

RYDLYME Marine dissolves unwanted marine growth, calcium, rust, barnacles, and zebra mussels completely, rapidly, and safely!



*The Solution to Your Marine-Based Water-Scale Problems!*

## What is *RYDLYME* Marine?

Apex Engineering Products Corporation is proud to introduce an innovative and revolutionary liquid descaler to the marine industry. *RYDLYME Marine* is a safe, biodegradable marine descaler developed to dissolve problematic fouling mediums including calcium, rust, mussels, barnacles, tiger shells and other scale formed mineral deposits that hinder the performance of vital water systems.

*RYDLYME Marine* is formulated to meet the demands of today's water systems. *RYDLYME Marine* is **non-corrosive, non-hazardous, and biodegradable**. With the **reduction of labor and operating costs, downtime, and no installation costs**, accompanied with the heavy duty cleaning power, *RYDLYME Marine* keeps your vessel at sea generating revenue.

## Biodegradable

*RYDLYME Marine* is  
biodegradable and safe  
for your equipment,  
personnel and the  
environment!

This safe and simple solution effectively dissolves rock-like scale deposits that contaminate your water-cooled marine equipment. *RYDLYME Marine* is used at ambient temperature and then circulated to bring the solution in contact with the accumulated minerals. The reaction results in a slight foaming or bubbling action, indicating the deposits are actually dissolving into solution, and then simply water flush away!

## Non-Toxic

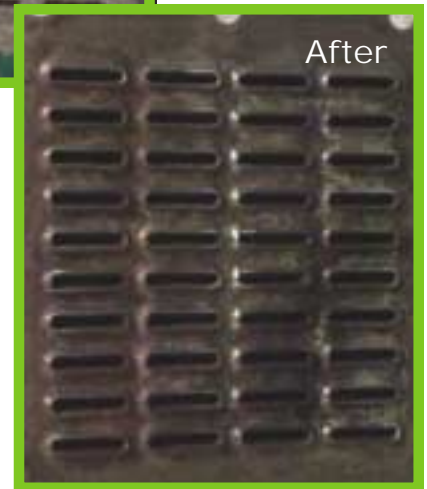
These scale deposits, along with zebra mussels and tiger shells, damage your equipment and reduce your water system performance. Historically, these problems have been addressed via harsh acids, mechanical methods, ion exchange, polyphosphates, permanent magnets and electronic conditioning. If your vessel is heat exchanger cooled, keel cooled, or radiator cooled, try *RYDLYME Marine* and ride the waves with maintenance superiority!



Before

# Fast

*RYDLYME Marine*  
cleaned this  
air cooler in a  
matter of hours!



After

### *RYDLYME Marine IS NON-CORROSIVE*

It will not corrode, pit, oxidize or have other deleterious effects on metals or materials such as:

- IRON
- STEEL
- RUBBER
- PLASTIC
- STAINLESS STEEL
- PAINTED SURFACES
- WOOD
- COPPER
- TITANIUM
- GELCOATS
- FIBERGLASS
- COPPER NICKEL

Or other materials found in water-based equipment or systems.

## Why Use *RYDLYME* Marine?

Use *RYDLYME* Marine for your commercial descaling solution to clean the seawater side of heat exchangers on all types of vessels, including work boats, cruise ships, submarines, freighters, and recreational boats. Scale build-up on heat exchanger tubes can inhibit effective cooling and damage equipment. Until now, heat exchangers were removed from the vessel and cleaned ashore resulting in high costs and lengthy equipment down times. With *RYDLYME* Marine you can CIP (clean-in-place) to reduce workload and save valuable maintenance dollars.

### Safe

Using *RYDLYME* Marine to remove unwanted marine growths will keep your vital water system operating efficiently with minimum attention and expense.

When your ship inspection requires maintenance or repair, and you demand maintenance superiority, count on *RYDLYME* Marine for descaling hard water affects such as lime scale, scum, and fouling of your water systems.

### Non-Corrosive

Apex Engineering Products Corporation employs a technical staff and maintains an extensive inventory to meet the most emergent repairs. For more detailed information please call or visit our website at [www.rydlymemarine.com](http://www.rydlymemarine.com).

## SUMMARY

Now that you have learned what *RYDLYME* Marine is all about, take a few minutes to think about how and why *RYDLYME* Marine should be a part of your preventive maintenance program.

- ✓ *RYDLYME* Marine is Safe for Equipment and Personnel!  
It is non-corrosive to virtually all metallurgies and material commonly found within water-based equipment or systems. It is safe, non-hazardous, non-toxic, and biodegradable.
- ✓ *RYDLYME* Marine is Effective!  
It dissolves approximately 2 lbs. of the toughest calcium deposit efficiently and effectively.
- ✓ *RYDLYME* Marine will Lower Maintenance and Labor Costs!  
With only two employees your equipment can be cleaned in place, returning your vital water systems to 100% working efficiency.
- ✓ *RYDLYME* Marine is Biodegradable!  
It can be disposed of through normal sewer systems and in many cases directly to the ocean or inland waterways.
- ✓ *RYDLYME* Marine is Simple!  
It can dissolve the toughest fouling mediums—even tannic acid—with little or no work. It is not a powder or paste, it is a simple ready-to-use liquid which can be sprayed on and wiped off with ease.

*RYDLYME* Marine is the Solution!  
800-451-6291

### Non-Hazardous

During *RYDLYME* Marine use

Before using  
*RYDLYME* Marine



30 minutes later  
after using  
*RYDLYME* Marine



*RYDLYME* Marine dissolves mussels, zebra mussels, and tiger shells quickly!



## What Types of Applications Benefit From Using RYDLYME Marine?

- hulls
- buoys
- boilers
- seacocks
- condensers
- keel coolers
- sea strainers
- tube bundles
- propulsion units
- air compressors
- waste heat boilers
- feed water heaters
- pumps
- chillers
- radiators
- fire mains
- diesel engines
- intake screens
- lube oil coolers
- cylinder jackets
- heat exchangers
- air conditioning units
- transmission coolers
- water pumps and impellers
- propellers
- generators
- evaporators
- bow thrusters
- booster heaters
- desalination units
- all types of coolers
- waste water piping
- engine cooling systems
- main and aux sea water systems
- and other applications where fouling is a problem

Non-Hazardous

Non-Toxic



Safe

Fast

RYDLYME Marine restores efficiency on lube oil cooler.

Non-Corrosive

### Compare RYDLYME Marine to Acid Methods:

| Descaling Method | Disposal Expense | Biodegradable | Hazardous to People | Corrosive to Equipment | Disassemble Equipment |
|------------------|------------------|---------------|---------------------|------------------------|-----------------------|
| Acid             | YES              | NO            | YES                 | YES                    | YES                   |
| RYDLYME Marine   | ✓ NO             | ✓ YES         | ✓ NO                | ✓ NO                   | ✓ NO                  |

Apex Engineering Products Corporation  
 1241 Shoreline Drive • Aurora, Illinois 60504  
 630.820.8888 • Fax: 630.820.8886  
**800.451.6291**



**Items needed to complete flush:**

- recirculating bucket
- recirculating pump
- 2 small hoses (example: garden hose)
- motor flush or “ear muffs”
- hose fitting adapter for ear muffs
- **RYDLYME Marine**

**Directions to clean an outboard motor:**

1. Connect the hose from the bucket to the pump.
2. Connect the second hose from the pump to the “ear muffs” using the hose adapter.
3. Attach the ear muffs to the water inlet of the outboard.
4. Mix **RYDLYME Marine** with 50% water into bucket.
5. Most outboards typically drain from the propeller, but on some models it will drain from the “pee hole”. Make sure the bucket is under the water outlet of the outboard.
6. Circulate solution for approximately 1 hour, depending on the severity of the scale buildup.
7. Dispose of **RYDLYME Marine** down regular sewer system.
8. Flush outboard with fresh water or sea water until it runs clear (5 minutes), to remove any insolubles, like sand.

**IF YOU HAVE ANY  
ADDITIONAL QUESTIONS,  
CALL ONE OF OUR MARINE  
TECHNICIANS AT 800-451-6291.**



# INBOARD MOTOR DESCALING INSTRUCTIONS

SAFE. FAST. EFFECTIVE.

## For Best Results:

- Record “before” and “after” operating temperatures for reference.
- By utilizing similar procedures, fresh water or in-series cleanings can be accomplished. Call for technical assistance on these procedures.
- Prolong engine life by scheduling a **RYDLYME Marine** cleaning each season.
- If there is scale build up on the impeller or the thermostat, soak them in the circulating bucket while cleaning.



- Above is our Clean-In-Place (CIP) compact pump system. Browse this and our other products on our website!



An ISO 9001 Certified Company

1241 Shoreline Drive  
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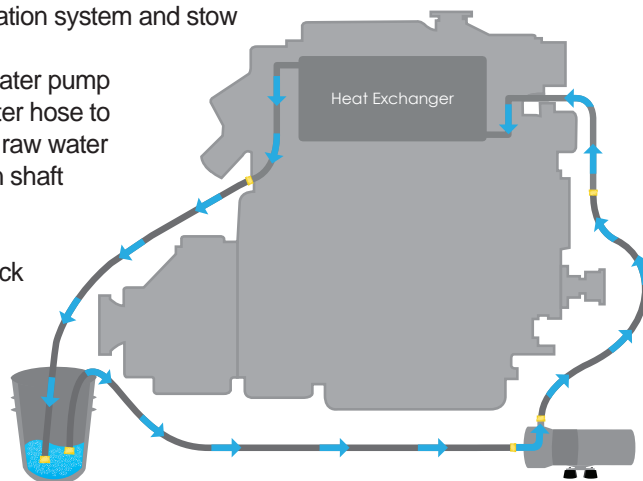
Fax: 630.820.8886

[www.RydlymeMarine.com](http://www.RydlymeMarine.com)

## Preferred Cleaning Method for Inboard Motor:

Contact a **RYDLYME Marine** Technician for recommended amount and duration.

1. Prepare your motor:
  - a. Isolate the system to be cleaned by first closing the seacock valve. Next, disconnect the hose from the raw water pump discharge. Finally, disconnect the hose that feeds the exhaust elbow with raw water.
  - b. Remove the zinc anodes in the system and plug/cap fittings. If replacing with new anodes, then do so after cleaning the system as **RYDLYME Marine** will dissolve the zinc.
  - c. The raw water cooling line that commonly runs from the heat exchanger to the main shaft will need to be clamped off (if applicable).
  - d. Remove the thermostat and reinstall the thermostat cover (if applicable).
2. Set up a circulating pump system (for convenience, **RYDLYME Marine** offers pump systems for this step. Visit our website for available models):
  - a. Use three hoses with optional valves on one end to connect pumping system.\*
  - b. Connect a hose from the circulation bucket to the auxiliary pump suction.
  - c. Connect a hose from the auxiliary pump discharge to the hose that was previously disconnected from the raw water pump discharge.
  - d. Connect a hose to the previously disconnected hose that fed the exhaust elbow with raw water. This hose will be the return hose going back to the bucket (bypassing entire exhaust).
  - e. Check to ensure all hoses and fittings are properly secured.
3. Add recommended amount of **RYDLYME Marine** to bucket and mix 1:1 with water. The pump may need to be switched on to fully fill larger systems.
4. Begin circulating by slowly filling the system with solution while making sure there are no leaks or air pockets. Once you are certain there are no leaks or air pockets, then run the pump for the recommended duration.
  - a. Monitor solution in circulation bucket for fizzing and bubbling. This reaction indicates **RYDLYME Marine** is dissolving scale. This reaction could occur for 1-4 hours.
  - b. Monitor circulating pump system for excessive leaks and be sure the pump doesn't run dry.
  - c. When the fizzing and bubbling stops and the circulation process has been running for at least 1 hour, the solution should be checked to see if it is depleted. This can be done by collecting a sample of the solution and submerging a sea shell or Tums™ tablet in it. If fizzing and bubbling occur, then the cleaning is complete. If no reaction occurs, then additional **RYDLYME Marine** may be needed to completely clean the system.
5. Dispose of the solution and flush the system with clean water for approximately 5 minutes.
6. Drain and disassemble the circulation system and stow for future use.
7. Reconnect the hose to the raw water pump discharge, reconnect the raw water hose to the exhaust elbow, un-clamp the raw water cooling line that leads to the main shaft (if applicable), and reinstall the thermostat (if applicable).
8. Open the seacock valve and check for leaks.
9. Return inboard motor to service at normal operating temperatures!



\*We recommend rubber hoses, brass fittings and PVC valves. Do NOT use low-grade aluminum or zinc components.

For reference only, actual systems may differ.  
Please contact us for additional technical assistance.

**APEX ENGINEERING PRODUCTS CORPORATION**  
**1241 Shoreline Drive**  
**Aurora, IL 60504**  
**Phone Number: 630-820-8888 Fax: 630-820-8886**

**SAFETY DATA SHEET**

**1. IDENTIFICATION OF THE PRODUCT AND COMPANY** \_\_\_\_\_

**Product Identifier**

**RYDLYME Marine** (pronounced: *rid-lime marine*)  
Aqueous marine water scale cleaner/descaler.

**Relevant identified uses of the product and uses advised against**

**General use:** Aqueous acidic cleaner for the removal of calcium, lime, rust and other mineral deposits.  
**Uses advised against:** Do not mix with strong oxidizing agents or strong caustics.

**Manufacturer Information**

**Apex Engineering Products Corporation, established 1942**  
**1241 Shoreline Drive**  
**Aurora, Illinois 60504**

**Emergency Phone (Chemtree):** 800-424-9300 (Domestic), 703-527-3887 (International)

**2. HAZARD IDENTIFICATION** \_\_\_\_\_

**Classification of the substance or mixture**

Mixture

**Hazard pictograms:**



**Signal word:** Warning

**Hazard statements:**

H303: May be harmful if swallowed.  
H316: Causes mild skin irritation.  
H320: Causes eye irritation.

**Precautionary statements:**

(Prevention) P280: Wear protective gloves and eye protection.  
P281: Use personal protective equipment as required.  
(Response) P302+P352: IF ON SKIN: Wash with soap and water.  
P321: Specific treatment, see section 4 of this SDS.

P332+P313: If skin irritation occurs, get medical attention.  
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes, remove contact lenses if present and easy to do, continue rinsing.  
P337+P313: If eye irritation persists, get medical attention.

**Other hazards:** Not applicable.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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**Substance:** Not applicable.

**Mixture:** Chemical characterization (preparation).

| CAS       | PRODUCT NAME: RYDLYME Marine | % by Weight |
|-----------|------------------------------|-------------|
| 7647-01-0 | Hydrochloric acid            | 5-9         |

There are no additional ingredients present which, within the current knowledge of the supplier, are classified as hazardous to the health or the environment. Confidential Business Information (CBI) is not harmonized under the Global Harmonized System (GHS). The full disclosure of this products' ingredients is protected under the Illinois Trade Secret Act. However, the CBI provisions have not compromised the health and safety of our users.

### 4. FIRST AID MEASURES

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#### Description of first aid measures

**After inhalation:** Product is not designed to be misted, however, if product mist causes respiratory irritation or distress, move the exposed person to fresh air immediately. If irritation persists, seek medical attention.

**After skin contact:** Wash affected area with soap and water. If irritation persists, seek medical attention.

**After eye contact:** Immediately flush eyes with large amounts of water for 15 minutes. Remove contact lenses if present, after the first 5 minutes and continue rinsing. If irritation persists, seek medical attention.

**After swallowing:** Do NOT induce vomiting, drink milk, egg whites, etc. and seek immediate medical attention.

#### Most important symptoms and effects, both acute and delayed

#### Potential health symptoms and effects

**Eyes:** Causes moderate to severe eye irritation. Symptoms include redness, stinging, tearing and swelling.

**Skin:** May cause mild to moderate irritation. Repeated and prolonged use may result in drying or cracking of skin or dermatitis.

**Inhalation:** Inhalation of mist or spray may cause mild irritation of the respiratory tract.

**Ingestion:** May be harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting, and diarrhea.

### 5. FIRE-FIGHTING MEASURES

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#### Extinguishing media

**Suitable extinguishing media:** Use extinguishing media suitable for the surrounding fire.

**Unsuitable media:** None known.

**Specific hazards arising from the mixture:** None known.

#### Advice for firefighters

**Protective equipment:** As in any fire, wear self-contained breathing apparatus (pressure-demand, MSHA/NIOSH approved or equivalent and full protective gear).



## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Wear appropriate protective clothing designated in Section 8. Ventilate the area.

**Environmental precautions:** Rinse area with copious amounts of water to dilute. Sodium bicarbonate may also be used to absorb and/or neutralize liquid. Dispose of material in accordance with the local, State, Provincial, and Federal regulations for your location.

**Methods and materials for containment and cleaning up:** Absorb with liquid binding material.

## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Observe label precautions. Wear all appropriate protective equipment specified in Section 8. Keep containers closed when not in use.

**Condition for safe storage:** Keep in cool, dry, ventilated storage areas in closed containers. Transfer only to approved containers having correct labeling. Containers that have been opened should be carefully resealed and kept upright to prevent leakage. The recommended storage temperature is between -12°C/10°F and 81°C/180°F. Keep out of reach of children.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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**Control parameters:** Contains no substances with occupational exposure values.

### Exposure controls

**Engineering:** Maintain general industrial hygiene practices. Use normal exhaust, vent to atmosphere.

**Personal protective equipment:** Facilities storing or using this material should be equipped with an eyewash station. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking or using the lavatory.

**Respiratory equipment:** None required under normal operating conditions, even when materials vapors and/or mists occur.

**Protective gloves:** Recommended however not mandated. Material is non-toxic and can be held in the open hand without risk.

**Eye protection:** Wear protective goggles or safety glasses during use.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

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|  |  |
|--|--|
| <b>Appearance:</b>                             | Dark Liquid                              |
| <b>Odor:</b>                                   | Comparable to Almonds                    |
| <b>Odor threshold:</b>                         | Not applicable                           |
| <b>pH:</b>                                     | Unreadable, generally < 3                |
| <b>Freezing/melting point:</b>                 | -26°C (-15°F)                            |
| <b>Initial boiling point:</b>                  | 105°C (221°F)                            |
| <b>Flash point:</b>                            | Not applicable                           |
| <b>Evaporation rate:</b>                       | Not determined                           |
| <b>Flammability (solid, gas):</b>              | Not applicable                           |
| <b>Lower explosive limit (LEL)</b>             | Not determined                           |
| <b>Upper explosive limit (UEL)</b>             | Not determined                           |
| <b>Vapor Pressure:</b>                         | Not determined                           |
| <b>Density at 20°C:</b>                        | 1.03 g/cm <sup>3</sup> (8.5957 lbs/gal). |
| <b>Solubility in Water:</b>                    | Complete                                 |
| <b>Partition coefficient (n-octano/water):</b> | Not determined                           |
| <b>Autoignition temperature:</b>               | Not determined                           |
| <b>Decomposition temperature:</b>              | Not determined                           |

## 10. STABILITY AND REACTIVITY

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**Reactivity:** No special reactivity reported, hazardous polymerization will not occur.

**Chemical stability:** Stable under recommended storage conditions.

**Possibility of hazardous reactions:** None known.

**Conditions to Avoid:** Extreme temperatures, contact with incompatible materials.

**Incompatible materials:** Strong alkalis, oxidizing agents, chlorinated products (such as bleach).

**Hazardous decomposition:** None known.

## 11. TOXICOLOGICAL INFORMATION

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### Information on toxicological effects

No toxicity tests have been carried out for this product. Acute toxicity data was estimated based on the toxicity of the individual components contained in this product.

**Acute oral toxicity:** Product is expected to have low acute oral toxicity.

**Acute inhalation toxicity:** Product is expected to have low acute inhalation toxicity.

**Acute dermal toxicity:** Product is expected to have low acute dermal toxicity.

**Skin irritation:** May cause mild skin irritation.

**Eye irritation:** Causes moderate to severe eye irritation.

**Sensitization:** No sensitizing effects known.

**Carcinogenic categories:** None of the components of this product are listed as carcinogens by AGCIH, IARC, NTP or OSHA.

## 12. ECOLOGICAL INFORMATION

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**Aquatic toxicity:** Product is expected to have low toxicity to aquatic organisms.

**Persistence and degradability:** Product is readily biodegradable.

**Bioaccumulation potential:** Material will not bioaccumulate.

**Mobility in soil:** The components of this product are water soluble and highly mobile in soil.

**Results of PBT and vPvB assessment:** No data available.

**Other adverse effects:** None known.

## 13. DISPOSAL CONSIDERATIONS

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**Waste disposal:** Unused product can be disposed of down sanitary sewers with water. Used solution may be hazardous as a result of the pre-existing contaminants present in the equipment being cleaned. Dispose of material in accordance with the local, State, Provincial, and Federal regulations for your location.

**Contaminated packaging:** Rinse with water and offer for recycling, if available in your area. Otherwise, dispose as non-hazardous waste.

## 14. TRANSPORT INFORMATION

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**UN Number:** DOT-Not regulated, IMDG/IATA-Not applicable.

**UN proper shipping name:** DOT/IATA-Not applicable, IMDG-Not regulated.

**Transport hazard class(es):** DOT/IMDG/IATA-Not applicable.

**Packing group:** DOT/IMDG/IATA-Not applicable.

**Marine pollutant:** No.

**Special precautions:** Not applicable.

## 15. REGULATORY INFORMATION

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### Safety, health and environmental regulations/legislation specific for substance or mixture

#### U.S. Federal Regulations

**OSHA Hazard Communication Standard:** This material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

**OSHA Process Safety Management Standard:** Components of this product are not regulated under OSHA PSM Standard 29 CFR 1910.119.

**TSCA Status:** All components of this product are listed on the Toxic Substance Control Act (TSCA) Inventory.

**SARA Section 311/312 Hazard Categories:** Not classified as hazardous.

**SARA 313 Information:** Not listed.

**Comprehensive Response Compensation and Liability Act (CERCLA):** Not reportable.

**Clean Air Act (CAA):** This product does not contain any chemicals that are listed as Hazardous Air Pollutants (HAPs) designated in CAA Section 112 (b).

**Clean Water Act (CWA):** None of the chemicals in this product are listed as Hazardous Substances, Priority Pollutants or Toxic Pollutants under the CWA.

#### U.S. State Regulations

**California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986:** This product contains no chemical(s) known to the state of California to cause cancer or other reproductive harm.

#### Canada

**WHMIS Hazard Symbol and Classification:** Not applicable/Not classified as hazardous

**Canadian Ingredient Disclosure List (IDL):** None of the components in this product are listed on the IDL.

**Canadian National Pollutant Release Inventory (NPRI):** None of the components in this product are listed on the NPRI.

#### EU Regulations

**Authorisations and or restrictions of use:** none.

#### Other EU legislation:

Commission Regulations (EU) No. 474/2014 of 8 May 2014 amending Annex XVII to regulation (EC) No 1907/2006.

Commision regulation (EU) No 944/2013 of 2 October 2013 amending (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.

Waste Framework directive 2008/98/EC.

#### National regulations (UK)

Management of health and safety at work regulations (1999)

Control of Substances Hazardous to Health Regulations (COSHH 2002)

Personal Protective Equipment Regulations (2002)

#### Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.

## 16. OTHER INFORMATION

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**Please use material only as directed. If procedures are not published for your particular application, please call for assistance. Furthermore, RYDLYME Marine is designed to be used by itself or diluted with water and water only. Do not heat. Use RYDLYME Marine at an ambient temperature. Vent circulating solution to atmosphere. Some adverse reactions may occur with some alloys of aluminum, magnesium, zinc and/or other sacrificial/inferior metallurgies. Please consult the manufacturer.**

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

**Date of preparation:** Creation date for SDS 03/01/2015.

**FOR ADDITIONAL INFORMATION, PLEASE CONTACT OUR MANUFACTURING FACILITY  
AT 630-820-8888 OR OUR WEBSITE AT [www.RydlymeMarine.com](http://www.RydlymeMarine.com).**

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