

ALKATERGE™ E OXAZOLINE NONVOLATILE SURFACE ACTIVE AGENT

ALKATERGE™ E oxazoline is highly soluble in most organic liquids, but is only very slightly soluble in water. A concentration of 0.001% by weight of ALKATERGE E in water will reduce its surface tension to about 40 dynes per centimeter. Although ALKATERGE E does not lower the surface tension of mineral oil, the presence of 0.1% in a mineral oil reduces its interfacial tension against water.

Typical properties^(a)

Freezing point.....	-31°C
Weight per U.S. gallon @ 25°C, lb.....	7.74
Coefficient of expansion, 20°C - 30°C.....	-0.00022
Viscosity @ 25°C, cPs.....	155
@ 35°C, cPs.....	85
@ 45°C, cPs.....	53
Flash point, (Pensky-Martens Closed Cup).....	>212°F
Solubility in:	
Water	<0.005% by wt
Mineral and vegetable oils	Miscible
Organic solvents	Miscible with most
Interfacial tension against water:	
Of 0.1% solution in mineral oil.....	23 dynes/cm
Of 0.5% solution in n-hexane.....	19 dynes/cm
Surface tension of 0.001% aqueous	40 dynes/cm

^(a)Values shown are typical properties and are not to be considered product specifications. Test methods available upon request.

Uses

Salts and Soaps

ALKATERGE E will react with mineral acids to form salts, some of which are water soluble and produce stable foams. These salts of mineral acids, or the salts of lower monobasic organic acids, are very effective wetting agents. Such salts in aqueous systems gradually hydrolyze the oxazoline ring to the amide structure. ALKATERGE E forms oil-soluble soaps with the higher fatty acids. The wetting power of these salts and soaps is frequently increased by the addition of alcohols or glycols.

Paper, Textiles and Metal Cleaners

Solutions of the salts of ALKATERGE E may be used as penetrants in the paper and textile industries, and in the formulation of metal cleaners.

Emulsion Stabilizer

ALKATERGE E is of value as an emulsifying agent, either as such or in the form of its soaps. It is useful in the preparation of water-in-oil emulsions. Also, in oil-in-water emulsions, ALKATERGE E, or its soaps, can serve as emulsifying agents or emulsion stabilizers. ALKATERGE E contributes to the stability of emulsions in the presence of calcium and magnesium ions by aiding in the dispersion of the insoluble calcium and magnesium soaps.

Acid Acceptor

ALKATERGE E possesses "acid-accepting" properties which can be used advantageously. Most of the salts of ALKATERGE E are oil soluble, at least to a limited extent; this product therefore can be used in small proportions in oils to tie up traces of acidity which may develop from the deterioration of either the oil itself or of other additives, such as those containing chlorine and sulfur. This acid-accepting property is useful in corrosion preventive oils where ALKATERGE-E will neutralize perspiration acids deposited during the handling of metal objects.

Pigment Grinding and Dispersion

ALKATERGE E is used as a pigment-grinding aid and a pigment dispersant in mineral oil and resin vehicles. Many pigments yield stiff plastic masses when mixed with mineral oil. The addition of as little as 0.5% to 1.0% of ALKATERGE E to the mineral oil can convert the pigment-oil mixture into a fluid composition satisfactory for grinding. This property can be used to an advantage in the preparation of resin-carbon black formulations used in printing applications. The use of a small percentage of ALKATERGE E as a dispersant for flattening agents in varnishes and enamels also is recommended.

Antifoam Agent

ALKATERGE E can control certain types of foam encountered in processing organic materials. It may be used either alone or in a suitable carrier, such as animal, vegetable or mineral oils. ALKATERGE E is particularly useful as an antifoam in antibiotic fermentations. Here it has advantages over many other antifoam agents in that it does not turn rancid and is nontoxic to most antibiotic-producing microorganisms.

Antioxidant

Mild antioxidant properties are indicated by the fact that 0.5% or more of ALKATERGE E in a drying oil tends to delay the drying of the film. This property may be useful in other fields. For example, the use of less than 1.0% of ALKATERGE E in a hydraulic oil will reduce gum formation in the hydraulic system, and this treated oil will clean a dirty system.

Packaging and Storage

ALKATERGE E is not classified as hazardous under the European Agreement concerning International Carriage of Dangerous Goods by Road (ADR). ALKATERGE E does not meet any of the defined criteria for "dangerous goods" contained in the International Transportation Regulations for Air (ICAO Technical Instructions) or for Ocean Transport (IMDG Code).

Shipping containers ^(b)	Net wt.	Gross wt.
Unlined steel drums	195 kg	213 kg
Intermediate bulk containers	950 kg	1003 kg

Store in original container and keep cool. Keep container tightly closed when not in use. Exposure to elevated temperatures can cause product to decompose. Avoid contact with oxidizing materials.

^(b)The shipping containers listed meet UN 1A1 packaging specifications. ALKATERGE E is also shipped in bulk in tank cars or tank trucks.

Chemical Inventories

Chemical Name	CAS No.
4-Ethyl-2-(8-heptadecenyl)-2-oxazoline-4-methanol	68140-98-7

Product Safety

When considering the use of any ANGUS product in a particular application, review the latest Safety Data Sheet (SDS) to ensure that the intended use is within the scope of approved uses and can be accomplished safely. Before handling any of the products, obtain available product safety information including the Safety Data Sheet(s) and take the necessary steps to ensure safety of use.

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