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Technical Bulletin

SURFONIC® L24-3 Surfactant

PRODUCT DESCRIPTION

SURFONIC® L24-3 surfactant is the three-mole ethoxylate of linear, primary 12-14 carbon number alcohol. It is an oil-soluble, nonionic surface active agent which is compatible with other nonionic surfactants and with most anionic and cationic surfactants. The product is a clear to slightly turbid liquid suitable for use as an intermediate in manufacture of anionic surfactants.

APPLICATIONS

- Detergents
- Laundry Prespotters
- Personal Care Products
- Hard Surface Cleaners
- Adjuvants for Agricultural Herbicides and Insecticides

SALES SPECIFICATIONS

Property	Specifications	Test Method*
Appearance, 25°C	Clear to hazy liquid, substantially free of suspended matter	ST-30.1
Color, Pt-Co	50 max.	ST-30.12
Hydroxyl Number, mg KOH/g	170 - 175	ST-31.39
PEG content, wt%	1.0 max.	ST-38.4
pH, 1% in 10:6 IPA:H_2O	6.5 - 8.0	ST-31.36, F
Water, wt%	0.1 max.	ST-31.53

*Methods of Test are available from Huntsman Corporation upon request.

ADDITIONAL INFORMATION

Chemical Properties

Molecular Weight (theoretical)	330
EO Content, wt% (theoretical)	40.0
HLB Value	8.0
Water Solubility	Insoluble

Regulatory Information

CAS Number	68551-12-2

See SDS for all regulatory information.

Shelf Life

The product should retain its conformance to sales specifications for a period of at least two years from date of manufacture if the product is stored at less than 100°F in its undamaged, unopened, factory packaged container.

In general, the user should determine the suitability of any chemical compound, no matter what the shelf life or length of time of storage. Each user should conduct a sufficient investigation to establish the suitability of any product for his intended use.

Typical Properties

Flash point, PMCC, °F	305
Flash point, PMCC, °C	152
Pour point, °F	40
Pour point, °C	4.4
Cloud point, ml H_2O/gram 1% solution in 1:1 n-propanol/water	45
Density, g/ml, 25°C (77°F)	0.9239
Weight, lbs/US gal, 25°C (77°F)	7.69
Viscosity, kinematic	
cSt, 10°C (50°F)	48
cSt, 25°C (77°F)	27
Vapor Pressure, Torr, 25°C	$1x10^{-3}$

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TOXICITY AND SAFETY

For information on the toxicity and safe handling of this product, read the Safety Data Sheet prior to use of the product.

HANDLING AND STORAGE

SURFONIC® L24-3 surfactant may be satisfactorily stored in carbon steel tanks using steel pipes and pumps. Caution must be exercised, however, to keep the material in the anhydrous state to prevent severe corrosion to the carbon steel tank and related equipment. A drier on the breathing nozzle is recommended to help maintain anhydrous conditions in the storage tank.

For longer term color stability, it is recommended that the product be stored under an inert atmosphere. Solid sediment may form upon standing. There should be circulation in the storage vessel to keep solids suspended.

Low pressure steam coils in storage tanks and steam tracing of transfer lines should be provided in cases where low environmental temperatures may make pumping of the product difficult.

SHIPPING DATA

Product is available in tank cars, tank trucks and drums of 420 pounds (191 kilograms) net weight. Small samples can be obtained by contacting any Huntsman Performance Products sales office.

BIODEGRADABILITY AND ENVIRONMENTAL SAFETY

Linear alcohol ethoxylates, including the SURFONIC® L series surfactants, undergo rapid and extensive biodegradation under both laboratory and environmental conditions. Their mineralization to CO_2 and water (ultimate biodegradation) is essentially complete during biological wastewater treatments at warm to cold water temperatures. They are degraded by bacteria in rivers, lakes, groundwater and sediment as well.

The major mechanism of biodegradation is cleavage of the ethoxylate chain from the alkyl group with oxidation of the latter to fatty acid. The fatty acid degrades more rapidly than the ethoxylate chain, which is broken down by sequential oxidation and removal of ethoxylate units.

Alcohol ethoxylates begin to lose their toxicity toward aquatic organisms as soon as biodegradation begins. Water containing degraded surfactant has been shown not to adversely affect fish, invertebrates and algae. Thus, while alcohol ethoxylates are toxic to aquatic organisms, in the event of a spill into a waterway any acute effects would be limited in area and time.

SURFONIC® L-series surfactants and other linear alcohol ethoxylates pose no serious threat to the environment. They do not accumulate in any environmental compartment and are found, if at all, only at concentrations below chronic effects levels.

Cleaning products containing SURFONIC® L-series surfactants may be disposed of safely by flushing down the drain with water.

General References

1. Swisher, R. D., Surfactant Biodegradation, Marcel Dekker, 1987.
2. Talmage, S. S., Environmental and Human Safety of Major Surfactants: Alcohol Ethoxylates and Alkylphenol Ethoxylates, a report to the Soap and Detergent Association, Lewis Publishers, 1994.

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