

AEROSOL[®] A-196 surfactants

Type:	Anionic
Chemical:	Sodium dicyclohexyl sulfosuccinate
CAS No:	23386-52-9
Molecular Formula:	C ₁₆ H ₂₅ O ₇ NaS
Molecular Weight:	384
EPA Status:	Exempt 40 CFR 180.1001 (d)
FDA Status:	Approved 21 CFR 178.3400

PHYSICAL AND CHEMICAL PROPERTIES

	<u>A-196-97</u>	<u>A-196-40</u>
Appearance at 25°C (77°F)	White to off-white extruded granules	Off-white paste/liquid
Solids, % by weight,	97.0 min	39.0-41.5
Solvent or diluent	water	water
Specific gravity, 25°C	~1.19	–
40°C	–	~1.10
Density, lb/gal 25°C	~9.9	–
40°C	–	~9.2
Flash point, °F Setaflash, (closed cup)	>200 (93°C)	>200 (93°C)
Autoignition temperature		Does not promote spontaneous combustion
Acid Number (as is), maximum	2.5	0.75
Iodine Value (as is), maximum	0.5	0.2
Methanol Insolubles, % (as is), maximum	3.5	1.0
pH, 10% solids solution	6-7.5	6-7.5

AEROSOL A-196 is a surfactant which has a high critical micelle concentration. This property combined with some unique surface active features, make it suitable as a post-additive without affecting the surface tension of the system. AEROSOL A-196 imparts good adhesion of the deposited film to its substrate.

SURFACE ACTIVE PROPERTIES

Critical Micelle Concentration (CMC), % by weight	
In water (solids basis)	3.0-3.4
In water with 2% Na ₂ SO ₄	1.2
Surface Tension, at CMC, dynes/cm	
Aqueous solution	41
Aqueous solution with 2% Na ₂ SO ₄	38
Interfacial tension, dynes/cm, 25°C, DuNoüy Method	
1% aqueous solution vs mineral oil	18
Wetting (Draves Test)	
Sinking Time in seconds AATCC 17-1952, 1% solution, 1.5 gram hook, 25°C	70
Ross Miles Foam Test, ASTM D-1173, 0.5% solution, 25°C	
Initial foam volume, mL	10
Foam volume after 5 minutes, mL	0
Stability of 2% aqueous solutions, as is, 25°C, pH 4.5 and pH 10.1 (adjusted with dilute NH ₄ OH)	No drift in surface tension after two weeks

Electrolyte Tolerance¹

Ca(NO ₃) ₂ • 4H ₂ O	Excellent ²
Cu(NO ₃) ₂ • 3H ₂ O	Excellent
Fe(NO ₃) ₃ • 9H ₂ O	Good ³
Zn(NO ₃) ₂ • 6H ₂ O	Excellent

¹ Five percent (5%) solutions of the above materials were prepared. Five mL of a 5% A-196 (100% active basis) solution were placed in each of four watch glasses. Then the above salt solutions were added dropwise, stirring with a stainless steel spatula after each addition. The above results were recorded.

² After 50 drops, there was no precipitate formed. This would be considered excellent stability.

³ A precipitate formed immediately after the addition of the first drop. The precipitate dissolved on stirring. The same results occurred at increments of 5, 10, 15 and 20 drops respectively. At 30 drops the precipitate would no longer dissolve, however, it dissolved upon the back addition of 30 drops of A-196.

EPA STATUS¹

Under the provisions of 40 CFR 180.1001 (d) of the Pesticide Chemicals Regulations, AEROSOL A-196 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 applied to pesticide use dilutions by a grower or applicator prior to application to the raw agricultural commodity, are exempt from the requirement of tolerance.

FDA STATUS

AEROSOL A-196 surfactant is permitted by 21 CFR 178.3400 of the Food Additives Regulations as a component of packaging materials, containers or equipment intended for use in contact with food. This regulation constitutes a blanket approval for the use of AEROSOL A-196 in the manufacture of any non-food article intended for food-contact use. There are no limitations on the nature or amount of use of AEROSOL A-196 other than the general limitations given in 174.5, which are applicable to every substance listed in Subpart D.

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 dose LD₅₀ of AEROSOL A-196 surfactant for young male albino rats is approximately 3.54 g/kg and the LD₅₀ by 24-hour contact with the clipped skin of rabbits is greater than 5 g/kg. Therefore, the product is considered to be slightly toxic by ingestion in single doses and practically non-toxic by single applications to the skin.

This product is not appreciably irritating to rabbit skin. In a repeated insult patch test in humans, there were no instances of irritation or sensitization from this product. This product is irritating to rabbit eyes. Accordingly, precautions must be taken to prevent splashes of the material into the eyes. AEROSOL A-196 was fed for 90 days to rats at a dietary concentration of 1%. There were no adverse effects from consumption of this product. AEROSOL A-196 is not likely to present a health hazard when used in industrial operations with reasonable care.

STORAGE AND HANDLING

AEROSOL A-196 is shipped as 97% solids flakes and 40% solids solution. It is nonflammable.

AEROSOL A-196 97% will remain stable when stored under normal conditions. AEROSOL A-196 40% is available in bulk quantities only. It is a thin, readily pourable liquid which must be stored at temperatures of 110-120°F in order to avoid crystallization.

Solutions of AEROSOL A-196 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.

IMPORTANT NOTICE

The information and statements herein are believed to be reliable but are not to be construed as a warranty or representation for which we assume legal responsibility. Users should undertake sufficient verification and testing to determine the suitability for their own particular purpose of any information or products referred to herein. NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS MADE. Nothing herein is to be taken as permission, inducement or recommendation to practice any patented invention without a license.

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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.

CYTEC

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