

Technical Bulletin**SURFONIC[®] L24-5 Surfactant****PRODUCT DESCRIPTION**

SURFONIC[®] L24-5 surfactant is the five-mole ethoxylate of linear, primary 12-14 carbon number alcohol. It is a water dispersible, nonionic surface active agent which is compatible with other nonionic surfactants and with most anionic and cationic surfactants.

APPLICATIONS

- Personal Care Products
- Laundry and Hand Dishwash Detergents

SALES SPECIFICATIONS

| <u>Property</u> | <u>Specifications</u> | <u>Test Method*</u> |
|-------------------------------------|--|---------------------|
| Appearance at 25°C | Clear to hazy liquid, substantially free of foreign matter | ST-30.1 |
| Color, Pt-Co | 75 max. | ST-30.12 |
| Hydroxyl number, mg KOH/g | 133.5 - 137.5 | ST-31.39 |
| pH, 1% in 10:6 IPA:H ₂ O | 6.5 - 8.0 | ST-31.36, F |
| Water, wt% | 0.2 max. | ST-31.53 |

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

TYPICAL PROPERTIES**Chemical Properties**

| | |
|--------------------------------|-------------|
| Molecular Weight (theoretical) | 417 |
| EO Content, wt% (theoretical) | 52.8 |
| HLB Value | 10.6 |
| Water Solubility | Dispersible |

Regulatory Information

| | |
|------------------------|------------------|
| DOT/TDG Classification | Marine Pollutant |
| HMIS Code | 2-1-0 |
| CAS Number | 68551-12-2 |
| TSCA Inventory | Yes |
| WHMIS Classification | D2B |
| Canadian DSL | Yes |

Physical Properties

| | |
|-----------------------------------|--------|
| Flash Point, PMCC, °F | 357 |
| Flash Point, PMCC, °C | 180 |
| Pour Point, °F | 50 |
| Pour Point, °C | 10 |
| Density, g/ml at 25°C (77°F) | 0.9626 |
| Weight, lbs/US gal at 25°C (77°F) | 8.02 |
| Viscosity, kinematic | |
| cSt at 25 °C (77 °F) | 44 |
| cSt at 37.8 °C (100°F) | 26 |
| Cloud point, °C, 10% in 25% DEGBE | 73.4 |

TOXICITY AND SAFETY

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

HANDLING AND STORAGE

SURFONIC[®] L24-5 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 are available by contacting our sample department at 1-800-662-0924.

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.

**Huntsman Corporation
Business Offices**

10003 Woodloch Forest Dr.
The Woodlands, TX 77380
(281) 719-6000

**Huntsman Advanced Technology
Center**

Technical Service
8600 Gosling Rd.
The Woodlands, TX 77381
(281) 719-7780

Samples 1-800-662-0924

www.huntsman.com

3135-0509R2

Copyright © 2007, 2008, 2009 Huntsman Corporation or an affiliate thereof. All rights reserved.

SURFONIC[®] is a registered trademark of Huntsman Corporation or an affiliate thereof in one or more, but not all countries.

Huntsman Petrochemical Corporation warrants only that its products meet the specifications stated in the sales contract. Typical properties, where stated, are to be considered as representative of current production and should not be treated as specifications. While all the information presented in this document is believed to be reliable and to represent the best available data on these products, NO GUARANTEE, WARRANTY, OR REPRESENTATION IS MADE, INTENDED, OR IMPLIED AS TO THE CORRECTNESS OR SUFFICIENCY OF ANY INFORMATION, OR AS TO THE MERCHANTABILITY OR SUITABILITY OR FITNESS OF ANY CHEMICAL COMPOUNDS FOR ANY PARTICULAR USE OR PURPOSE, OR THAT ANY CHEMICAL COMPOUNDS OR USE THEREOF ARE NOT SUBJECT TO A CLAIM BY A THIRD PARTY FOR INFRINGEMENT OF ANY PATENT OR OTHER INTELLECTUAL PROPERTY RIGHT. EACH USER SHOULD CONDUCT A SUFFICIENT INVESTIGATION TO ESTABLISH THE SUITABILITY OF ANY PRODUCT FOR ITS INTENDED USE. Liability of Huntsman Petrochemical Corporation and its affiliates for all claims is limited to the purchase price of the material. Products may be toxic and require special precautions in handling. For all products listed, user should obtain detailed information on toxicity, together with proper shipping, handling and storage procedures, and comply with all applicable safety and environmental standards.