

Technical Bulletin

HUNTSMAN

SURFONIC[®] N-95 Surfactant

GENERIC NAME Nonoxynol-9

PRODUCT DESCRIPTION

SURFONIC N-95 surfactant is the 9.5-mole ethoxylate of nonylphenol. It is a water soluble, nonionic surface-active agent which is compatible with other nonionic surfactants and with most anionic and cationic surfactants.

APPLICATIONS

- wetting agents
- penetrants
- dispersants
- detergents
- solubilizing agents
- emulsifiers

SALES SPECIFICATIONS

<u>Property</u>	<u>Specifications</u>	<u>Test Method*</u>
Appearance	Clear and substantially free of suspended matter	ST-30.1
Cloud point, °C (1% aqueous)	52 - 56	ST-9.1, 5.2.1
Color, Pt-Co	100 max.	ST-30.12
pH, 1% in 10:6 IPA:H ₂ O	6.5 - 7.5	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)	638
EO Content, wt% (theoretical)	65.5
HLB Value	13.1
Hydroxyl Number (theoretical)	88
Water Solubility	Soluble

Regulatory Information

DOT/TDG Classification	Not Regulated
HMIS Code	1-1-0
CAS Number	9016-45-9
TSCA Inventory	Yes
WHMIS Classification	D2B
Canadian DSL	Yes

Physical Properties

Flash point, PMCC, °F	460
Flash point, PMCC, °C	238
Pour point, °F	40
Pour point, °C	4
Density, g/ml at 25°C (77°F)	1.055
Weight, lbs/US gal at 25°C (77°F)	8.79
Viscosity, kinematic	
cst at 25°C (77°F)	278
cst at 37.8°C (100°F)	112
Vapor Pressure, Torr, 25°C (77°F)	<1x10 ⁻⁵
Critical Micelle Concentration, ppm at 25°C	48
Surface Tension, dynes/cm, 0.10% at 25°C	30

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TOXICITY AND SAFETY

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

HANDLING AND STORAGE

SURFONIC N-95 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 470 pounds (205 kilograms) net weight. Small samples are available upon request.

BIODEGRADABILITY AND ENVIRONMENTAL SAFETY

SURFONIC® N-series surfactants and related products have been shown to undergo 90% to 100% loss of surface activity (primary biodegradation) under the Semi-continuous Activated Sludge Method and over 90% removal in sewage treatment plants.

Environmental concentrations of nonylphenol (NP) and ethoxylate (NPE) in a survey of rivers across the U.S. receiving treated or untreated wastewater are mostly (60-75%) below their detection limits (0.1 microgram/kg or ppb for NP, NPE₁ and NPE₂; 1.6 ppb for the aggregate of NPE₃₋₁₇). Highest levels found of NP, NPE₁ and NPE₂ were about 1 ppb, (about 15 ppb for NPE₃₋₁₇). These maximum observed levels are 1 to 2 orders of magnitude below known acute or chronic toxicity toward aquatic organisms.

We conclude from this and other published information that our SURFONIC® N-series products and other NPE are satisfactorily biodegraded when treated in conventional secondary treatment plants, and no persistence or accumulation of NPE or environmental harm due to NPE is occurring. Comparison of the toxicity threshold of the most hazardous metabolite of nonylphenol ethoxylates, nonylphenol, and its actual concentration in the environment demonstrates a sizable safety margin. Cleaning products containing NPE 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.