




**RYDALL**  **CX**  
 BIODEGRADABLE Crude Deposit Cleaner TM

## Formulated For Petroleum Refineries

We offer our special **RYDALL CX** which can be used to clean your critical process exchangers without having to pull the bundles or dismantle your fouled exchangers. **RYDALL CX** is the most unique biodegradable crude deposit cleaner available today! **RYDALL CX** is specifically designed for cleaning Crude oil eXchangers where pyrophoric corrosion products, usually in the form of iron sulfides, are present in the process side deposits. It is a heavy-duty industrial degreaser with its chemistry being water soluble, non-solvent, enriched with corrosion inhibitors and a special blend of surfactants with highly effective wetting properties.

Our highly concentrated **RYDALL CX** is utilized in a diluted format and typically heated to between 170-195°F (77-90°C). Critical factors for the success of the chemical cleaning using **RYDALL CX** are to use it at the prescribed temperature, with adequate heat exchanger inlet/outlet diameters that ensure unobstructed solution flow and with the proper pump pressure to circulate the solution through the heat exchanger or equipment. When these factors are met, the exchanger will be completely clean to its core. Combine the best in safe chemical cleaning technologies by using our biodegradable descaler **RYDLYME** to clean the water side of these same exchangers. The result... complete cleaning....significantly reduced turnaround time.... **NEVER PULLING A BUNDLE FOR CLEANING AGAIN!**

**RYDALL CX &  
RYDLYME**  
*Never Pull a Bundle  
For Cleaning*

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

### Application:

Although most every **RYDALL CX** application is slightly different, and technically covered under a case-by-case basis, the fundamentals are essentially the same. Basically, we recommend that the carbon fouled crude exchanger be staged for a closed-loop circulation. Then follow the step by step instructions on the back of this sheet.

**Directions for use:**

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 CX**.
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 CX** 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 CX** 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 170-195°F (77-90°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 CX** for this particular job. Most applications require between 5-15% aqueous dilution of the total volume of the equipment or system to be cleaned. For assistance with the proper dilution, contact our technical staff or your **RYDALL** representative.
6. Pump all of the required **RYDALL CX** 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 CX** 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.
10. **RYDALL CX** is split-phasing, so after some time, cant off and recover the oil residues, then dispose of the remaining water per plant and local regulations.
11. Thoroughly flush the unit and return it to efficient service.

To ensure the success of the **RYDALL CX** chemical cleaning, some critical factors to consider are:

- Utilize the recommended dilution ratio with water.
- Maintain the prescribed temperature range.
- Use inlet/outlet diameters large enough to ensure unobstructed solution flow.
- Use the proper pump capacity to circulate the solution through the equipment.
- Consult with your **RYDALL CX** representative or the manufacturing facility.



**RYDALL CX** is a safe, yet powerful solution when crude exchangers contain pyrophoric iron sulfides within the hydrocarbon deposits. When time is crucial and you want to have your critical exchangers completely clean and back online, try **RYDALL CX**.

# BIODEGRADABLE

For additional information, please contact our manufacturing facility at 630-820-8888 or visit our website at [www.ApexEngineeringProducts.com](http://www.ApexEngineeringProducts.com).

Precautions: Not to be taken internally. Exposure to concentrate-mist may cause mild irritation of nasal passages or throat; remove to fresh air. Wear rubber gloves and eye protection. Keep out of reach of children and pets. Do not allow to dry on any surface. Dispose of cleaning residue in accordance with local, state, and federal laws and regulations. Avoid freezing. For additional information, review the **RYDALL CX** MSDS.