

## DESCRIPTION

HDE-777 heavy duty degreaser is a low-foaming solvent emulsifier cleaner used for cleaning marine equipment that is seriously contaminated with fuel or lubricating oils.

## APPLICATION & USE

### Cleaning of Boilers:

#### A. General Information

Oily deposits in steam boilers are a result of oil contamination of the feedwater. Most often, the source of the oil is some part of the condensate and return system. Fuel oil and cargo oils may contaminate the condensate via leaks in the oil heaters or tank heating coils. Lubricating oils may be picked up from steam-driven machinery.

Oil deposits can be removed from boilers, L.P. steam generators, etc., by circulating a 2-5% solution of HDE-777 emulsifier through the equipment. HDE-777 emulsifier should never be used as an online cleaner; all cleaning should be done offline. For maximum cleaning efficiency, the cleaning mixture should be heated to 50°- 60°C and maintained at this temperature during the cleaning operation. If adequate heat is not available, effective cleaning can be accomplished at temperatures as low as 25°C using additional time. Carbonized oil or coke may require a two-step cleaning process using SNC 2000 or CARBON REMOVER followed by HDE-777 emulsifier; a Drew Marine representative should be contacted for this procedure.

#### B. Cleaning Procedure

1. Determine the source of oil contamination and rectify before beginning the cleaning operation.
2. Inspect interior of boiler, including steam and water drums and tubes and headers to determine the degree of contamination.
3. Secure water drum and water wall header covers.
4. Through the open steam drum manhole, introduce the required amounts of HDE-777 emulsifier and water.
  - a. For light to moderate contamination, use 2-3% HDE-777 emulsifier in water. Heavily contaminated boilers may need 4-5%.
  - b. To make a 1% solution, add 10 liters HDE-777 emulsifier per metric ton of water. For other concentrations, multiply the required percentage by 10 liters/metric ton to determine the amount of HDE-777 emulsifier needed.
  - c. To insure thorough mixing, HDE-777 emulsifier and water should be introduced together. If this is not practical, add the HDE-777 emulsifier first.
5. Secure steam drum manhole covers.
6. Open air vent valves at top of steam drum.
7. Fire boiler for 5 minutes; then secure fire for 15-20 minutes. Repeat firing and securing until the mixture of HDE-777

heavy duty emulsifier and water reaches a temperature of 50° - 60°C. Continue this operation for 12 hours, firing at intervals to maintain the optimum temperature. This will promote agitation and circulation of the mixture for efficient cleaning.

8. Drain the boiler.
9. Open all manhole and selected handhole covers and all drain valves.
10. Using a high-pressure water jet, thoroughly flush drums, tubes, and headers, starting with the steam drum.
11. Secure all boiler access ports and fill with feedwater.
  - a. Add normal startup dosages of Drew Marine water treatment chemicals.
  - b. If boiler is not to be put in service immediately, follow standard wet layup procedure.
12. For one week after boiler is returned to service, add LIQUID COAGULANT boiler sludge conditioner at a dosage of 28 mls (1 ounce) per day for each ton of water capacity and increase the blowdown schedule during this period. This will help to ensure that any oil contamination not completely flushed out is removed.

### Cleaning Diesel Engine Cooling Systems:

#### A. General Information

Whenever diesel engine cooling systems become contaminated with oil or grease, the oily deposits may be removed by draining the cooling water and refilling with fresh water and 2% HDE-777 emulsifier by volume. This solution, when circulated through the equipment, will emulsify oils and adherent greasy deposits so they can be removed by draining.

**NOTE:** HDE-777 emulsifier is not intended for and should not be used as an online cleaner.

#### B. Cleaning Procedure

13. Drain the cooling system and refill with fresh water. With the engine stopped, circulate and heat until the water temperature reaches about 60°C.
14. Add 2% by volume (20 liters/metric ton) of HDE-777 emulsifier to the circulating water. HDE-777 emulsifier may be introduced by means of the chemical feed system or added to the expansion tank.
15. Circulate water through the system for a minimum of 4 hours.
16. At the end of 4 hours, cool to normal draining temperatures. Drain the system and refill with warm water to prevent thermal shock. Recirculate for 1-2 hours. No heating is required during this circulation period. Be sure to overflow the system through the expansion tank to the bilge.
17. Drain the cooling water system and wherever possible, inspect the interior. If the system is not completely free of oil, repeat the above procedure.



Contact your Drew Marine representative for more information

18. If any mineral scale or light rust is present, it should be removed using a 10% solution of FERROCLEAN® cleaning agent. If medium to heavy rust is present, it can be removed by using FERROCLEAN treatment or a solution of SAF-ACID™ descaling compound and rock salt. **If any sacrificial anodes are present in the system, they must be removed prior to cleaning.** After cleaning, the anodes can be replaced. Contact your local Drew Marine representative for additional information on these procedures.

## TYPICAL PROPERTIES

Appearance: Clear, light amber liquid  
Odor: Mild  
Specific Gravity @ 25°C: 0.86  
Flash Point (PMCC): ≥ 62°C

**NOTE:** Always wear the appropriate personal protective equipment when using this product.

## PACKAGING

HDE-777 heavy duty emulsifier is available in 200-liter (PCN 0056425) containers.

## IMPORTANT INFORMATION

Drew Marine maintains Safety Data Sheets on all of its products. Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees.

Our Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Drew Marine products.

### FEATURES

- Concentrated liquid
- Effective dispersant
- Solvent-emulsion
- Low foaming
- Non-corrosive
- Contains no chlorinated hydrocarbons

### BENEFITS

- Can be used dilute
- Cost effective
- Easy to apply
- Prevents redeposition of soil
- Penetrates and emulsifies oily deposits
- Suited to recirculating cleaning methods
- Can be used in most marine equipment
- Does not require neutralization
- Does not promote flash rusting
- Will not generate acid components
- Enhanced alternative to chlorinated cleaners



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