

AEROSOL® MA-80-I surfactant

Type: Anionic

Chemical: Sodium dihexyl sulfosuccinate

CAS No.: 002373-38-8

Molecular Formula: C₁₆H₂₉O₇NaS

Molecular Weight: 388

EPA Status: Exempt 40 CFR 180.1001 (d)

AEROSOL MA-80-I surfactant is a surface tension depressant and an emulsifying, dispersing and solubilizing agent exhibiting high electrolyte tolerance. It promotes penetration and spreading of organic liquids as films which break up into minute droplets.

Physical and Chemical Properties

Appearance at 25°C (77°F)	Clear, slightly viscous liquid
Solids, % by weight	80±1.0
Solvent	Water, isopropanol
Color, APHA, as is, maximum	50
Specific gravity, 25°C	~1.13
Density, lb/gal, 25°C	~9.4
Melting point, 100% solids, °C	199-202
Freezing point, °C	-28 (-18°F)
Flash point, °C	
Pensky-Marten (closed cup)	38 (101°F)
Autoignition temperature	Does not promote spontaneous combustion
pH, 10% solids solution	5-7
Acid number, as is, maximum	1.0
Iodine value, as is, maximum	0.20

Surface Active Properties

Critical Micelle Concentration (CMC), % by weight	1.5
Interfacial tension, dynes/cm	
1% active solution vs mineral oil	4.2
Surface Tension	See Table 1
Ross Miles Foam Test, ASTM D-1173, 0.5% solution, 25°C	
Initial foam volume, mL	40
Foam Volume after 15 minutes, mL	5
Wetting	See Table 2

Solubility

Temperature, °C	g/100 mL water
25	34.3
30	35.4
40	37.5
50	39.8
60	42.1
70	44.7

Solubility in polar organic solvents – Good
 Solubility in nonpolar organic solvents – Good

Acetone	Soluble
Benzene	Soluble
Carbon tetrachloride	Soluble
Ethanol (SDA 2-B)	Soluble
Glycerine	Soluble
Kerosene	Soluble
Mineral oil	Insoluble
Oleic acid	Soluble
Olive oil	Soluble, hot
Pine Oil	Soluble

Surface Tension

Table 1–Surface Tension of AEROSOL MA-80-I Surfactant

AEROSOL MA Concentration % solids	Surface tension, dynes/cm			
	Water	1% Na ₂ SO ₄	2.0% Na ₂ SO ₄	5.0% Na ₂ SO ₄
0	72.0	72.5	72.8	73.4
0.001	69.5	64.6	64.6	61.6
0.02	60.6	41.6	39.0 3	4.4
0.1	45.8	30.4	27.0	24.7
0.25	38.2	25.0	24.8	23.9
0.5	30.8	25.1	24.5	23.4
1.0	27.8	25.4	24.4	23.0
2.00	27.5	—	—	—

Wetting (Draves Test)

Table 2 – Wetting Time vs AEROSOL MA-80-I Surfactant Concentration

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

AEROSOL MA	Temp °C	Surfactant Concentration, %											
		.3	.25	.15	.125	.075	.05	.04	.03	.025	.02	.015	.01
In Water	30	10	15	53	84								
	50	11	16	56	90								
	75	15	20	70	130								
In 5% NaCl	30					10	28	48	99				
	50					12	30	52	110				
	75					14	35	53	115				
In 8% NaCl	30								13	26	63		
	50								14	30	70		
	75								16	35	83		
In 12% NaCl	30									10	16	33	92
	50									12	21	43	120
	75									15	27	55	150

Biodegradability

AEROSOL MA-80-I was biodegraded to only 16.7% in twenty-eight days when the sewage was acclimatized to AEROSOL MA surfactant.

EPA Status¹

Under the provisions of Section 180.1001 (d) of the Pesticides Chemicals Regulations, AEROSOL MA-80-I surfactant is exempted from the requirement of a tolerance when used in accordance with good agricultural practice as an inert ingredient of pesticide formulations applied to growing crops.

¹ 21 CFR 182.99 Adjuvants for Pesticide Chemicals—Adjuvants, identified and used in accordance with 40 CFR 180.1001 (c) and (d), which are added to pesticide use dilutions by a grower or applicator prior to application to the raw agricultural commodity, are exempt from their requirement of tolerance.

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 AEROSOL MA-80-I surfactant for rats has been found to be 1.75 g/kg in terms of solids content. By absorption through the intact skin of rabbits, the single dose LD₅₀ was found to be 5.0 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 anionic surface active agents. When AEROSOL MA-80-I surfactant was added to the diets of rats and fed for 32 days, levels as high as 0.5 g/kg/day were without effect.

On the basis of these studies it may be concluded that prolonged or repeated skin contact with concentrated solutions of AEROSOL MA-80-I surfactant should be avoided and care should be exercised to prevent entry of the product into the eye.

Phytotoxicity

AEROSOL MA-80-I surfactant is not phytotoxic if used in spray solutions at a concentration below 0.25%.

Storage And Handling

AEROSOL MA-80-I surfactant is a Class II combustible liquid.

Solutions of AEROSOL MA-80-I surfactant may be stored and used in a wide variety of containers or reaction vessels. Stainless steel, aluminum and Monel are recommended for reaction and storage vessels; glass and rubber are suitable lining materials. Some of the sprayed resinous coatings are satisfactory in stationary tanks in which the coating can be built up more heavily than is customary in drums. In permanent installations, however, the added expense of aluminum, stainless steel or clad-steel frequently is justified.

Containers of AEROSOL MA-80-I surfactant should be kept closed when not in use, as evaporation of water and solvent may cause gelation. The system containing AEROSOL MA-80-I surfactant plus water and solvent is sensitive to loss of liquid through evaporation causing reversion to a gel state. The quality of the AEROSOL MA-80-I is not affected by this physical change.

If AEROSOL MA-80-I surfactant should gel, add a small amount of isopropanol and roll the drum until the gel has disappeared (1-2% of isopropanol on the weight of the batch is sufficient). To liquefy more rapidly, put the drum in a steam-heated chest.

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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