DeTROPE CA-100

DeTROPE CA-100 is a low foaming, anhydrous, anionic mixed-amine carboxylate. It is an excellent hydrotrope for use in aqueous and powdered alkaline systems and is an effective corrosion inhibitor for aluminum and steel in aqueous systems above pH 7.0.

For easier handling at colder temperatures, a 90% active version is available as DeTROPE CA-90.

SPECIFICATIONS

Appearance @ 25° C: Clear amber viscous liquid
Color (Gardner): 12 max.
pH (1% in D.W.): 6.2 - 7.5

SOLUBILITY DeTROPE CA-100 is soluble in water, alcohols and glycols. It is insoluble or dispersible in most solvents and oils.

TYPICAL PROPERTIES

<table>
<thead>
<tr>
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<th>DeTROPE CA-100</th>
<th>DeTROPE CA-90</th>
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</thead>
<tbody>
<tr>
<td>% Activity</td>
<td>99% min.</td>
<td>90% min.</td>
</tr>
<tr>
<td>Density @ 25°C</td>
<td>~1.0 gm/ml</td>
<td>~1.0 gm/ml</td>
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- Excellent liquid hydrotrope for use in aqueous alkaline cleaners
- DeTROPE CA-100 is suitable for powdered alkaline detergents
- Excellent wetting properties in alkaline formulations
- Corrosion inhibitor for aluminum and steel in aqueous systems at pH ≥ 7
- Recommended use level (0.25 – 0.5%)
- Moderate hard water stability
- Low, quick breaking foam
- Good alkaline electrolyte tolerance
- Does not leave solid or waxy residue upon drying
- Biodegradable, non-phenolic, phosphate-free
- Provides lubricity in aqueous systems

APPLICATIONS

- Powdered alkaline detergents
- Synthetic coolants and cutting fluids
- Low foam caustic cleaners
- Aerosol formulations
- Water soluble lubricants
- High pressure alkaline detergents
- Alkaline metal cleaners
- Water based paints and coatings
- Metal working fluids
- Synthetic cutting fluids
- Mechanical dishwashing detergents
- Hard surface cleaners

Continued
DeTROPE CA-100 Hydrotrope Data

Hydrotroping capabilities were determined in a series of cloud point tests. The hydrotrope was solubilized in a caustic or alkaline electrolyte solution followed by addition of a 9.5-mole nonylphenol ethoxylate (NPE-9.5). Each sample was heated to the temperature at which the NPE-9.5 clouds out of solution. The graph below depicts the cloud point temperature of each solution. The higher the cloud point temperature, the more efficient the hydrotrope.

Key: NaOH = Sodium Hydroxide, SMP = Sodium Metasilicate Pentahydrate, TKPP = Tetrapotassium Pyrophosphate

Dynamic Surface Tension of DeTROPE CA-100

Dynamic surface tension measurements were conducted on DeTROPE CA-100 at ambient temperature in deionized water. Compared to SXS-40, DeTROPE CA-100 provides significantly lower surface tension.

Continued
Panel Submersion Corrosion Testing with DeTROPE CA-100

The bottom half of each metal panel was submerged in solution containing 0.25% - 1.0% by weight of DeTROPE CA-100 in hard water (100 ppm as CaCO3 & 71 ppm as chloride) at room temperature. The top half of the panel was exposed to the vapor phase in closed glass containers.

#2024 Bare Aluminum, Tested for 9 months at ambient temperature

<table>
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<tr>
<th>No inhibitor</th>
<th>0.25%</th>
<th>0.50%</th>
<th>1.0%</th>
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</table>

Cold Rolled Steel, (SAE 1010), Tested for 9 months at ambient temperature

| No inhibitor | 0.25%   | 0.50%   | 1.0%    |