

# CARETREAT 2 DIESEL

**Diesel engine cooling water corrosion and scale inhibitor in liquid form, suitable for "closed circuit" systems**

- \* One of the five Marine Care Water Treatment Products.
- \* Suitable for slow, medium and high speed engines.
- \* Effective inhibition of ferrous and non ferrous metals.
- \* Prevents scale and sludge build ups.
- \* Safe to use when cooling water is heat source for potable water systems.
- \* Has approval of major diesel engine manufacturers.
- \* Does not encourage bacteria in system.
- \* If the chloride level is below 100 ppm CI, also aluminium in normal rated engines is protected.

## Application

Caretreat 2 Diesel is a nitrite, borate and polymer based corrosion inhibitor with a suitable buffer to ensure stable pH conditions. The formula has the U.K. Department of Trade approval for use in cooling systems incorporating a fresh water generator producing fresh water for drinking purposes.

Recommendations for cooling water treated with Caretreat 2 Diesel :

Nitrite 1200-3000 ppm NO<sub>2</sub>  
Chloride max. 100 ppm CI  
Hardness max. 180 ppm CaCO<sub>3</sub>  
pH 9,0 - 10,0

## **Directions for use**

Caretreat 2 Diesel is used in a dosage of 1200 - 3000 mg/l nitrite (NO<sub>2</sub>), dependent on the chloride level and engine type, please refer to the engine manufacturers instructions on recommended nitrite ranges:

| <u>Chloride concentration</u> | <u>Initial dosage</u>                | <u>Nitrite range</u>          |
|-------------------------------|--------------------------------------|-------------------------------|
| 0 - 50 ppm CI                 | 6 ltr/m <sup>3</sup> cooling water   | -1500 ppm NO <sub>2</sub>     |
| 50 - 100 ppm CI               | 6-8 ltr/m <sup>3</sup> cooling water | 1600-2000 ppm NO <sub>2</sub> |

Starting with the treatment of a system, the nitrite level must be kept at the higher nitrite level of the corresponding chloride concentration by testing and dosing daily. If the system is passified the testing frequency and dosing can be reduced till once a week at minimum. Always add Caretreat 2 Diesel at a point where circulation is high. Most modern systems header tanks are purely for expansion and have little or no circulation. Also they are often fitted with an internal baffle which can have the effect of trapping treatment and subsequent difficulty in obtaining the correct levels. The majority of loss in treatment levels will be due to leakage and subsequent dilution by make up water (distilled water should always be used). We advise testing of the Caretreat 2 Diesel level with the Marine Care nitrite control test, or via the conductivity with the BWT Electronic testkit.

### **Dosing system**

A compact electronic dosing pump and tank unit is available from Marine Care for direct injection to the cooling system. For further details refer to Marine Care equipment information.

### **Remarks**

On new buildings or overhauled systems, follow engine manufacturer's advice in conjunction with Marine Care. If changing to Caretreat 2 Diesel from nitrite borate based products of another make, start dosing Marine Care product using Marine Care tests. Caretreat 2 Diesel will slowly remove sludge and other residues during first month. This can result in slightly cloudy water which will clarify after draining small quantities of water and as make up is added, leaving system extremely clean. It is not necessary to drain existing coolant completely unless inspection has shown excessive contamination. Marine Care can give expert advice on cleaning systems.

### **Properties**

Caretreat 2 Diesel is a pale yellow liquid, completely soluble in water. It is based on nitrite and borate in combination with specific inhibitors, organic dispersants and a pH buffer. Compatible with anti-freeze products based on monoethylene glycol.

|                         |            |
|-------------------------|------------|
| Specific gravity (20°C) | : 1.225    |
| pH (1% - solution)      | : 9,5 - 10 |
| Flash point             | : none     |

*For detailed information on safety and health, please refer to Material Safety Data Sheet and / or Product label.*

The details of our products are given completely free of undertaking. Since their application lies outside our control we cannot accept any liability for the results.

## COOLING WATER TREATMENT TEST (CARETREAT 2 DIESEL)

| TEST  | TEST METHOD  | DOSAGE (LTR/ TON)   |     |        |     |         |     |         |     |         |     |         |      |         |      |         |
|---|--|---|-----|--------|-----|---------|-----|---------|-----|---------|-----|---------|------|---------|------|---------|
| <p><b>NITRITE</b></p> <p><b>* LIMIT:</b></p> <p><b>1. NORMAL RATE</b><br/>1200-2000ppm</p> <p><b>2. HIGH RATE for HIGH SPEED ENGINE:</b><br/>2500-3000ppm</p> | <ol style="list-style-type: none"> <li>1. Completely rinse the dropper to be used, then fill the dropper to the 0.5ml mark with the sample and discharge into color viewing tube.</li> <li>2. Fill the tube to the upper mark (=10ml) with demineralized water.</li> <li>3. Divide the diluted sample equally between the color viewing tubes (each) 5ml. Add 1Nitriver 2 reagent powder pillow to one of the tubes, and stopper &amp; mix well. If nitrite is present a greenish/brown color will develop. Allow 10 min.</li> <li>4. Place the tube prepared with Nitriver 2 in the right position of comparator, and the other tube place to the left. Rotating disc of comparator until a color match is obtained.</li> </ol> <p>** SCALE READING x 20 = PPM AMOUNT</p> | <p><b>* INITIAL DOSAGE: 6 LTR/TON (NORMAL RATED)</b></p> <p>1. Normal rated engine</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px;">PPM</th> <th style="padding: 2px;">DOSAGE</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px; text-align: center;">200</td> <td style="padding: 2px; text-align: center;">5.3 ltr</td> </tr> <tr> <td style="padding: 2px; text-align: center;">400</td> <td style="padding: 2px; text-align: center;">4.5 ltr</td> </tr> <tr> <td style="padding: 2px; text-align: center;">600</td> <td style="padding: 2px; text-align: center;">3.8 ltr</td> </tr> <tr> <td style="padding: 2px; text-align: center;">800</td> <td style="padding: 2px; text-align: center;">3.0 ltr</td> </tr> <tr> <td style="padding: 2px; text-align: center;">1000</td> <td style="padding: 2px; text-align: center;">2.3 ltr</td> </tr> <tr> <td style="padding: 2px; text-align: center;">1200</td> <td style="padding: 2px; text-align: center;">1.5 ltr</td> </tr> </tbody> </table> <p>** PH: 9-10</p> | PPM | DOSAGE | 200 | 5.3 ltr | 400 | 4.5 ltr | 600 | 3.8 ltr | 800 | 3.0 ltr | 1000 | 2.3 ltr | 1200 | 1.5 ltr |
| PPM   | DOSAGE   |   |     |        |     |         |     |         |     |         |     |         |      |         |      |         |
| 200   | 5.3 ltr  |   |     |        |     |         |     |         |     |         |     |         |      |         |      |         |
| 400   | 4.5 ltr  |   |     |        |     |         |     |         |     |         |     |         |      |         |      |         |
| 600   | 3.8 ltr  |   |     |        |     |         |     |         |     |         |     |         |      |         |      |         |
| 800   | 3.0 ltr  |   |     |        |     |         |     |         |     |         |     |         |      |         |      |         |
| 1000  | 2.3 ltr  |   |     |        |     |         |     |         |     |         |     |         |      |         |      |         |
| 1200  | 1.5 ltr  |   |     |        |     |         |     |         |     |         |     |         |      |         |      |         |
| <p><b>CHLORIDE</b></p> <p>(Limit: up to 100ppm)</p>   | <ol style="list-style-type: none"> <li>1. Completely fill the plastic measuring tube with boiler water. Pour the contents of the tube into the mixing bottle.</li> <li>2. Fill the bottle with distilled water up to 15ml</li> <li>3. Add 1 Chloride 2 indicator powder pillow and mix well.</li> <li>4. Add silver nitrate solution drop by drop to the mixing bottle counting the number of drops, until the solution changes from yellow to red/ brown in color</li> </ol> <p style="margin-left: 40px;">Amount of drops x 30 = Chloride PPM</p>  | <p>UP TO 100PPM: SATISFACTORY</p> <p>Over 100PPM: Partly drain and dose Caretreat 2 Diesel accordingly.</p>   |     |        |     |         |     |         |     |         |     |         |      |         |      |         |
| <p>*** TEST KIT 1. TEST SET FOR NITRITE 2. CHLORIDE TEST KIT 3. PH PAPER ***</p>  |  |   |     |        |     |         |     |         |     |         |     |         |      |         |      |         |

### DIESEL ENGINE COOLING WATER GRAPHIC LOG

M.F. Make and type: \_\_\_\_\_ Cooling capacity: \_\_\_\_\_ m<sup>3</sup> Aux Engines: \_\_\_\_\_ m<sup>3</sup> Capacity: \_\_\_\_\_ m<sup>3</sup>

| Chlorides ppm Cl | 30            | 60     | 90   | 120    | Nitrite (Plot as X) |      |      |      |      |         |  |  |  |  | pH  |     |     |     |        | Caretreat 2    | Make    |
|------------------|---------------|--------|------|--------|---------------------|------|------|------|------|---------|--|--|--|--|-----|-----|-----|-----|--------|----------------|---------|
|                  | OK            | Medium | High | Excess | 1200                | 1600 | 2000 | 2400 | 2800 | ppm NO2 |  |  |  |  | 8.0 | 8.5 | 9.0 | 9.5 | 10     | Diesel - added | up feed |
|                  |               |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     | (Ltr.) | added (ltr.)   |         |
| Date: M. ENGINE  | HT SYS.       |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | LT SYS.       |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | AUX. ENGINE 1 |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | AUX. ENGINE 2 |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  |               |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
| M. ENGINE        | HT SYS.       |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | LT SYS.       |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | AUX. ENGINE 1 |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | AUX. ENGINE 2 |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  |               |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
| M. ENGINE        | HT SYS.       |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | LT SYS.       |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | AUX. ENGINE 1 |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | AUX. ENGINE 2 |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  |               |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
| M. ENGINE        | HT SYS.       |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | LT SYS.       |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | AUX. ENGINE 1 |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  | AUX. ENGINE 2 |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |
|                  |               |        |      |        |                     |      |      |      |      |         |  |  |  |  |     |     |     |     |        |                |         |

Nitrate Level Main Engine: *Between 1200 - 2000 PPM NO2*      \*\* To increase Care 2 level by 100 ppm NO2 add 0,4 Ltr/ M3      Submitted by: \_\_\_\_\_

Nitrate Level Aux. Engine: *Between 2500 - 3000 PPM NO2*      Remarks: \_\_\_\_\_      Approved by Ch. Engineer \_\_\_\_\_