

Technical Bulletin

SURFONIC® L24-9 Surfactant

PRODUCT DESCRIPTION

SURFONIC® L24-9 surfactant is the nine-mole ethoxylate of linear, primary 12-14 carbon number alcohol. It is a water-soluble, nonionic surface active agent which is compatible with other nonionic surfactants and with most anionic and cationic surfactants. The product is a milky white semi-solid at room temperature.

APPLICATIONS

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

SALES SPECIFICATIONS

<u>Property</u>	<u>Specifications</u>	<u>Test Method*</u>
Appearance at 40°C	Clear to slightly turbid liquid, substantially free of suspended matter	ST-30.1
Cloud point, °C (1% Aqueous)	73 - 77	ST-9.1, 5.2.1
Color, Pt-Co, 50°C	50 max.	ST-30.12
1,4-Dioxane, ppm	1.0 max.	ST-35.112
Hydroxyl Number, mg KOH/g	97 - 104	ST-31.39
pH, 1% in 10:6 IPA: H ₂ O	6.0 - 7.0	ST-31.36, F
Water, wt%	0.3 max.	ST-31.53

*Methods of Test are available upon request.

TYPICAL PROPERTIES

Chemical Properties

Molecular Weight (theoretical)	561
EO Content, wt% (theoretical)	65.4
HLB Value	13.0
Water Solubility	Soluble

Regulatory Information

See SDS for all regulatory information.

Physical Properties

Flash point, PMCC, °F	325
Flash point, PMCC, °C	163
Pour point, °F	70
Pour point, °C	21
Density, g/ml at 25°C (77°F)	0.9935
Weight, lbs/US gal at 25°C (77°F)	8.26
Viscosity, kinematic	
cSt at 25°C (77°F)	61
cSt at 37.8°C (100°F)	36
Vapor Pressure at 25°C, Torr	<1x10 ⁻⁵
Critical Micelle Concentration, ppm at 25°C	25
Surface Tension, dynes/cm	
0.10% at 25°C	30

TOXICITY AND SAFETY

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

HANDLING AND STORAGE

SURFONIC® L24-9 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 440 pounds (204 kilograms) net weight. Small samples can be obtained by contacting any Indorama Ventures 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 CO₂ 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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