

AEROSOL® TR-70 Surfactant

Type:	Anionic
Chemical:	Sodium bistridecyl sulfosuccinate
CAS No:	2673-22-5
Molecular Formula:	$C_{30}H_{57}O_7NaS$
Molecular Weight:	584

AEROSOL TR-70 surfactant is an extremely hydrophobic surface active agent with excellent solubility in organic media, and very low critical micelle concentration and equilibrium surface tension. It is extremely effective as a dispersant for resins, pigments, inks and dyes in organic systems. It is particularly effective in flushing pigments from aqueous press cakes to solvent media, and in imparting oleophilic properties to hydrophilic pigments and resins. It is also effective as an emulsifier in the emulsion polymerization of vinyl chloride and vinyl acetate, and in the suspension polymerization of vinyl chloride.

SURFACE ACTIVE PROPERTIES

Critical Micelle Concentration

(CMC), % by weight 0.0005 - 0.0015

Surface tension, 25°C

Concentration, % by weight	dynes/cm
0.0001	70.0
0.0005	38.8
0.001	35.8
0.003	32.7
0.025	27.9
0.05	27.5
0.1	26.9

Interfacial tension, dynes/cm,

25°C, 1% solution vs. organic liquid, DuNouy Method, dynes/cm	
Mineral oil	4.0
Toluene	7.5

Ross Miles Foam Test

ASTM D-1173, 0.1% solution, 50°C	
Initial foam volume, mL	25.0
Foam volume after 21 minutes, mL	~0.0

REPRESENTATIVE APPLICATIONS

AEROSOL TR-70 surfactant is very effective in applications where a high degree of organic solubility is required.

EMULSION AND SUSPENSION POLYMERIZATION, especially of vinyl chloride monomer. Suspensions of any desired particle size in the range of 1-10 microns can be prepared using AEROSOL TR-70 surfactant with a protective colloid of appropriate molecular weight. The polymer produced has good dielectric properties and heat stability.

PRINTING INK APPLICATIONS - When added to a printing ink with an organic base such as mineral oil, AEROSOL TR-70 surfactant produces an excellent dispersion with good plastic viscosity, yield value, texture and thixotropy. A hydrophilic pigment can also be made oleophilic by using AEROSOL TR-70 surfactant either sprayed on the pigment or added to the organic base.

RUST-PREVENTIVE APPLICATIONS - AEROSOL TR-70 surfactant can be combined with other materials, such as petrolatum, lanolin and kerosene, to produce excellent rust-preventive formulations.

NON-AQUEOUS PIGMENT DISPERSIONS - AEROSOL TR-70 surfactant is an excellent dispersing agent for organic and inorganic materials in organic systems. When used with pigments, it produces dispersions with excellent stability, rheological properties and opacity.

PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 25°C (77°F)	Clear solution
Solids, % by weight	68-72
Solvent	Ethanol/water
Color (APHA) - (50% solids solution in 1:1 alcohol:water)	100
Specific gravity, 25°C	~0.995
Density, lb/gal 25°C	~8.3
Viscosity, cps, 25°C Brookfield RFV, No 1 spindle, 20 rpm	~100-150
Freezing point, °C 30% solution ¹	-40 (40°F)
Flash point, °F Setaflash (closed cup)	77 (25°C)
pH, 10% solids solution in 1:1 IPA:Water	5-7
Acid number, as is, maximum	2.5
Iodine value, as is, maximum	0.25
Solubility in water, g/100 ml, 25°C	0.1 (but readily dispersible at higher conc.)
Solubility in organic solvents	very soluble

BIODEGRADABILITY

AEROSOL TR-70 surfactant is biodegraded to 66% in 3 days when tested in the CSMA Shake Culture Test.

ELECTROLYTE TOLERANCE

Because it is highly hydrophobic, AEROSOL TR-70 surfactant exhibits poor tolerance in electrolytes. In aqueous solutions, for example, AEROSOL TR-70 surfactant has a calcium tolerance of 31 ppm as CaCO₃ at 0.25% surfactant in water.

STABILITY

AEROSOL TR-70 surfactant will remain stable indefinitely under normal storage conditions. It should be stored above 25°F to avoid clouding.

If evaporation of the solvent should occur, some of the AEROSOL TR-70 surfactant may crystallize out. The crystals can be redissolved by heating or by the addition of alcohol or another organic solvent. Both aqueous and organic solvent solutions of AEROSOL TR-70 surfactants are stable up to temperatures of 100°C to 140°C. Above 150°C, AEROSOL TR-70 surfactant will decompose slowly on prolonged heating. In the presence of a strong acid or alkali at elevated temperatures, AEROSOL TR-70 surfactant is slowly hydrolyzed.

HEALTH AND SAFETY INFORMATION

Before handling this material, read the corresponding Cytec Industries Inc. Material Safety Data Sheet (#0051) for safety, health and environmental data. On the basis of toxicity tests, AEROSOL TR-70 surfactant is not expected to present any significant hazards to health in ordinary industrial handling. AEROSOL TR-70 surfactant is not phytotoxic if used in spray solutions at concentrations below 0.5%.

STORAGE AND HANDLING

AEROSOL TR-70 surfactant is a Class I flammable liquid. Adequate precautions should be followed for this classification.

AEROSOL TR-70 surfactant may be stored and used in a wide variety of containers or reaction vessels. Stainless steel, aluminum and Monel alloy are recommended for reaction and storage vessels; glass, PE, PP and rubber are suitable lining materials. AEROSOL TR-70 surfactant itself is not corrosive.

REGULATORY INFORMATION

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

All components of this product are included on the European Inventory of Existing Chemical Substances (EINECS), the Australian Inventory of Chemical Substances (AICS), the Japan Inventory (ENCS), the Korea Inventory (ECL), and the Philippines (PICS) Inventory.

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