

# APEX

QUARTERLY

THIRD QUARTER 2020

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SAVE TIME & MONEY!**

***RYDALL HD* - EVEN THE TOUGHEST  
CONTAMINANTS ARE NO MATCH!**

**NEW! INDUSTRIAL DESCALING SYSTEM -  
15PPC!**



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

# DON'T WAIT TO CLEAN OUT YOUR BOILER

**W**hy talk about the cold season when it's the end of summer? Like most of us, it's hard to believe that September is already here and fall is just around the corner. It won't be too long until boilers will be called upon again to keep us nice and warm.

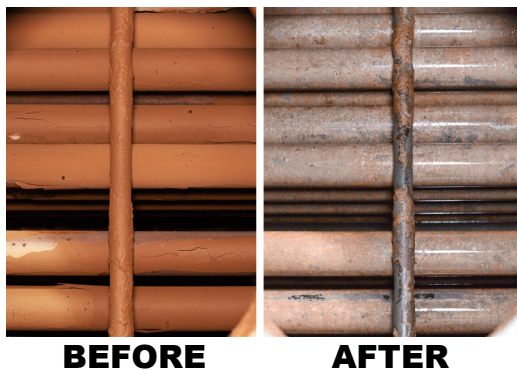
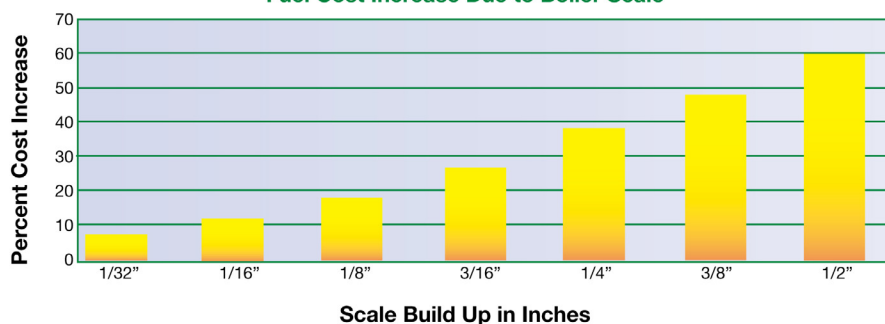
Boilers represent the heart of many institutions including: airports, factories, food companies, general industry, hospitals, hotels, housing authorities, medical centers, office buildings, power utilities, schools, shopping malls, and other locations where heat, hot water, or steam is an essential part of the operation.

Scale is the accumulation of minerals such as calcium and magnesium on the water side of boiler heating surfaces. When boiler water turns to steam, residual minerals are left in the boiler. These minerals then settle out of the boiler water and form scale on the boiler heating surfaces. If the water delivered to the boiler contains even small amounts of minerals, the heating surfaces of the boilers can soon become coated with scale, leading to inefficient heating, increased fuel consumption and subsequent tube failures. Even light or spotty scale deposition can be the foundation for hot spots, cracking, and distortion. For this reason, regular cleaning of steam generators and hot water systems is imperative. Boiler maintenance is crucial to the continued efficient operation of your facility. One component to your boilers' preventive maintenance program should be an annual cleaning to remove mineral scale that has accumulated within the boiler. These deposits are great insulators that inhibit heat exchange and cause the boiler to lose heat transfer and overall comfort.

**FOR INSTANCE, SCALE THAT IS ONLY 3/16" THICK WILL CAUSE THE BOILER TO USE 27% MORE FUEL!**

A common unknown fact is that boiler tube failures account for the majority of a power plant's forced outages. This, all because the boiler may be suffering from inadequate heat transfer. Water scale deposited in steam boilers is usually harder and denser than deposits found in hot water boilers. This is due primarily to the temperatures involved.

**Save Energy with RYDLYME**  
Fuel Cost Increase Due to Boiler Scale



But even the smallest amount of boiler scale deposits hamper good overall heating efficiency. These mineral deposits may occur from poor blow down and/or improper water treatment practices. Mineral deposits develop due to:

- Operating hours
- Feed-water hardness
- Boiler treatment methods
- Operating temperatures
- Blow down techniques/procedures
- Feed-water control fluctuations

During this winter season, make sure your boilers are operating efficiently to save money and significantly reduce the risk of costly repairs down the road.

### Factors To Consider Before Boiler Cleaning

- Type and design of boiler; low temperature hot water, high temperature hot water, low pressure steam or high pressure steam?
- Size of boiler can be obtained from the name plate or other documentation
- What is boiler used for? Heating or process (heat exchanger)?
- Age of boiler?
- The characteristics of the deposits and deposit analysis.
- Thickness of deposit; thickest area, thinnest area, average?
- Date last cleaned, if ever?
- Has any boiler feed-water treatment been used?
- Boiler history?
- What is the boiler's water capacity?
- Compatibility of the cleaning solvent with the metallurgy of the system.
- Ease of the cleaning application.
- Method of spent solvent disposal.
- Cost of cleaning method.
- Any tubes or sections leaking now? If so, they should be fixed before cleaning.

## UPDATED DRUMS - GROWING TOWARDS A MORE SUSTAINABLE FUTURE

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Apex Engineering Products would like to announce the transition to our new 30 gallon and 55 gallon drums. These drums are environmentally friendly and still come with NSF tamper evident seals. There may be a slight color deviation to the drum exterior. Customers can expect to see this change with our **RYDLYME**, **RYDALL** and **RYDLYME Marine** product lines.





RYDLYME descaler and 15PPO pump cleaning large equipment.

## RYDLYME Descaling System 15PPC

RYDLYME can be purchased in various sized containers to solve your scaling issues.

### 1.5" Pneumatic Pump Cart

The 1.5" durable pump unit is assembled on a 2'X4' heavy duty plastic cart with 8" swivel wheels. This high quality system contains a 30-gallon circulation bucket with a drain valve coupled via bulkhead fittings to multiple IpeX True Union Valves for simplistic and versatile operation. The 15PPC is capable of achieving 50 GPM at 150' of head.

The extremely rigid air operated double diaphragm, **15PPO**, is mounted directly to the cart and comes with three 1.5" diameter 10' hoses. A filter regulator and pressure gauge are also included. A by-pass system is hard piped into this unit to accommodate both small and large applications, as well as water flushing the unit upon completion. The system is fully assembled and ready for immediate use as a **15PPC**.

### RYDLYME Descaling System 15PPC Features:

- Multiple 1.5" fittings with IpeX True Union Valves
- 2'X4' heavy duty plastic cart with 8" wheels
- 30-gallon circulation bucket with drain valve
- Three 1.5" diameter 10' hoses
- Air filter regulator
- Pressure gauge

### RYDLYME Descaling System 15PPC Applications:

- Cooling towers
- Boilers
- Heat exchangers
- Chillers
- Condensers
- Vacuum pumps
- And much more!



The new  
**15PPC!**



# CASE STUDY

Manufactured Since 1942 by: Apex Engineering Products Corporation



## WWTP DIGESTER LINE CLEANING

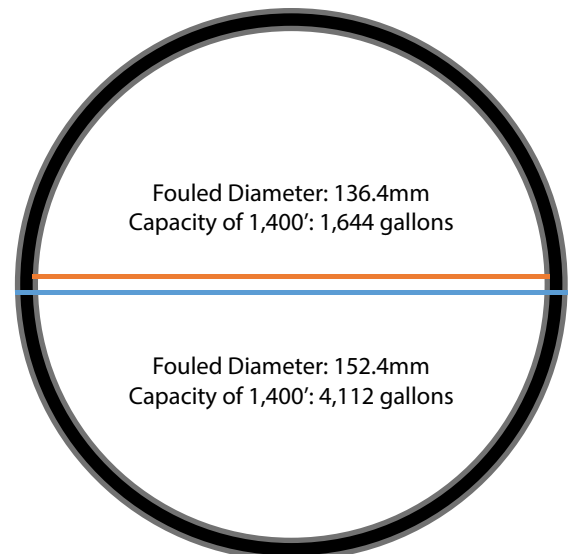
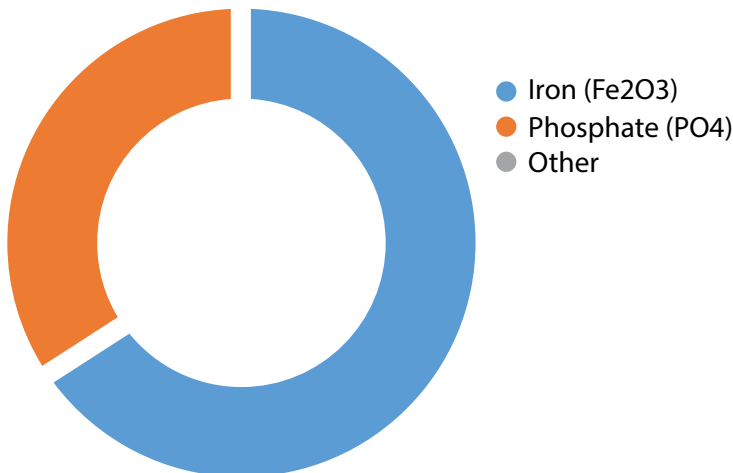
A Canadian wastewater treatment plant was having serious fouling issues within their digester line. Their flow rates were reduced to just 1.25 liters per second (LPS).

The system was evaluated and calculated to contain a maximum of 4,112 gallons of water. A sample of the scale deposit was obtained and provided to Apex Engineering Products Corporation for testing purposes. When static tested with a 100% solution of **RYDLYME**, the results were very positive (>95% dissolved) within less than 12 hours and arrangements for cleaning proceeded.

Due to the severity of the scale accumulation and test results it was recommended that a 100% solution of **RYDLYME** be circulated for at least 8 hours. However, when cleaning began, just 1,650 gallons of **RYDLYME** surpassed the capacity of the digester line. This indicated that there was an average of 8mm of scale deposit throughout the length of the 1,400 foot digester line. Virtually a 60% reduction in volume! After 5 hours of circulation, the flow rate had quadrupled to 6 LPS! However, at this time, the cleaning was paused for visual inspection at a low point in the loop's elevation. Much of the scale deposit remained, so additional samples were collected sent to a third party laboratory for analysis. This second sample deposit was comprised heavily of iron. It was also found that because the circulation loop was not vented to atmosphere, pressure had built up within the pipe and trapped air in the top section of the pipe diameter preventing the scale from being dissolved. The circulation loop was adjusted to incorporate a balancing tote and vent the solution to atmosphere. Upon continuing the circulation, additional volume was realized and all 12 totes of **RYDLYME** were able to be added to digester line. Achieving a system capacity of 3,960 or 96.3% of calculated physical volume. The circulation continued for a total of 90 hours, until the pH had recovered to nearly 5. When the final inspection occurred, there were leftover insoluble particles and grit which were also found in the balancing tote.

With a larger circulation pump and increased flow for the cleaning, it is likely much of the remaining insoluble material that was found in the low elevation piping would have been flushed out to the balancing tote and removed from the system. The greatest aspect of the **RYDLYME** cleaning was the significant increase in water volume. Numerous other WWTP have utilized **RYDLYME** and found more quantitative success in financial savings from pump operation and amperage, increased production from flow rate and volume gains.

Scale Composition of Second Sample



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## ETHYLENE REFINING COLUMN CLEANING

A world renowned petrochemical manufacturer had inspected one of their ethylene refining columns during a regularly scheduled shutdown. As ethylene is arguably the most important organic chemical in the plastics manufacturing process, serving as the starting block for a variety of products, the ethylene column is an essential piece of equipment. Upon inspection, the column was found to be in poor condition and required cleaning. The past method of cleaning was labor intensive, time consuming, and required manual brushing and a small maintenance team to enter confined spaces. This method required more than four days for the team to remove all contaminants within the column. Prior to the completion of the shutdown, the senior maintenance coordinator was tasked with determining a more effective cleaning technique.

Within the following month, after brief discussions with Apex Engineering Technical Staff and an onsite meeting with product representatives, **RYDALL HD** Heavy-Duty Degreaser was selected to be utilized for the subsequent cleaning because of its safety, neutral pH, low VOC and the fact that it's environmentally friendly. Typically, **RYDALL HD** would be diluted 1:1 with clean water, heated to approximately 160°F and circulated through equipment for a period of 4-8 hours prior to rinsing. This enables the sludge, oil and other contaminants to become emulsified and removed from the equipment's surfaces safely, quickly and effectively. However, the maintenance team was unable to heat the **RYDALL HD** solution and therefore extended the circulation time to 18 hours. Pictures before and after the cleaning are shown below. Other plant heat exchangers and parallel columns have been cleaned more recently with the same exceptional results, all without the prerequisite of elevated temperature.



### CHALLENGE

Ethylene column clogged with sludge residue and oil buildup. Minimal time available for cleaning and dangerous, confined conditions for maintenance personnel.

### SOLUTION

A single 330 gallon tote of **RYDALL HD** was diluted and circulated at ambient temperature for 18 hours.

### RESULTS

All contaminants removed, spotless surfaces throughout the column! Less than 24 hours to completely finish this cleaning without personnel in confined spaces!

## 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<sub>2</sub>S, 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!

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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 more than 75 years!**