

AEROSOL® OS surfactant

Type: Anionic

Chemical: Sodium diisopropyl naphthalene sulfonate

CAS No.: 002373-38-8

Molecular Formula: C₁₆H₁₉O₃NaS

Molecular Weight: 314

EPA Status: Exempt 40 CFR 180.1001 (c)

AEROSOL OS surfactant is highly effective in the manufacture of wettable powders. It is extremely stable in highly acid and alkaline solutions. In such solutions, while many agents are precipitated or decomposed, AEROSOL OS surfactant becomes even more effective as a wetting and dispersing agent.

Physical and Chemical Properties

Appearance at 25°C (77°F)	Tan free-flowing powder
Active solids, % by weight minimum	75.0
Inorganic salt, % by weight maximum, as sodium sulfate	21.0
Moisture content, % by weight, maximum	3.0
pH, 5% solids solution	8.0-10.0
Specific gravity, 25°C	~1.43
Density, lb/gal, 25°C	~11.9
Melting point, °C	205 (401°F)
Flash point, °C	
Pensky Marten (closed cup)	Not applicable
Autoignition temperature	Does not promote spontaneous combustion

Solubility

In water, at 25°C	50%
In nonpolar organic solvents	Insoluble
In polar organic solvents	
Acetone	Partially soluble*
Carbon tetrachloride	Soluble
Ethanol (SDA 2-B)	Partially soluble*
Glycerine	Partially soluble*
Kerosene	Insoluble
Mineral oil	Insoluble
Oleic acid	Soluble
Olive oil	Partially soluble*
Pine oil	Soluble

*AEROSOL OS surfactant contains some inorganic salt that remains undissolved in the solvents indicated.

Surface Active Properties

Critical Micelle Concentration (CMC), % by weight	1.0
Interfacial tension, dynes/cm	
1% active solution vs mineral oil	5.0
Surface Tension	See Table 1
Ross Miles Foam Test, ASTM D-1173, 0.5% solution, 25°C	
Initial foam volume, mL	345
Foam Volume after 15 minutes, mL	15
Wetting (Draves Test)	See Table 2
Calcium tolerance	See Table 3

Surface Tension

Table 1 – Surface Tension vs Concentration of AEROSOL OS Surfactant

Concentration, as is, %	Surface tension, dynes/cm
0.001	72.4
0.01	61.0
0.05	46.2
0.1	43.6
0.5	37.5
1	35.0
2	35.0

Wetting (Draves Test)

Table 2 – Wetting Time vs AEROSOL OS Surfactant Concentration

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

	Surfactant Concentration, % solids											
	.50	.45	.40	.35	.30	.25	.20	.15	.125	.10	.075	.05
In Water	–	–	11	14	23	36	68	125	–	–	–	–
In 1% NaCl	8	–	–	–	21	–	47	79	–	–	–	–
In 2% NaCl	–	–	–	–	–	17	21	28	–	44	62	95
In 3% NaCl	–	–	–	–	–	–	–	23	28	38	54	88
In 5% NaCl	–	–	Slightly turbid {		10	–	17	24	–	37	51	85

Biodegradability

AEROSOL OS surfactant is 53% biodegradable in eight days with sewage bacteria acclimatized to AEROSOL OT surfactant.

EPA Status¹

Under the provision of Section 180.001 (c) of the Pesticide Chemicals Regulations, AEROSOL OS 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 or to raw agricultural commodities after harvest.

¹ 21 CFR 182.99 Adjuvants for Pesticide Chemicals—Adjuvants identified and used in accordance with 40 CFR 180.1001 (c)

Electrolyte Tolerance

Table 3 – Calcium Tolerance

Concentration, % solids	Calcium tolerance ppm
0.01	2250
0.05	2250
0.1	2250
0.25	337
0.3	325
0.4	500
0.5	2250
1.0	2250

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 the 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 OS surfactant for rats is 1.35 g/kg. By absorption through the intact skin of rabbits, the single dose LD₅₀ is 4.2 g/kg. The product is severely irritating to rabbits' 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 OS surfactant was added to the diets of

rats and fed for 30 days, levels as high as 0.25 g/kg/day were without adverse effects.

On the basis of these studies it may be concluded that prolonged or repeated skin contact with concentrated solutions of AEROSOL OS should be avoided and care should be exercised to prevent entry of the product into the eye. Since AEROSOL OS is a fine powder, care should also be exercised to avoid the creation of dust in handling operations. Inhalation of such dust may cause irritation of the respiratory tract.

Storage And Handling

AEROSOL OS surfactant should be kept dry and in closed containers. This surfactant is hygroscopic above 65% humidity.

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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