



CHEMGUARD S-103A

High Performance Anionic Fluorosurfactant

CHEMGUARD, INC. 204 South 6th Ave. Mansfield, Texas 76063 USA • 817-473-9964 • Fax: 817-473-0606 • www.chemguard.com

Product Description

Chemguard S-103A is a short-chain perfluoro-based anionic fluorosurfactant of the fluoroalkyl sodium sulfonate type. It provides surface tensions as low as 20 dynes/cm in water at very low concentrations. It also has excellent dynamic surface tension properties, allowing for rapid attainment of low equilibrium surface tensions. Chemguard S-103A imparts excellent wetting, spreading, leveling, and flow control properties on various types of water-based as well as aqueous hydrocarbon surfactant solutions. Its extremely low equilibrium surface tension in conjunction with excellent dynamic surface tension properties makes it ideal for coating formulations designed for difficult to coat, low surface tension substrates.

Attributes

- Provides low surface tension at low concentrations
- Excellent for wetting contaminated or difficult to coat surfaces
- Provides excellent hard water resistance
- Works in water-based and hydrocarbon surfactant systems
- More chemically stable than typical hydrocarbon surfactants

Typical Properties¹

Appearance	Clear, pale yellow liquid			
Ionic Character	Anionic			
Percent Solids (Actives)	45%			
Diluent Composition	Water/Hexylene Glycol/magnesium Sulfate 38:15:2			
Density (25°C)	1.2 g/ml			
Flash Point (Pensky-Martens, closed cup)	>95°C			
pH	6.5-8.0			
Freezing Point	8°C (46°F)			
Aqueous Surface Tension dynes/cm (mN/m), 25°C (77°F)	0.001% Solids	56		
	0.01% Solids	35		
	0.1% Solids	20		
Foam Height, mm, Initial/5 min. at 49°C (120°F) Ross-Miles Test, ASTM D-1173-53	Solvent	0.001%	0.01%	0.1%
	Water, DI	13/8	83/68	243/209
Draves Wetting test, seconds at 25°C (77°F) ASTM D-2281-68	Solvent	0.01%	0.1%	0.5%
	Water, DI	>300	12	4

¹Not for specification purposes.

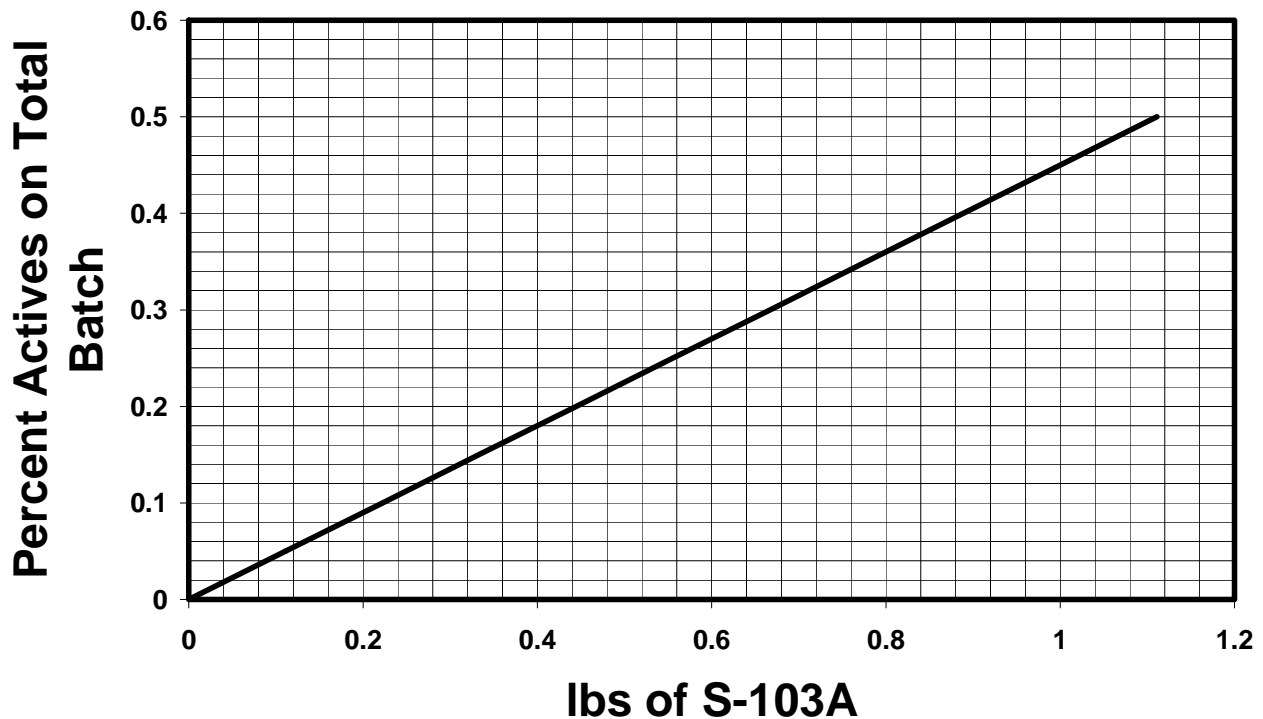
Typical Applications

Chemguard S-103A is a dilute solution composed of 45% active fluorosurfactant in a water and solvent miscible diluent. Typical uses include leveling and anti-static agents for photographic coatings, floor polishes, paints and coatings, adhesives, inks, waxes, caulks, and pickling and plating baths. Applications of Chemguard S-103A are generally those in which typical hydrocarbon surfactants are found to be inadequate.

Fluorosurfactants such as Chemguard S-103A are much more chemically stable than typical hydrocarbon surfactants, particularly in the presence of acids, alkalis, or heat.

Recommended application rates depend on the formulation makeup but typical levels of 0.01% to 0.5% are common. The charts below will aid in determining the amount of Chemguard S-103A that is required for a targeted level of active surfactant concentration to achieve the degree of surface tension reduction. The ideal method for determining the proper level is to screen several ranges of concentrations to achieve the desired effect on the surface tension and wetting action.

Addition Rate of S-103A for 100 lb. Batch



Solubility

Chemguard S-103A is soluble in water and most organic solvents. The chart below is an example of the solubility of S-103A in many solvent systems. Chemguard can assist in determining solubility in any system.

Solvent	Grams of Chemguard S-103A/ 100 grams of solvent
Distilled Water	>2
Isopropanol	>2
1:1 Water/Isopropanol	>2
Methyl Alcohol	>2

All values measured at 25°C

Storage and Shelf Life

Chemguard S-103A should be stored between 10°C and 50°C. Some solids begin to separate at temperatures below 10°C (50°F) over time. If frozen or if solids separate, warm to room temperature before use. Freezing and thawing will not affect the properties or performance.

Shelf life is at least five years if stored tightly sealed in the original container at temperatures below 50°C (151°F).

Health and Safety

Chemguard does not recommend this product for use in applications involving repeated exposure to skin contact, inhalation, or ingestion.

Chemguard fluorosurfactants are based on telomer synthesis. No PFOS, no PFOA, and no derivatives that decompose to them are used in the manufacturing process. Chemguard S-103A is composed of predominately six carbon (greater than 98%) and shorter perfluoro chains with no known pathway of decomposing to PFOS or PFOA.

Please refer to the material safety data sheet (MSDS) for recommended disposal, handling, and protection information.

SELLER MAKES NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED. INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No statements herein are to be construed as inducements to infringe upon a relevant patent. Under no circumstances shall the Seller be liable for incidental, consequential or indirect damages for negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results are based on controlled or lab work and must be confirmed by Buyer by testing for its intended conditions of use.