

AEROSOL® C-61 surfactant

Type: Cationic

Chemical: Ethoxylated Octadecylamine

Octadecylguanidine Complex

CAS No.: 70693-20-8

AEROSOL C-61 surfactant is an excellent cationic wetting and dispersing agent which is stable in both acid and alkaline media. It is an effective surface modifying agent even at low concentrations.

AEROSOL C-61 surfactant promotes the formation of thick films and large particle-size emulsions. In organic media and water, it acts as an effective dispersing agent. When used with AEROSOL OT, it is an emulsifying agent for orthodichlorobenzene.

Physical and Chemical Properties

Appearance at 25°C (77°F)	Light-tan, creamy paste
Solids, % by weight	67-73
Solvent	Water and isopropanol
Color, Gardner Scale (1933), maximum	9
Specific gravity, 25°C	~1.0
Density, lb/gal, 25°C	~8.3
Flash point, °F	
Pensky Marten (closed cup)	85 (29°C)
Freezing point, °C	Loses fluidity below 16 (60°F)
Autoignition temperature, °C	360 (680°F)
Solubility	
In water	
1%	Slightly turbid
5%	Viscous dispersion
In polar organic solvents	Generally miscible
	See Table 1

Surface Active Properties

Critical Micelle Concentration (CMC), % by weight	0.05
Interfacial tension, dynes/cm, 25°C, DuNoüy Method	
1% active solution vs mineral oil	65
Surface Tension	See Table 2
Ross Miles Foam Test, ASTM D-1173,	
0.5% solution, 25°C	
Initial foam volume, mL	70
Foam Volume after 15 minutes, mL	45

Electrolyte Tolerance

One of the outstanding features of AEROSOL C-61 is its superior resistance to precipitation by calcium (or other polyvalent ions).

Concentration, % solids ppm	Calcium tolerance
0.25	2250

Stability In Acids And Alkalis

AEROSOL C-61 is stable in concentrated sulfuric acid as well as in 1% sodium hydroxide solutions even at the boiling point. When C-61 is added to most acid solutions, or vice versa, carbon dioxide gas is formed. However, the presence of acid does not impair the efficiency of AEROSOL C-61 surfactant.

Table 1 – Solubility in Organic Solvents

Solvent	Concentration of AEROSOL C-61, % by volume				
	2.5	5	10	20	30
Ethyl acetate and esters	(1)	(1)	Clear	Clear	Clear
Ethyl alcohol and similar alcohols	Clear	Clear	Clear	Clear	Clear
Ethylene dichloride	(2)	(2)	(2)	Clear	Clear
Kerosene	(1)	(1)	(1)	(1)	Clear
Turpentine	(1)	(1)	Clear	Clear	Clear
Varsol* No 2 petroleum solvent	(1)	(1)	(1)	(1)	Clear
Xylene and coal tar hydrocarbons	(1)	(1)	(1)	Clear	Clear

* Trademark, Exxon Company

(1) AEROSOL C-61 forms a turbid solution at this concentration. It may be cleared by the addition of 5% of isopropyl alcohol.

(2) Separates on cooling below 40°F. Redissolves on warming to 60-70°F.

Surface Tension

Table 2 – Surface Tension vs Concentration of AEROSOL C-61 Surfactant, DuNouy Method, 25°C, surface age 15 seconds

AEROSOL C-61 surfactant concentration, % solids	Surface tension, dynes/cm
0.004	58.2
0.005	57.8
0.008	55.2
0.013	49.9
0.025	47.9
0.030	46.9
0.030	44.7
0.10	47.2
0.50	40.8
1.00	40.1

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 acute oral LD₅₀ of the 70% paste is 2.85 g/kg. By absorption through the intact skin of rabbits, the single dose LD₅₀ of the 70% paste is 5.95 mL/kg. The product is severely irritating to rabbit eyes and to the skin of rabbits when held in continuous contact for 24 hours. This property is common to many cationic surface active agents. When AEROSOL C-61 was added to the diets of rats and fed for 30 days, daily doses of 0.50 g/kg resulted in moderate reduction of weight gain while lesser doses were without effect.

Patch tests on humans: AEROSOL C-61 surfactant also has been examined by a patch test technique in a series of 200 human subjects. It was found that, at a concentration of 2%, this product exhibited definite properties of primary irritation and sensitization in a small percentage of the persons tested. On the basis of these studies it may be concluded that prolonged or repeated skin contact with concentrated solutions of AEROSOL C-61 should be avoided and care should be exercised to prevent entry of the product into the eye.

Storage And Handling

AEROSOL C-61 surfactant is a Class I flammable liquid. Precautions should be followed for this classification. AEROSOL C-61 will gel or solidify on freezing. If gelling occurs, merely heat the material in a steam cabinet to bring back to uniform liquid form and agitate prior to use (use explosion proof equipment).

Containers filled with AEROSOL C-61 surfactant should be kept closed when not in use, as evaporation of water and solvent may cause gelation. The system composed of AEROSOL C-61 surfactant plus water and solvent is sensitive to loss of liquid through evaporation causing reversion to a gel state. The quality of AEROSOL C-61 surfactant is not affected by this physical change.

If a batch of AEROSOL C-61 surfactant should gel, a small amount of isopropanol should be added and the drum rolled until the gel has disappeared (1-2% of isopropanol on the weight of the batch is sufficient). To effect more rapid liquefaction, the drum should be put in a steam heated cabinet (use explosion proof equipment).

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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