

CARETREAT COOL INHIBIXT

Engine cooling water corrosion and scale inhibitor, for closed circuit systems safe on aluminum alloys, based on organic acid technology

DESCRIPTION

Caretreat Cool InhibiXT is a liquid blend of organic acid based corrosion inhibitors with a suitable buffer to ensure stable pH conditions. Caretreat Cool InhibiXT protects the engine cooling water system as well as any auxiliary cooling water systems from corrosion, sludge formation and scale. Caretreat Cool InhibiXT is suitable for cooling systems with aluminum alloys present and protects high temperature aluminum engines.

ADVANTAGE

- Suitable for slow, medium and high speed engines
- Effective corrosion inhibition on ferrous and non ferrous metals
- Aluminum corrosion inhibition on high temperature engines
- Prevents scale and sludge built up
- Less consumption compared to traditional products
- Easy monitoring

APPLICATIONS

Caretreat Cool InhibiXT can be used in multi-metal alloy:

- diesel cooling water systems
- compressor cooling water systems
- general cooling water systems and central heating systems
- aluminum engines

DIRECTIONS FOR USE

Ensure the system is clean, free of scales and rust. A 10% (v/v) Caretreat Cool InhibiXT is preferably prepared with make up water of demineralized water quality or low chloride water. After proper mixing in the system a sample is taken and the refractive index is measured and the result is compared with the corresponding concentration Caretreat Cool InhibiXT. We advise testing of the Caretreat Cool InhibiXT level with the Marine Care Caretreat Cool InhibiXT cooling water test kit.

- Excellent:
 - > Corrosion inhibition
 - > Aluminum protection
 - > Scale distortion
 - > Sludge dispersion



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DIRECTIONS FOR USE

Recommendations for cooling water treated with Caretreat Cool InhibiXT :

Chloride	max. 50 ppm Cl ⁻
Hardness	max. 100 ppm as CaCO ₃
pH	8.4-8.6
Refr. Index	3.5 brix

Remarks

On new buildings or overhauled systems, follow engine manufacturer's advice or consult Marine Care. If changing to Caretreat Cool InhibiXT the system is preferably cleaned or at least drained and internally inspected with a borescope, on scales and corrosion. Marine Care can give advice on cleaning contaminated systems and inspections with a borescope camera. Prior to start a system with Caretreat Cool InhibiXT it is recommended to flush the cleaned system with a 10% solution of Caretreat Cool InhibiXT at ambient temperature, for 4-8 days.

DOSAGE

Caretreat Cool InhibiXT is used in a dosage of 10% (v/v) or 50 to 100 liters per 1000 liter system volume. After homogenous mixing the solution is tested on refractive index and should give a value of 3.5 Brix.

MONITORING

Cooling water should be monitored regularly on pH Value, refractive index and chloride concentrations with *Marine Care* OAT Cooling Water Test Kit. Log the analysis results in a log book or electronically in E-care monitor. Refraction index is easily measured with a handheld refractometer from the test kit. Results of the refraction index analysis are compared with the specifications and adjusted according the table 1 and corresponding graph. Periodically an extended analysis, on at least dissolved aluminum, copper and iron on cooling water, is highly recommended. When in doubt contact *Marine Care*.

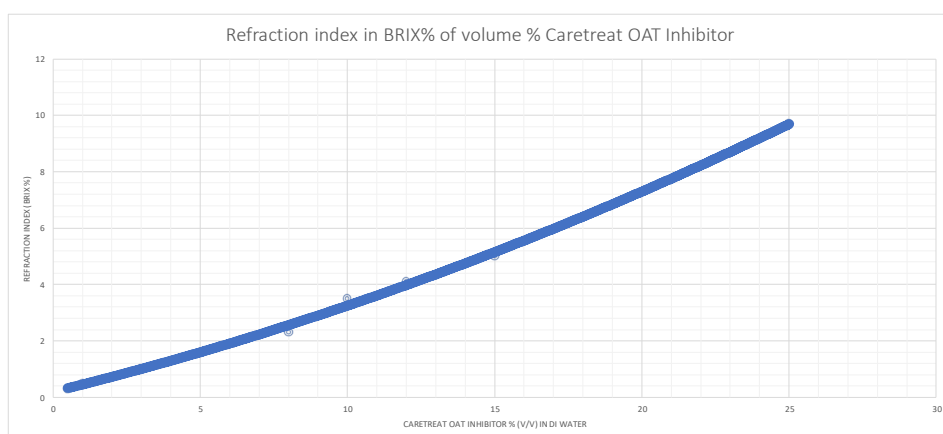


Table 1: Adjust Concentration

Dosing / m ³	10 Ltr	30 Ltr	50 Ltr	80 Ltr	100 Ltr
Refractive Index	0.5 brix	1.0 brix	1.6 brix	2.3 brix	3.5 brix
Adjust with Caretreat Cool InhibiXT	90 L/m ³	70 L/m ³	50 L/m ³	20 L/m ³	0 L/m ³

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CARETREAT COOL INHIBIT

CORROSION RATE

Caretreat Cool InhibiXT has been subjected to corrosion tests on several metal alloys;

- Corrosion test for Engine Coolants in Glassware (ASTM D1384-05)
- Corrosivity of water in absence of heat transfer (ASTM D2688-05)
- Static corrosion test with Rohrback Corratel
- Corrosion of cast aluminum alloys in engine coolant under heat rejecting Conditions (ASTM 4340-96)

Results of the corrosion tests are compared with ASTM D3306, FNACE and VW774-G. Maximum corrosion rate allowance mentioned in ASTM D3306 and VW774-G are used on the corrosion results from tests performed according ASTM D1384-05 and D2688-05.

Table 2: Corrosion rate results

Alloy	ASTM D1384 D3306	ASTM D1384 FNACE	ASTM D2688 FNACE	Corrator FNACE	ASTM D1384 VW774G	ASTM D4340
CDA706, C70600 Copper Nickel 90/10	Pass	Excellent	Excellent		Pass	
CDA 110 Copper UNS C11000	Pass	Excellent		Excellent	Pass	
Cast Iron UNS F10007, SAE G3500	Pass	Excellent			Pass	
C1020 steel UNS G10200	Pass	Excellent			Pass	
AL1100, A91100 Aluminum	Pass	Excellent	Excellent	Excellent		
SAE 329, UNS 23190 Cast Aluminum, AL319.1 GAISI6Cu4	Pass	Excellent	Excellent	Excellent	Pass	Pass
AL6061, UNS A96061 Aluminum	Pass	Excellent		Excellent		
C1010 Low carbon steel	Pass	Excellent	Excellent	Excellent	Pass	
Brass alloy CDA260, C26000	Pass	Excellent			Pass	
Red Brass alloy CDA230, UNS C23000, 85/15 brass	Pass	Excellent			Pass	
Solder 30/70C Alloy grade 30A (SAE 3A)	Pass				Pass	

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PHYSICAL PROPERTIES

COLOR : COLORLESS TO SLIGHT YELLOW
PH 10% (v/v) : 8,6
SPECIFIC GRAVITY : 1,04-1,08 KG/L
FLASH POINT : NOT APPLICABLE
BOILING POINT : > 100 °C
RESERVE ALK : 119 ML



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COOL INHIBiXT

TROUBLE SHOOTING

Monitoring of cooling water with Caretreat Cool InhibiXT is performed with Marine Care test kit. The active amount of inhibitor is easily determined with a handheld refractometer. Keep in mind the number measured with the refractometer is not the concentration inhibitor. Next to refraction index the cooling water is analyzed regularly on chloride concentration and pH value. In case values deviate from the specification table 3 shows the indicative first advise. To keep chloride levels and hardness salts low in cooling water, we recommend to use DI water or at least water with low chloride and hardness salts.

Table 3: trouble shooting advise

Parameter	Limit	Result	Advise
Concentration	5-10	5 or lower	Raise inhibitor level by adding 50 ltr/m3
		10 or higher	Too high concentration is not harmful
pH value	8,0-9,0	8,0 or lower	Drain the system and refresh with DI water. Check pH of make up water first.
		9,0 or higher	Drain the system and refresh with DI water. Check pH of make up water first.
Chloride	0-50 ppm	50 ppm or higher	Drain the system and refresh with DI water. Control the chloride levels of make up water.
Iron/Copper*	< 1ppm	Higher	Drain the system perform inspection of the system on corrosion and scales.
Bacteria count*	Low	Medium to high	Add Caretreat Bacteria. In severe cases drain the system and inspect the system on scales.

*not in testkit periodically perform an analysis by Marine Care Lab.

For detailed information on safety and health, please refer to the Material Safety Data Sheet MSDS and/or product label.

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