CYTEC

PRODUCT DATA SHEET | Specialty Additives

AEROSOL® A-102 Surfactant

Type: Anionic

Chemical: Disodium ethoxylated alcohol [C_{10}-C_{12}] half ester of sulfosuccinic acid

AEROSOL A-102 surfactant is an excellent primary emulsifier for emulsion polymerization of acrylic, vinylacrylic, styrene-acrylic and EVA systems.

Its unique structure imparts both steric and charge stabilization, leading to systems with very good electrolytic and mechanical stability. Its excellent acid stability and low surface and interfacial tension values also make it useful as a stabilizer/dispersant in a variety of aqueous systems. AEROSOL A-102 surfactant is non-dermatitic.

REPRESENTATIVE APPLICATIONS

AEROSOL A-102 surfactant is widely used as a primary emulsifier in acrylic, vinyl-acrylic, styrene-acrylic and EVA latexes, going into the following applications:

- Adhesives
- Paint Binders
- Textile Binders
- Paper Coatings
- Over Print Varnish Systems

AEROSOL A-102 surfactant is also widely used as a stabilizer/dispersant in medium-HLB resin and pigment systems.

PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 25°C (77°F)	Clear, colorless to light yellow liquid
Solids, % by weight	30-32
Color, APHA, as is, maximum	150
Specific gravity, 25°C	~1.08
Density, lbs/gal, 25°C	~9.01
Viscosity, cps @ 25°C Brookfield RFV, No. 3 spindle, 50 rpm	~40
Freezing point, °C 30% solution[1]	-4 (25°F)
Flash Point, °C Pensky Marten closed cup	>100 (>212°F)
pH, as is	4.5-5.5
Acid number, as is, maximum	6.0
Iodine value, as is, maximum	0.5
Stability in acid, at room temp.	Excellent[2]
Stability in base, at room temp.	Fair[3]
Solubility in organic solvents Polar solvents Nonpolar solvents	 Sparingly soluble, but quite soluble in dimethyl sulfoxide Insoluble

[1] Readily redissolves on heating.

[2] 50 mL of 0.25% surfactant solution remained clear on prolonged standing after 50 mL of a 10% HCl solution were added.

[3] Turbidity begins to appear after 9-11 mL of a 10% NaOH solution are slowly added to 50 mL of a 0.25% surfactant solution; the faint turbidity tends to clear on standing.

REPRESENTATIVE APPLICATIONS

- Low particle size at low usage levels
- Can produce high solids latex at manageable viscosity
- Gives latexes with good mechanical and electrolyte stability and low coagulum levels
- Latexes form clear films with good resistance to moisture and yellowing
- In combination with AEROSOL MA-80 I or AEROSOL LF4 surfactants, gives excellent adhesion
- Allows for incorporation of higher levels of water soluble specialty monomers, such as CYLINK® NH8 wet adhesion monomer

STORAGE AND HANDLING

It is recommended to store this material at ambient temperature.

The efficacy of AEROSOL A-102 surfactant is not impaired by freezing or thawing. However, if a freezethaw cycle occurs, it is recommended to agitate the entire contents of the container prior to use.

Handling and storage information on this product can be found in the corresponding Cytec Industries Inc. Material Safety Data Sheet

HEALTH AND SAFETY INFORMATION

Before handling this material, read the corresponding Cytec Industries Inc. Material Safety Data Sheet for safety, health and environmental data.

SURFACE ACTIVE PROPERTIES

Critical Micelle Concentration (CMC), % by weight	29
Surface tension, dynes/cm, 25°C, Solutions with different concentration, A 102 % by weight	
0.005	49.9
0.010	45.2
0.110	33.4
Interfacial tension, dynes/cm, 25°C, 0.1% solution against mineral oil, after 5 minutes	7.2
Ross Miles Foam Test, ASTM D-1173, 0.5% solution, 25°C	
Initial foam volume, ml	300
Foam volume after 15 minutes, mL	75
Rewetting sulfur	Excellent rewetting of dry powder containing 0.1% surfactant

ELECTROLYTE TOLERANCE[1]

$Ca(NO_3)_2 \bullet 4H2O$	Excellent[2]
$MgSO_4$ (anhydrous)	Excellent[2]
$Ba(OH)_2 \bullet 8H_2O$	Good[3]
$FeCl_3 \bullet 6H_2O$	Good[3]
$AlCl_3 \bullet 6H_2O$	Poor-Fair[4]

[1] The information outlined above was obtained by first preparing 5% surfactants solutions (100% active basis) and by adding drop wise to these salt solutions.

[2] **Excellent**–Able to infinitely dilute surfactant solution with salt solution. No turbidity observed when the volume of surfactant solution was doubled with the salt.

[3] **Good**–The first few drops of salt solution yield a precipitate which dissolves on shaking. At 1:1 salt to surfactant volume ratio, a turbidity develops which can be clarified by additional shaking.

[4] **Poor-Fair**–As dropwise addition of salt proceeds, turbidity develops at 1:1 volume ratio.

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