fans be turned off during the cleaning.
6. Determine the proper amount of ***RYDLYME*** to be added to the system. Please note that the amounts recommended in the chart are just guidelines and that your application may require 2-4 times the chart amount, depending on the severity of the deposit build-up in your system.
7. To minimize excessive foaming, you may slowly add required amount of ***RYDLYME*** to the tower basin.
8. The bubbling and foaming you will observe is a natural reaction of the ***RYDLYME*** dissolving the water-formed mineral deposits within the system.
9. Once the ***RYDLYME*** is in the tower system, allow to circulate. Start charting your pH readings or performing calcium spot tests to measure the effectiveness of the ***RYDLYME*** solution during the cleaning ("Testing the Effectiveness" is available on our website or contact us directly for a copy). If the ***RYDLYME*** cleaning solution expends prior to the completion of the recommended circulation time, there is more scale in the system. It is recommended that you repeat steps 6-9 to complete the cleaning.
10. It is recommended that the ***RYDLYME*** cleaning solution be cycled out of the system to prepare it for normal operation. At this time, strainers should also be removed, inspected and cleaned as well.
11. Once the cleaning material has been cycled from the tower system, turn your conductivity, pH meters or any other equipment back on. Return the make-up water and bleed off valves per the manufacturer's recommendations. Lastly, resume normal system operation.

CAUTION: ***RYDLYME*** is safe, but the application of ***RYDLYME*** may expose pre-existing under deposit corrosion (pitting, holes or similar damage) that can result in leaks in pipes, equipment or systems.

Why Should You Use RYDLYME®?

RYDLYME is EFFECTIVE… it dissolves approximately two pounds of scale per gallon!
RYDLYME is BIODEGRADABLE… it has a biochemical oxygen demand of 16 mg/l and can be disposed of through existing plant sewers!
RYDLYME is SAFE… it can be held in the open hand without injury!
RYDLYME is ECONOMICAL… call us at (800) 451-6291 to learn how an investment in ***RYDLYME*** can multiply your efficiency!

APEX ENGINEERING PRODUCTS CORPORATION™

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