

APEX

QUARTERLY

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

CHILLER TUBE DESCALING

SELECT THE BEST FOR YOUR MAINTENANCE PROGRAM

Utilizing the correct tool for your maintenance program is imperative to its success. **RYDLYME** is an excellent choice for dissolving water formed deposits from chiller tubes and condenser barrels. NSF/ANSI 60 certified, this biodegradable descaler is safe for personnel and your equipment! **RYDLYME** will save you time and money by not having to dismantle your chiller and dissolving energy robbing water scale.

Whenever there are water scale deposits on a heat transfer surface, in this case chiller tubes, it prohibits heat transfer. This is referred to as "thermal resistance" and it requires a corresponding increase in energy consumption. Major manufacturers of air conditioning equipment generally design their heat exchangers to operate at a maximum thermal resistance of 0.0005". This equates to just half the thickness of an eggshell! As a result, only 0.036" (about 1/32") of water scale deposit corresponds to an increase in energy costs of over 30%!



Chiller tubes before and after **RYDLYME**

The increase in electrical energy takes place in the compressor. Water scale deposits increase the resistance to heat transfer, and in the condenser higher refrigerant gas temperatures will result. Higher refrigerant gas temperatures mean higher gas pressures, which require greater energy to compress the refrigerant. Therefore, there is an increase in electrical power to operate the compressor.

When isolating and cleaning a chiller, the chart below (fig1) will assist the technician in ascertaining the correct amount of **RYDLYME** required. **RYDLYME**, when circulated through the tubes, will completely clean the tubes, including the enhancements. A **RYDLYME** cleaning will insure optimal efficiency is restored, bringing approach temperatures down to OEM specifications.

Length of Chiller Barrel

	4'	5'	6'	8'	10'	12'	16'	18'	20'	24'	30'
10"	4	5	6	8	10	12	16	18	20	25	30
12"	6	7	9	12	15	18	24	27	30	35	45
16"	10	13	16	21	25	30	42	50	55	60	80
20"	16	20	25	32	40	50	65	75	80	100	120
24"	25	30	35	50	60	70	95	110	120	140	180
30"	35	45	55	75	90	110	150	165	180	220	280
36"	55	65	80	110	130	160	220	250	275	330	400
40"	65	80	100	130	160	200	260	300	330	400	500
44"	80	100	120	160	200	240	320	360	400	475	600
48"	100	120	140	190	240	280	380	425	480	560	710
50"	105	130	160	210	260	315	415	470	520	625	780
54"	120	150	180	240	300	360	480	540	600	715	895
60"	150	185	220	295	370	445	590	665	740	885	1105

Gallons of RYDLYME

fig1

- = 1 Hour
- = 2 Hours
- = 3 Hours
- = 4 Hours
- = 5 Hours
- = 6 Hours
- = 7 Hours
- = 8 Hours

COST SAVINGS EXAMPLE

EQUIPMENT	KW/ TON	LOAD FACTOR	OPERATING HOURS	KWH/ RATE	ENERGY COST
500 TON CHILLER	x .65	x 100%	x 6,570	\$.09	= \$192,173

DEPOSIT THICKNESS (INCHES)	% EFFICIENCY LOSS	INCREASED ENERGY COST
0.01	9%	\$17,296
0.02	18%	\$34,609
0.03	27%	\$51,887
0.04	36%	\$69,182
0.05	45%	\$86,478

Just 1/32 of an inch of scale can add nearly \$52,000 to the cost of operating a 500-ton chiller!

ENERGY SAVINGS 0.03" DEPOSIT	CHEMICAL CLEANING COST (EST.)	ANNUAL NET SAVINGS
\$51,887	\$900	\$50,987



Click above to watch the video of **RYDLYME** descaling these chiller tubes!

DESCALING SYSTEMS

Apex Engineering Products has been manufacturing **RYDLYME** since 1942. Any customer who has used **RYDLYME** knows how safe, effective and easy it is to use with wonderful results and improved efficiencies on various equipment. Apex Engineering Products' technical team recommends that **RYDLYME** be circulated through the equipment being cleaned. An easy and convenient way to circulate is with one of our many industrial descaling systems.

These descaling systems, specifically manufactured for use with **RYDLYME**, make cleaning cooling towers, heat exchangers, condensers, vacuum pumps, boilers, chillers and any other water operated equipment a snap. Each of our systems come with robust circulating buckets, Ipex true union valves, Iwaki pumps and many other features that make circulating **RYDLYME** easy. View these industrial descaling systems and other biodegradable and safe products on our website www.ApexEngineeringProducts.com.



Why clean your coils?

Cleaning coils should be part of a planned maintenance procedure for cooling and heating equipment. Why wouldn't you clean with the best?

RYDALL CC Coil Cleaner safely and effectively cleans finned cooling and heating coils and associated equipment. **RYDALL CC** is non-corrosive and will not corrode or tarnish aluminum or other metal surfaces. It is also non-hazardous and biodegradable making it safe for personnel and the environment.

RYDALL CC is the most versatile coil cleaner available. It can be applied indoors or outdoors as a non-foaming spray or through a foaming applicator to penetrate deep into the coil beds eliminating the need to carry multiple products to successfully complete a job. **RYDALL CC** is also safe on all roofing materials, including rubber membranes. Use it on air-cooled condensers, permanent air filters, evaporator coils, window units, and any finned cooling and heating coils!



RYDALL CC
BIODEGRADABLE Coil Cleaner

FEATURES:

- Deep penetrating, foaming cleaner!
- Low odor acid-based formulation!
- Biodegradable & non-corrosive!
- Safe on all roofing materials!
- Fast acting!
- Indoor and outdoor usage!
- Removes oxidation and brightens!



Want to see **RYDLYME** in action?

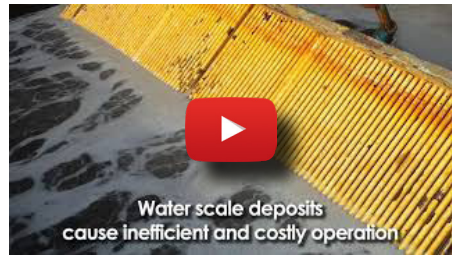
Proven for nearly 80 years and our videos show it.



Watch as **RYDLYME** Biodegradable Industrial Descaler dissolves scale build up from this chiller!



Watch as **RYDLYME** Descaler safely dissolves struvite from this check valve!



Watch as **RYDLYME** Biodegradable Industrial Descaler dissolves scale build up from this tube bundle!



Watch as **RYDLYME** safely dissolves struvite from this piece of pipe from a wastewater treatment plant!



Watch as **RYDLYME** Descaler dissolves scale build up from this evaporative condenser!



Watch as **RYDLYME** Descaler dissolves scale build up from this heat exchanger tube!



Watch as **RYDLYME** Descaler dissolves calcium carbonate water scale from this piece of pipe!



Watch as **RYDLYME** Descaler safely and efficiently removes scale from boiler tubes!



Watch as **RYDLYME** Descaler dissolves scale deposits from this copper tube section!

For more videos and information regarding **RYDLYME** and **Descaling Systems**, please visit us at: www.ApexEngineeringProducts.com



TIRE &
RUBBER

CASE STUDY

Manufactured Since 1942 by: Apex Engineering Products Corporation

RYDLYME
World's Leading Biodegradable Descaler

SHELL & TUBE HEAT EXCHANGER CLEANING

A tire & rubber manufacturer was experiencing heat transfer issues as scale had accumulated on the tubes. The personnel were looking for a proven, fast and effective industrial descaler and ultimately chose to use **RYDLYME** Biodegradable Descaler. In addition to the use of **RYDLYME**, the plant had decided to pair the biodegradable descaler with our specifically built industrial descaling system, the PumpMaster 115v. This system is perfect for smaller cleanings such as this heat exchanger.

The plant staff circulated 1 gallon of **RYDLYME** diluted with 3 gallons of water using the PumpMaster 115v for 1 hour. The plant staff was ecstatic with the results of the cleaning and are excited to see their efficiency return! Other applications throughout the plant are now being inspected for scale and **RYDLYME** will be applied there as well. Preventative maintenance plans are now being put in place and will be cleaned with **RYDLYME**.



Shell & Tube Heat Exchanger Before



Shell & Tube Heat Exchanger After

CHALLENGE

Scale deposits had accumulated on many shell and tube heat exchangers throughout a tire & rubber plant.

SOLUTION

A 25% solution of **RYDLYME** was circulated via a PumpMaster 115v descaling system through the heat exchanger for 1 hour.

RESULTS

After the **RYDLYME** cleaning, the plant was ecstatic with the results! The plant will now implement a preventative maintenance program and clean other applications throughout the facility.

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!**