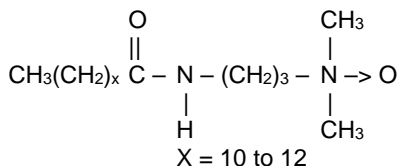


Product Bulletin

Product Name

AMMONYX® LMDO

Chemical Structure



INCI Name

Lauramidopropylamine Oxide
Myristamidopropylamine Oxide

CAS No.

61792-31-2 and 67806-10-4

Description

AMMONYX LMDO is an amido amine type of amine oxide.

Applications

Functional Properties

- Viscosity Modifier
- Foam Enhancer/Stabilizer
- Conditioner
- Reduces Static Electricity
- Detergent
- Effective on greasy soils
- Emollient
- Can be formulated with anionic, nonionic & cationic surfactants

End Product Uses

- Shampoos
- Hand Soaps
- Bubble Baths
- Hair Conditioners
- I&I Cleaners
- Wax Strippers
- All-Purpose Cleansers
- Light Duty Liquid Dish Detergent

Typical Properties

Appearance at 25 °C.....	Clear liquid	Amine Oxide (MW 307), %.....	33.0
Hydrogen Peroxide, %	0.14	Free Amine (MW 291), %.....	0.4
Color, % Transmittance at 420 nm.....	90 min.	pH, 10% aq.....	8.0
Viscosity at 10 °C, cps.....	60	Pour Point, °C (°F).....	-4 (25)
Viscosity at 25 °C, cps.....	45	Flash point (PMCC), °C (°F)...	>94 (>201)
Density, g/ml (lbs/U.S. gal).....	0.99 (8.29)	RVOC, U.S. EPA, %.....	0
Preservative	Not required		

Environmental Effects

AMMONYX LMDO is readily biodegradable. Additional information available upon request.

Health Effects

AMMONYX LMDO is slightly toxic orally (LD₅₀ is between 500-1000 mg/kg in rats), and causes slight skin and minimal eye irritation at 5% active.

Storage & Handling

Normal safety precautions (i.e. gloves and safety goggles) should be employed when handling AMMONYX LMDO. Contact with the eyes and prolonged contact with the skin should be avoided. Wash thoroughly after handling material.

Bulk Storage Information: It is recommended that AMMONYX LMDO be stored in sealed containers at temperatures between 10 °C-38 °C (50 °F-100 °F). Prolonged storage at temperatures greater than 100°F is not recommended.

Standard Packaging: AMMONYX LMDO is available in bulk, totes and 55 gallon drums (net weight 420 lb/190 kg).



Workplace Exposure

Occupational exposure can occur primarily through skin contact or via inhalation of vapors and mists. Engineering controls, personal protective equipment, and other workplace practices should be used to control these exposures.

Clearances

All components of AMMONYX LMDO are listed in the following countries; the registration numbers for the active ingredients are included in parentheses: United States (TSCA 61792-31-2, 67806-10-4), Canada (DSL 61792-31-2, 67806-10-4), New Zealand (NZIoC 61792-31-2, 67806-10-4) Australia (AICS 61792-31-2, 67806-10-4) and Europe (EINECS 263-218-7, 267-191-2).

AMMONYX LMDO meets the U.S. EPA Safe Choice Program's surfactant screen and is listed on www.cleangredients.org (an on-line database for green formulators). For further information, visit www.cleangredients.org. Additional Stepan ingredient listing can be found at www.stepan.com.

Formulation

Cold Water Dishwash Detergent Blend with AMMONYX LMDO

	<u>Ingredients</u>	<u>Wt. % (as is)</u>
1.	Water	39.67
2.	STEOL® CA-460	13.47
3.	ALPHA-STEP® MC-48	8.73
4.	AMPHOSOL® CA	4.33
5.	AMMONYX LMDO	3.94
6.	STEPANOL® AM	27.86
7.	Ethanol	2.00
8.	Citric Acid	q.s.
	TOTAL	100.00

Mixing Procedure:

Add the ingredients in the order shown with continuous stirring. After each addition, mix until homogeneous.

Physical Properties:

Appearance at 25 °C.....	Clear, light yellow liquid
pH, as is.....	7
Viscosity at 25 °C, cps.....	50
Solids, by wt%.....	24
Flash Point (PMCC), °F.....	142
Actives, %.....	23
Density, lb/U.S. gal.....	8.44
Storage Stability.....	Passed 3 freeze/thaw cycles

Use Instructions:

Add the dishwash to sink while filling with cold water (23 °C).

Product Stewardship

This product bulletin has been written in accordance with ACC's Product Stewardship guidelines.

Additional Safety Information

A Safety Data Sheet is available upon request.



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