

AEROSOL[®] 18P surfactant

Type:	Anionic
Chemical:	Disodium N-octadecyl sulfosuccinamate
CAS No:	14481-60-8
Molecular Formula:	C ₂₂ H ₄₁ NO ₆ Na ₂ S
Molecular Weight:	493
FDA Status:	Approved 21 CFR 176.170*, 176.180

*with limitations

PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 25°C (77°F)	Semi-liquid, creamy paste
Solids, % by weight	29-31
Solvent	Water
Color, Gardner Scale (1933), 10% solids solution, maximum	10
Specific gravity, 25°C	~1.07
Density, lb/gal, 25°C	~8.9
Viscosity	Variable, semi liquid
Freezing point, °C	Solid paste below 21 (70°F)
Flash point, °F	
Setaflash	>212 (100°C)
Acid number, as is, maximum	4.0
pH, as is	7.0-8.0
Iodine value, as is, maximum	0.75
Kathon, ppm*	8-12
Solubility	
In polar organic solvents	Insoluble
In nonpolar organic solvents	Insoluble
In water	See Table 1
Recommended shelf life	1 year

APPLICATIONS

AEROSOL 18P surfactant is an emulsifying, dispersing and foaming agent which exhibits good stability in acid and alkaline media, along with excellent lubricating properties. Utilized in emulsion and suspension polymerizations, AEROSOL 18P surfactant imparts excellent rheological properties to pigmented latexes. Very effective for polymerization of vinyl chloride, foamed latexes and plastics.

Additional end use applications include foamed insulation, carpet backing, cement and wallboard.

SURFACE ACTIVE PROPERTIES

Critical Micelle Concentration (CMC), % by weight	0.052-0.064
Interfacial tension, dynes/cm	
1% active solution vs mineral oil	4.0
Surface tension, 25°C	See Table 2
Ross Miles Foam Test, ASTM D-1173, 0.5% solution, 25°C	
Initial foam volume, mL	280
Foam volume after 15 minutes, mL	242
Wetting (Draves Test)	See Table 3

* Addition to be certified, but not tested.

SOLUBILITY

Table 1– Solubility of AEROSOL 18P Surfactant in Water

AEROSOL18P surfactant Concentration <u>% solids</u>	Cold, 20°C (68°F)	After warming slowly to 40°C (104°F)	60°C (140°F)	After cooling from 60°C and standing 48 hours at 30°C (86°F)
0.5	Slight turbid dispersion	Clear solution	Colorless clear solution	Clear solution
1.0	Slight turbid dispersion	Clear solution	Colorless clear solution	Clear solution
1.25	Thin, white dispersion	Clear solution	Colorless clear solution	Clear solution
2.5	Thin, white dispersion	Clear solution	Colorless clear solution	Thin, white dispersion
5	Thin, white dispersion	Clear solution	Colorless clear solution	Thin, white dispersion
10	Viscous white dispersion	Clear solution	Clear yellow solution	Thin, white dispersion
25	Viscous white dispersion	Thin dispersion	Clear yellow solution	Thick white dispersion
40	Viscous white dispersion	Thin dispersion	Clear yellow solution	Thick white dispersion
50	Cream-colored paste	Viscous cream-colored dispersion	Clear yellow solution	Very thick white dispersion
60	Cream-colored paste	Viscous cream-colored dispersion	Deep yellow, turbid dispersion	Cream-colored paste

THIXOTROPIC PROPERTY

Table 2– Thixotropic Property

Aerosol 18P sample was stirred at room temperature for 1 hour and produced homogenous thick liquid.

Viscosity at different temperatures (°C)

<u>Temperature (°C)</u>	<u>Viscosity</u>
10.0	464
25.0	225
35.0	147
40.0	118
45.0	105
50.0	93

SURFACE TENSION

Table 3– Surface Tension, 25°C, Surface Age -15 seconds, Du Nouy Tensiometer

<u>Concentration, % solids</u>	<u>Surface tension, dynes/cm</u>
0.005	58.3
0.008	56.5
0.0125	52.5
0.04	45.1
0.05	43.6
0.075	42.5
0.1	41.9

WETTING (DRAVES TEST)

Table 4–Wetting Time vs AEROSOL 18P Surfactant Concentration

Draves Sinking Time in seconds
AATCC - 17-1952, 1.5 g hook, 25°C

<u>Concentration, %</u>	<u>0.5</u>	<u>0.25</u>	<u>0.1</u>	<u>0.05</u>
Time in seconds	100.2	180.5	225	>5 min

ELECTROLYTE TOLERANCE

Table 5 – *Calcium Tolerance*

AEROSOL 18P surfactant Concentration, %solids	Calcium tolerance ppm
0.01	100
0.05	102
0.1	114
0.25	210
0.3	235
0.4	280
0.5	330
1.0	520

Table 6 – *Solubility of 1% AEROSOL 18P Surfactant in Electrolyte Solutions*

Temperature	Electrolyte	Electrolyte concentration, %
30°C (86°F)	NaCl	1.25
	NaNO ₃	2.0
	Na ₂ SO ₄	2.5
	Na ₃ PO ₄	4.0
	NaOH	5.0
60°C (140°F)	NaCl	10
	NaNO ₃	20
	Na ₂ SO ₄	15
	Na ₃ PO ₄	20
	NaOH	20

BIODEGRADABILITY

AEROSOL 18P surfactant is readily biodegraded when present at a concentration of 100 ppm or less, in normal effluent water. In the CSMA Shake Culture Test, 91% is degraded in three days and 100% in six days.

FDA STATUS

AEROSOL 18P surfactant is permitted by 21 CFR 176.170 for use only as an emulsifier in resin latex coatings at a level not to exceed 0.05% by weight of the coating solids and by Section 176.180 as a component of paper and paperboard intended for contact with dry food.

HEALTH AND SAFETY INFORMATION

Before handling this material, read the corresponding CYTEC Industries Inc. Material Safety Data Sheet for safety, health and environmental data.

The single oral LD₅₀ of AEROSOL 18P surfactant for young male albino rats is approximately 2.68 mg/kg and the LD₅₀ by 24-hour contact with the clipped skin of male albino rabbits is greater than 10 mg/kg. Mild skin irritation and mild to moderate eye irritation were produced during primary irritation studies with rabbits. No skin sensitization was produced during a repeated insult patch test with human subjects.

PHYTOTOXICITY

AEROSOL 18P surfactant is not phytotoxic if used in spray solutions at a concentration below 0.5%.

STORAGE AND HANDLING

AEROSOL 18P surfactant is stable under most conditions of storage. However, containers should be kept tightly closed to avoid water evaporation which would result in the formation of a hard crust on the surface of the paste.

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TSCA INFORMATION

This product is manufactured in compliance with all provisions of the Toxic Substances Control Act, 15 U.S.C.

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- **Asia/Pacific** - Cytec Industries Pte. Ltd., Singapore, tel. 65-733-6788, fax. 65-735-7783
- **Europe** - Cytec Industries B.V., Botlek, the Netherlands, tel. 31-181-295400, fax. 31-181-295401
- **Latin America** - Cytec do Brazil LTDA (customer service) tel. 55-11-5505-4588, fax. 55-11-5505-4565
- Cytec de Mexico (customer service) tel. 52-373-70020, fax. 52-373-70206
- **United States** - Cytec Industries Inc., West Paterson, NJ, U.S.A., tel. 973-357-3100, fax. 973-357-3055