

# APEX

QUARTERLY

FOURTH QUARTER 2020

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**NEWS ON SAFE  
CHEMICAL SOLUTIONS  
FROM APEX ENGINEERING  
PRODUCTS CORPORATION**

# HEAT EXCHANGER DESCALING WITH **RYDLYME**

## Why use **RYDLYME** descaler when cleaning a heat exchanger?

**RYDLYME** biodegradable descaler is the perfect tool for safely dissolving calcium, lime, rust and other water deposits that rob heat transfer efficiency and dramatically decrease flow rates. A periodic **RYDLYME** cleaning will dissolve the deposits into a solution without harming the metallurgy or components within your heat exchanger. **RYDLYME** is non-hazardous to the personnel performing the cleaning and disposal is simple due to the fact that **RYDLYME** is biodegradable.

Our biodegradable and innovative descaler is the universal product of choice for scale removal no matter the equipment type. Besides avoiding heat exchanger failures, with **RYDLYME** you regain original design heat transfer, efficiency, flow and reliability!

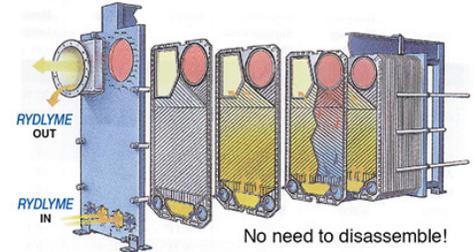
## How to descale a heat exchanger with **RYDLYME**:

**RYDLYME** is the ONLY product of its kind that is truly non-toxic and non-hazardous! Unlike other chemical descalers and traditional harsh acids, **RYDLYME** can be safely handled by personnel (you can even hold it in your hand without injury!) and there are NO transportation or handling restrictions! It can be safely disposed in normal plant sewers, even in the case of an accidental spill at full concentration!

To obtain the quantity of **RYDLYME** needed to clean your heat exchanger, you will need to first determine whether you are working with a shell & tube heat exchanger or a plate & frame heat exchanger. You will also need to know the dimensions of the heat exchanger. Once you have that information, please refer to the chart or formula ([here](#)) for the quantity and circulation time. The resulting volume given depicts a 50% concentration of **RYDLYME**, therefore the same amount of water will be required to flood the unit and circulate the solution. When isolating the water-side of the unit for cleaning, additional **RYDLYME** may be necessary if the isolation valves are located further than one foot from the actual supply and return ports of the exchanger. To account for this added volume, add in the piping volume from the exchanger to the valves to ensure the adequate amount of solution.

SYSTEM VOLUME	CIRCULATING TIME
0 - 25 gallons.....	1 hour
25 - 50 gallons.....	2 hours
50 - 150 gallons.....	3 hours
150 - 300 gallons.....	4 hours
300 - 500 gallons.....	6 hours
500 - 800 gallons.....	8 hours

fig 2.1



## Basic Heat Exchanger Descaling Procedure:

1. Isolate and drain the water-side of the exchanger to be cleaned.
2. Place a 1" ball valve between the isolation valves and the heat exchanger on both the supply and return.
3. Attach the **RYDLYME** pump and hoses so the **RYDLYME** will be pumped in the bottom or supply, and pumped out the top or return.
4. Begin pumping all the required **RYDLYME** into the exchanger. Once that is accomplished, begin to add water to complete the circulation. Please note: The calcium deposit will take up volume within the heat exchanger, so you will not be able to add the same amount of water initially.
5. Continue circulating the solution for the recommended amount of time. As the circulation progresses and the product dissolves the deposits inside the unit, the volume will increase. To account for the increase in volume, please add water to the circulation vessel, as needed. If you begin adding a lot of water, please be aware, it is possible there is a leak in the system.
6. It is a good idea to periodically check the effectiveness of the solution while circulation is in progress. This can be accomplished by utilizing a pH meter and as long as the solution retains a low pH, the product is active. Should the circulating solution reach a pH of 5.5 to 7.0 before

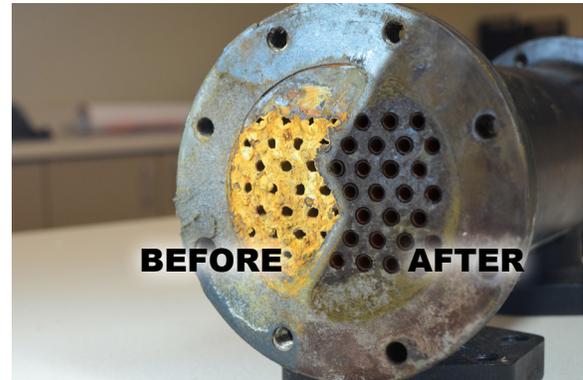
the recommended time is up, you will need to add more **RYDLYME** and possibly extend the circulation time.

7. Upon completion of the recommended circulation time, the solution may be purged to a normal sewer and flushed with water. This process is completed by placing the return hose in the drain and adding water to the circulation container until the discharge line runs clear.
8. The unit is ready to be returned to service.
9. The same instructions may be used for shell and tube type heat exchangers.
10. Please note: If your situation dictates that you cannot take your heat exchanger off-line, please contact the manufacturer for on-line cleaning instructions.

For more detailed instructions, call Apex Engineering Products today for a **free quote** at **630-820-8888!**



Multiple **RYDLYME** Containers & 15PPC Descaling System Shown



## **RYDALL OE and Landfill Odors**

Landfill odor is a very serious issue, which can result in fines as well as neighbor complaints. Landfill odor is mainly caused by hydrogen sulfide, ammonia, mercaptan and skatole. In response to these needs, Apex Engineering Products Corporation offers **RYDALL OE Odor Eliminator**, an environmentally safe solution for the treatment of problematic odors associated with landfill/compost operations, grease traps, and holding tanks.

**RYDALL OE** is a unique biocatalyst containing a complex mixture of natural nutrients, vitamins, and trace elements. **RYDALL OE** is specifically designed to eliminate industrial odors without the need for hazardous chemicals, essential oils or masking fragrances. **RYDALL OE** is not only versatile and effective, but offers a completely safe liquid-phase odor solution.

- Biodegradable, environmentally beneficial
- Non-Hazardous, Non-Toxic & Non-Irritating
- Made in USA
- Spray on application
- Easy to use & safe for personnel, ultra concentrated, used in ppm doses

[Click here to watch \*\*RYDALL OE\*\* in action!](#)





HVAC service professionals trust and turn to RYDLYME



For nearly 80 years, RYDLYME biodegradable descaler has been used to safely and efficiently dissolve tough mineral deposits, such as water scale, lime scale, calcium, rust and even struvite. This revolutionary descaler is fortified with a complex formula of wetting and penetrating agents that dissolve mineral deposits into solution.

### DISSOLVE THE TOUGHEST MINERAL DEPOSITS

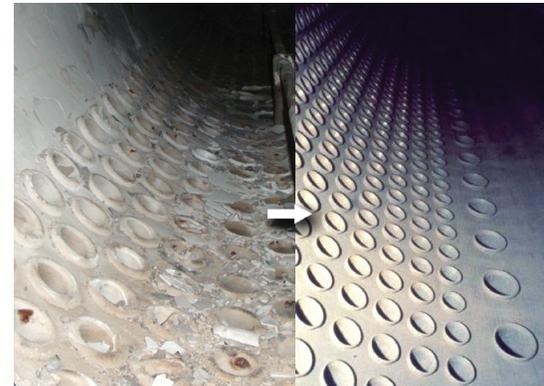
For nearly 80 years, RYDLYME biodegradable descaler has been used to safely and efficiently dissolve tough mineral deposits

### TRULY SAFE & BIODEGRADABLE

RYDLYME is the ONLY product of its kind that is truly non-toxic and non-hazardous! Unlike other chemical descalers and traditional harsh acids, RYDLYME can be safely handled by personnel



Stainless steel condenser at a power plant



Boiler at a commercial building



Cooling tower (hot deck) at an institutional facility



Absorption unit at a university

### DISSOLVE THE TOUGHEST MINERAL DEPOSITS

RYDLYME is as much as 12x faster than other chemical descalers, with most cleaning applications completed within a few hours

# Actions speak louder than words



# CASE STUDY

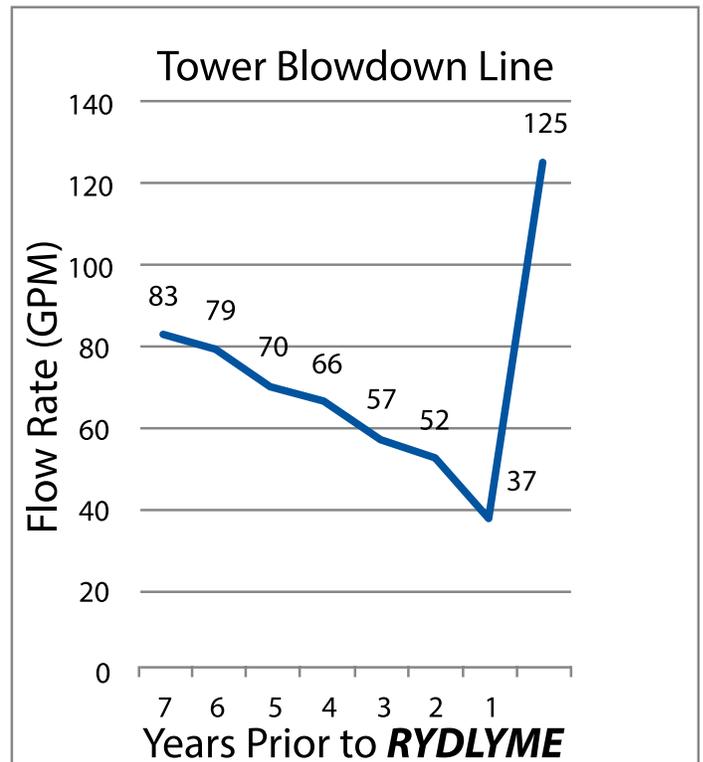
Manufactured Since 1942 by: Apex Engineering Products Corporation



## COOLING TOWER BLOWDOWN LINE CLEANING

A northwestern petrochemical facility specializing in ethylene and polyethylene manufacturing was experiencing problems with their main cooling tower. Specifically, the problem was discovered to be in the blowdown line of the tower system. Designs, pump specifications, drawings and historical data were obtained to evaluate the severity of the problem. The line consisted of 5,000 feet of 4" carbon steel pipe. It was determined that over the past 30 years, scale had progressively accumulated within the blowdown line and restricted flow. Flow rates which were designed for 125 gallons per minute were reduced to just 37 GPM!

For personnel safety and effectiveness on the scale deposit, **RYDLYME** was awarded the task of dissolving the scale and returning the system to full capacity. Due to the length of the blowdown line utilizing hoses to establish circulation was not a viable option. For the severe accumulation of scale, having agitation of the **RYDLYME** was essential. Therefore, a pair of vacuum pump trucks were established at either end of the line. One truck would pump a diluted **RYDLYME** solution down the line, rapidly dissolving layers of scale, to be collected and then pumped back up the line. Within eight hours the blowdown line was completely rid of scale deposits. After the cleaning, the flow rates were measured at the design specification of 125GPM! In addition, the plant personnel observed improved performance and quieter operation of the cooling tower pumps.



### CHALLENGE

Flow rate in cooling tower blowdown line restricted to less than 30% capacity. Piping meanders for over 5,000 feet (nearly a mile!), preventing mechanical cleaning and circulation.

### SOLUTION

Utilizing two vacuum pump trucks, **RYDLYME** was passed back and forth (or "ping pong") for 8 hours.

### RESULTS

Flow rates increased 235% and fully achieved design specifications! Noticeable improvement in cooling tower pump operation as well.



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## DESCALER & PUMPING SYSTEMS



**RYDLYME** biodegradable descaler is uniquely formulated to dissolve the toughest water scale, lime scale, mud and rust deposits from virtually any water-operated equipment. NSF A3 and ANSI 60 certified.



**RYDLYME Pumping Systems** are specifically designed to circulate **RYDLYME** through a vast array of equipment and systems to keep your facility at peak operating condition.

## CLEANERS, DEGREASERS & HAND SANITIZER



**RYDALL CC Coil Cleaner** is a biodegradable, concentrated solution that is safe for indoor and outdoor cleaning of air exposed surfaces on HVAC/R equipment. Dilutable and capable of being applied via foaming applicator. NSF A3 certified.



**RYDALL MP Multi Purpose Degreaser** is a biodegradable, versatile cleaner that quickly and safely removes oil, grease, grime and other pollutants from wettable surfaces and components. NSF A1 certified.



**RYDALL HD Heavy Duty Degreaser** is a biodegradable heavy duty, industrial grade degreaser. Used specifically on all carbon based derivatives that are found on the oil and/or process sides of your critical equipment or systems.



**RYDALL VP Specialized Degreaser** is a biodegradable, pH neutral degreaser specifically designed to safely and quickly clean and degas refinery process equipment. It can be applied in circulation or vapor phase applications.



**RYDALL DC Deodorizing Cleaner** is a biodegradable, ultra-concentrated cleaner designed to be used generally in janitorial applications such as floor, bathroom and window cleaning.



**HAND SANITIZER** is formulated according to WHO guidance, AEPC's Hand Sanitizer utilizes an Isopropyl Alcohol Antiseptic 75% Topical Solution which helps reduce bacteria that potentially can cause disease.

## ODOR CONTROL, WATER TREATMENT & WASTE CONVERSION



**RYDALL OE Odor Eliminator** is a unique, environmentally beneficial additive that is applied to landfills, compost or other organic odors. Naturally enhances methane release and production. Contains no masking agents, essential oils or fragrances.



**RYDALL WO Water Optimizer** is an environmentally beneficial additive that naturally reduces and prevents the formation of  $H_2S$ , COD, BOD, FOG, TDS and TSS. Thereby reducing corrosion and discharge penalties while increasing production.



**AEPC Thermal** is a division of Apex Engineering Products Corporation (AEPC). Our mobile waste conversion plants are trailer mounted and ready for deployment!

1241 Shoreline Drive Aurora, Illinois 60504 T: 630.820.8888 | 800.451.6291 | F: 630.820.8886 | MADE IN THE USA

Apex Engineering Products has been formulating and manufacturing safe and biodegradable specialty cleaning chemicals for a diverse range of applications around the world. From our **RYDLYME** biodegradable descaler to our versatile **RYDALL** line of degreaser/cleaner, odor control and water treatment products, we aim to decrease downtime and increase efficiency.

We are a fourth-generation, family-owned company acclaimed not only for our biodegradable line of products, but also our in-depth and exceptional customer support. With decades of knowledge and experience in a wide array of applications, our professional technicians will work closely with you to determine the best solution for your facility's unique challenges.

Apex Engineering Products also takes great pride in being an ISO 9001 Certified Company providing the highest level of support and quality of products to our customers... **another formula that hasn't changed in nearly 80 years!**