



RYDALL **HD**

BIODEGRADABLE Heavy Duty Degreaser TM

RYDALL HD is our new biodegradable, citrus based, industrial degreaser.

RYDALL HD is a water soluble, non-butyl, non-phosphate, non-corrosive, alkali emulsifier. This innovative product is used specifically on all carbon based derivatives that are found on the oil and/or process sides of your critical equipment or systems. **RYDALL HD**, representing our **Heavy Duty** degreaser line, may be utilized among many uses including; heat exchangers, lube oil coolers, crank cases, machine parts, and any other hydrocarbon-based fouled equipment. We typically clean equipment like this in the petrochemical, pharmaceutical, automotive, pulp and paper, power, petroleum, steel, or similar manufacturing industries.

Product Advantages

FAST: Reduce process equipment downtime resulting in more profits due to increased operating time.

SAFE: Utilize metal compliant chemistries to effectively remove fouling deposits down to bare metal.

EASY: Does not require disassembly of equipment, thus saving labor, time and money for the plant.

SIMPLE: Non-toxic, easy to handle, and able to be applied by your own plant personnel.

BIODEGRADABLE: Product is expected to be readily biodegradable.

Procedures:

The way in which **RYDALL HD** works, is that the chemical component of the cleaning solution demulsifies the light carbons with non-aggressive ingredients. It breaks the oil bond that holds together all of the different hydrocarbons that comprise the fouling residue. Our highly concentrated **RYDALL HD** is utilized in a diluted format and is typically heated to between 140-160°F (60-71°C), but may also be used at ambient temperatures. As such, the water component becomes an integral part of the **RYDALL HD** flushing the demulsified particles off of the fouled surfaces. The heavier hydrocarbons (tars, cokes, varnishes, etc.) are washed out as well, even if they are not completely emulsified. This is because the underlying principle of our chemistry is to simply break the

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Procedures continued:

oil bonds that are holding all of the particles together to release them so they can be easily removed by the flowing solution. Thus, restoring flow rates and volumes, ultimately returning your equipment back to "as new" or peak operating efficiency.

Although most every **RYDALL HD** application is slightly different, and technically covered under a case-by-case basis, the fundamentals are essentially the same. Use at 25-50% dilution for circulation applications, pumping in the bottom, up and through the top of the equipment for the prescribed amount of hours (typically 4-6 hours). For surface and pressure washer applied applications, dilute at 10-50% depending on the severity of the surface contamination.

Directions for use in circulation cleanings:

1. Isolate and drain the oil or process side of the exchanger to be cleaned.
2. Install valves between the isolation flanges and the heat exchanger on both the supply and return. On larger volume applications, we recommend a 2" inlet/outlet as a minimum. The larger the valves and hosing, the better the flow and performance of the **RYDALL HD**.
3. The same principle applies for the circulation pump as with the valves and hoses. We recommend a 90-140 GPM (340-530 LPM) flow rate for the **RYDALL HD** circulation pump. The better the volumes and flow rates of the pump, the better the performance of the cleaning solution.
4. Generally, the circulation system described above, will circulate the **RYDALL HD** from a tote or Baker tank, to a high flow rate pump, to a plate and frame steam heat exchanger (to elevate the temperature to between 140-160°F (60-71°C)), in through the bottom of the equipment and out through the top, and finally back to the circulating tank.
5. Ascertain the proper quantity of **RYDALL HD** for this particular job. Most applications require between 25-50% aqueous dilution of the total volume of the equipment or system to be cleaned.
6. Pump all of the required **RYDALL HD** into the exchanger. Once that is accomplished, begin to add water to the tank until a stable circulation is realized. Once the level desired to maintain circulation is reached, turn off the water supply.
7. Continue circulating the solution for the recommended amount of time. The time required to completely clean your application will depend on the severity of the deposits to be removed and the system volume. As a general guideline, most applications will require between 3-6 hours of circulation. Heavy deposits or volumes over 1,000 gallons (3,785 liters) may require 6-10 hours of circulation. (Please consult with your **RYDALL** representative or our technical staff for the recommended circulation time). As the circulation progresses and the cleaning solution removes the deposits from inside the unit, the volume will increase. To account for the increase in volume, please add water to the circulation vessel, as needed.
8. The cleaning solution exiting from the heat exchanger is filtered through a "balancing" tank, which basically holds a portion of the solution, letting the lighter hydrocarbons emerge and float on the surface, and the heavier hydrocarbons sit at the bottom of the tank. The "clean", filtered solution that re-circulates back to the heat exchanger is drawn from the middle of the balancing tank. We occasionally use two inline industrial filters to separate the heavier particles when the infrastructure allows.
9. Upon completion of the recommended circulation time, all of the solution should be pumped back into the Baker tank.

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RYDALL HD is a safe yet powerful solution to your degreasing and cleaning needs. Although **RYDALL HD** is typically circulated through equipment it can be utilized in many other applications where hydrocarbon deposits are present. Try it the next time you have a buildup of heavy hydrocarbon based deposits in your critical equipment or systems or contact our technical staff to determine if **RYDALL HD** is the right product for your application.

For additional information, please contact our manufacturing facility at 630-820-8888 or visit our website at www.ApexEngineeringProducts.com.

Precautions: Not to be taken internally. This product may cause redness or irritation to the eyes. Prolonged or repeated exposure may cause drying of the skin. Inhalation may cause nose, throat, and respiratory tract irritation, coughing or headaches. Wear rubber gloves and eye protection. Keep away from heat, sparks, and flame. Keep out of reach of children and pets. Dispose of cleaning residue in accordance with local, state, and federal laws and regulations. For additional information, review the **RYDALL HD** SDS.

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