

AEROSOL® EF-800 Surfactant

A Versatile, APE-Free, Sole Emulsifier for Emulsion Polymerization

Type: Anionic liquid

Chemical: Proprietary sulfosuccinate surfactant mixture

AEROSOL EF-800 is a new, alkyl-phenol free (APE-free) surfactant designed for use as a primary emulsifier for acrylic, vinyl-acrylic, styrene-acrylic and styrene-butadiene latex systems. One of its primary strengths is versatility, in that it enables fast, easy design of new latexes. This water soluble and highly effective product also ensures compliance with increasingly stringent alkyl phenol regulatory requirements and yields high performance latex systems. Desired solids content, particle size and viscosity are easily achieved by optimizing AEROSOL EF-800 surfactant in latex formulations. The product also minimizes grit and coagulum while optimizing operational efficiencies.

Sample formulations for various latex systems are available upon request.

Emulsion Polymer Applications

The product's high tolerance to water sensitive monomers (e.g., CYLINK® NMA monomer) facilitates easy development of high performance systems. Typical product applications for AEROSOL EF-800 surfactant include:

- Paint Binders
- Adhesives & Sealants
- Textile & Nonwoven Binders
- Paper Coatings
- Building and Construction Coatings

Features & Benefits of AEROSOL EF-800 Surfactant in Emulsion Polymerizations

- Alkyl phenol free material – ensures compliance with increasingly stringent alkyl phenol regulatory requirements
- Water soluble – easily formulated into acrylic, vinyl-acrylic, styrene-acrylic and styrene-butadiene latex systems
- Sole emulsifier – highly efficient; simplifies recipe formulation
- Highly effective – functional at low concentrations (i.e., 0.5-2%)
- Enhances latex properties – can achieve high solids content (>60%) and excellent mechanical and electrolytic stability

- Yields low coagulum and grit – increases operational efficiencies
- High compatibility – latex films exhibit high optical clarity and excellent heat stability

Physical and Chemical Properties

Appearance at 25°C	liquid
Solids, % by weight	49-51
Solvent	water
Specific gravity g/cc	~1.15
Freezing point, °C	ca.0
Flashpoint, °C	> 100
pH	5-7
Acid Number, as is, maximum	2.5
Iodine Value, as is, maximum	0.6
Solubility in water	infinite

Surface Active Properties

Critical Micelle Concentration (CMC), % by weight	0.03
Surface Tension MN/M (at CMC)	31

Typical Acrylic Latexes Prepared with AEROSOL EF-800 surfactant

The table below presents a summary of results obtained from some typical acrylic latexes that were prepared with 2.0 percent weight (based on total monomer mixture) of AEROSOL EF-800 surfactant.

Monomers	BA/MMA MAA/C-4 ¹	BA/MMA MAA/C-4
Composition	66.6/31.4/1/1	51/46.5/1.5/1.5
Application	High Solids PSA	High gloss paint
Polymerization Procedure	Monomer Pre-Emulsion	
Latex Properties, % Solids	60	48
Coagulum, % ²		
Total	0.4	0.7
Latex	0.029	0.004
pH	8.3	8.4
Viscosity, cps ³	210	79
Surface tension, dynes/cm	36	54
Particle size, nm	329	95
Film Quality	Clear and continuous	Clear and continuous

¹Monomers: BA – Butyl Acrylate
MMA – Methyl Methacrylate
MAA – Methacrylic Acid
C-4 – CYLINK C-4 monomer

²Coagulum: Percentage was measured by weighing the total amount of wall and latex coagulum filtered out on a tandem combination of 20 and 200 mesh nylon screens. The coagulum was washed and dried at 100°C. Latex coagulum was the part retained on the 200 mesh screen.

³Measured with a Brookfield LVT Viscometer, No. 2 spindle at 60 rpm, 25°C.

Regulatory Information

All components of this product are included on the Toxic Substances Control Act (TSCA), European Inventory of Existing Chemical Substances (EINECS), the Australian Inventory of Chemical Substances (AICS), the Japan Inventory (ENCS), the Korea Inventory (ECL), the Philippines Inventory (PICCS) and the Chinese inventory. The product is also cleared for sale in Malaysia. Consult the product MSDS for further details.

Health and Safety Information

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

Storage and Handling

Handling and storage information on this product can be found on the corresponding Cytec Industries Inc. Material Safety Data Sheet (MSDS). Stainless steel, aluminum and Monel alloy are recommended for reaction and storage vessels; glass and rubber are suitable lining materials.

The efficacy of AEROSOL EF-800 is not impaired by freezing or thawing. However, if the product undergoes a freeze/thaw cycle, it is recommended that the entire contents of the container be agitated prior to use.

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