



# DELO<sup>®</sup> XLI CORROSION INHIBITOR

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## PRODUCT DESCRIPTION

Delo<sup>®</sup> XLI Corrosion Inhibitor - Concentrate is a water based, low toxicity, environmentally friendly, nitrite free carboxylate inhibitor.

## CUSTOMER BENEFITS

- **Corrosion Protection** — Corrosion protection for engine metals, including aluminum, iron, copper and solder alloys.
- **Wide Service Application** — Recommended as a coolant for all types of cooling systems not requiring nitrite and where freeze protection is not required.
- **Long service life** — The corrosion inhibitors in Delo XLI Corrosion Inhibitor - Concentrate contain a synergistic combination of mono and di-carboxylates that provide superior protection for a minimum of 600,000 miles, 960,000 km, 12,000 hours, 6 years in on-road and off-road engine applications and 32,000 hours or 6 years in stationary engines. This product does not require regular inhibitor additions if proper maintenance practices are used.
- **Compatibility** — Delo XLI Corrosion Inhibitor - Concentrate is a super concentrate and should be diluted to 5.5%-10% with good quality water before use. Compatible with glycol-based engine coolants but further dilution of the Delo XLI inhibitors by more than 25% with other corrosion inhibitor technologies will reduce the effectiveness of this product.
- **Heat Transfer** — Silicate and phosphate free formulation does not contribute to deposit build up, as can be seen with phosphate and silicate containing coolants, which can help maintain heat transfer efficiency.
- **Improved economics** — No regular inhibitor additions and longer service life means lower overall maintenance costs.

- **Excellent toxicological and environmental aspects** — based on low toxicity inhibitors this product is readily biodegradable. The extended service life characteristic of this product contributes to the protection of the environment due to less frequent fluid disposal.
- **Easy Testing** — inhibitor concentration testing can be easily done using a brix refractometer.

## FEATURES

Delo XLI Corrosion Inhibitor - Concentrate provides long life corrosion protection by using optimized and patented aliphatic carboxylate organic inhibitors that provide long lasting protection for cooling system metals and components including hard to protect aluminum.

Delo XLI helps maintain excellent heat transfer since it does not contain silicates and phosphates which can over time create deposits on heat transfer surfaces.

Delo XLI exhibits low depletion rates and does not require the addition of supplemental coolant additives with correct maintenance practices. Dilution of Delo XLI by more than 25% will reduce inhibitor performance.

Delo XLI protects against erosion, corrosion and cavitation of cooling system components.

Product(s) manufactured in the USA.

Always confirm that the product selected is consistent with the original equipment manufacturer's recommendation for the equipment operating conditions and customer's maintenance practices.

A **Chevron** company product

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## APPLICATIONS

Recommended for the following OEM use as a cooling water inhibitor:

- **Detroit Diesel**
- **Deutz** (TR0199-99-2091)
- **GEC Alsthom Ruston**
- **Liebherr** MD 1-36-130 (DCA)
- **MaK**
- **MAN Diesel** (2-stroke and 4-stroke engines)
- **MB** 312.0
- **MTU** MTL 5049
- **MWM**
- **Newman-Haas Racing**
- **Scania** TI 2-98 0813 TB
- **Sulzer Diesel** ZBS0503.doc
- **Ulstein Bergen**
- **Wärtsilä** 32-9011
- **Yanmar**

Delo® XLI is also recommended for use in any OEM equipment recommending a nitrite free, water based carboxylate based corrosion inhibitor.

## Toxicological & environmental aspects

Delo XLI Corrosion Inhibitor - Concentrate is based on low toxicity inhibitors and is readily biodegradable. The extended service life characteristic of this product contributes to the protection of the environment due to less frequent fluid disposal. The toxicological and environmental properties of Delo XLI Corrosion Inhibitor - Concentrate was evaluated by an independent laboratory. The results are listed below:

- LD<sub>50</sub> >2000 mg/kg (oral toxicity according to OECD guideline No 401)
- LC<sub>50</sub> >1000 mg/l (fish toxicity according to OECD guideline No 203)
- Biodegradability: 92% (18 days) (test according to OECD guideline No 301E)

## PRODUCT REFERENCE

Product Number 236540  
SDS Number 38102  
Delo XLI Corrosion Inhibitor - Concentrate

## Corrosion Protection

**Table 1: Modified ASTM D1384 Glassware Corrosion Tests - 300 ppm chloride**

|           | <b>ASTM D1384 (max)</b> | <b>5% Delo® XLI- Weight loss in mg/coupon<sup>a</sup></b> |
|-----------|-------------------------|-----------------------------------------------------------|
| Copper    | 10 max                  | 0.6                                                       |
| Solder    | 30 max                  | 4.5                                                       |
| Brass     | 10 max                  | 0.6                                                       |
| Steel     | 10 max                  | 0.0                                                       |
| Cast Iron | 10 max                  | 0.7                                                       |
| Aluminum  | 30 max                  | 9.8                                                       |
| AlMn      | /                       | 4.8                                                       |

a Weight loss AFTER chemical cleaning. All weight losses are in mg/coupon. Weight gain is indicated by a "-" sign.

**Table 2: Modified MTU High Temperature Corrosion Test (2000 W)**

|                          | <b>Weight loss in mg/coupon<sup>a</sup></b> |                                            |
|--------------------------|---------------------------------------------|--------------------------------------------|
| test duration<br>116 hrs | <b>5% Delo XLI in D9 water hot coupon</b>   | <b>5% Delo XLI in FVV-water hot coupon</b> |
| Cast Iron                | -1.3                                        | -9.0                                       |
| Aluminum SAE 329         | 9.3                                         | -16.4                                      |
| Aluminum AlMg Si1        | 1.8                                         | 40.7                                       |

a Weight loss AFTER chemical cleaning. All weight losses are in mg/coupon. Weight gain is indicated by a "-" sign.

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## TYPICAL TEST DATA

### DELO® XLI CORROSION INHIBITOR - CONCENTRATE

| Technical Characteristics                   | Method     | Delo XLI Corrosion Inhibitor - Concentrate                                                 |
|---------------------------------------------|------------|--------------------------------------------------------------------------------------------|
| Inhibitor content                           |            | 50% w/w <sup>a</sup>                                                                       |
| Water content                               | ASTM D1123 | 50% w/w <sup>a</sup>                                                                       |
| Nitrite, amine, phosphate, borate, silicate |            | Nil                                                                                        |
| Color                                       |            | Green Flourescent                                                                          |
| Specific gravity, 20°C                      | ASTM D1122 | 1.08 typ.                                                                                  |
| pH                                          | ASTM D1287 | 8.3 typ.                                                                                   |
| Storage stability                           |            | 12 months if stored in non-opaque containers,<br>36 months if stored in opaque containers. |
|                                             | Method     | 5% dilution                                                                                |
| pH                                          | ASTM D1287 | 8.1 typ.                                                                                   |
| Effect on non-metals                        | GME 60 255 | no effect                                                                                  |
| Hard water stability                        | VW PV 1426 | no precipitate                                                                             |

a Water-based inhibitor super concentrate, XLI Ref: 16514. Use at 7.5% to be equivalent to 50/50 strength.

Minor variations in product typical test data are to be expected in normal manufacturing.

## HANDLING PRACTICES

Delo XLI - Concentrate has a shelf life of 12 months if stored in non-opaque containers, 36 months if stored in opaque containers and a service life of at least 6 years with correct maintenance practices. This product is water based and will freeze. It is recommended that this product should be stored where it will not freeze. This product is not combustible.

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