



CHEM GUARD S-228M

High Performance Low Foaming Fluorosurfactant

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

Product Description

Chemguard S-228M is a special low foaming blend of fluoro/silicone surfactants. It has been especially designed to be an effective wetting, spreading, leveling and flow control agent for various coating applications, especially in water-based systems. S-228M provides surface tensions as low as 19 dynes/cm in water at very low concentrations. It also has excellent dynamic surface tension properties, allowing the coating formulation to rapidly attain of low equilibrium surface tensions. Chemguard S-228M imparts excellent wetting, spreading, leveling, and flow control properties on various types of water-based as well as solvent-based systems. Its extremely low equilibrium surface tension in conjunction with low foaming and excellent dynamic surface tension properties makes it ideal for coating formulations designed for difficult to coat, low surface energy substrates.

Attributes

- Provides low surface tension at low concentrations
- Excellent dynamic surface tension properties
- Excellent for wetting difficult to coat surfaces
- Exceptional low foaming
- More chemically stable than typical hydrocarbon surfactants

Typical Properties¹

Appearance	Clear liquid	
Ionic Character	Blend of ionic/nonionics	
Percent Solids (Actives)	48%	
Diluent Composition	Water/Hexylene glycol/Inorganic salts 39:10:2	
Density (25°C)	1.14 g/ml	
Flash Point (Pensky-Martens, closed cup)	>100°C	
pH	7.0	
Refractive Index (at 25°C)	1.393	
Aqueous Surface Tension dynes/cm (mN/m), 25°C (77°F)	0.001% Solids	28.5
	0.01% Solids	16.7
	0.1% Solids	15.9

¹Not for specification purposes.

Typical Applications

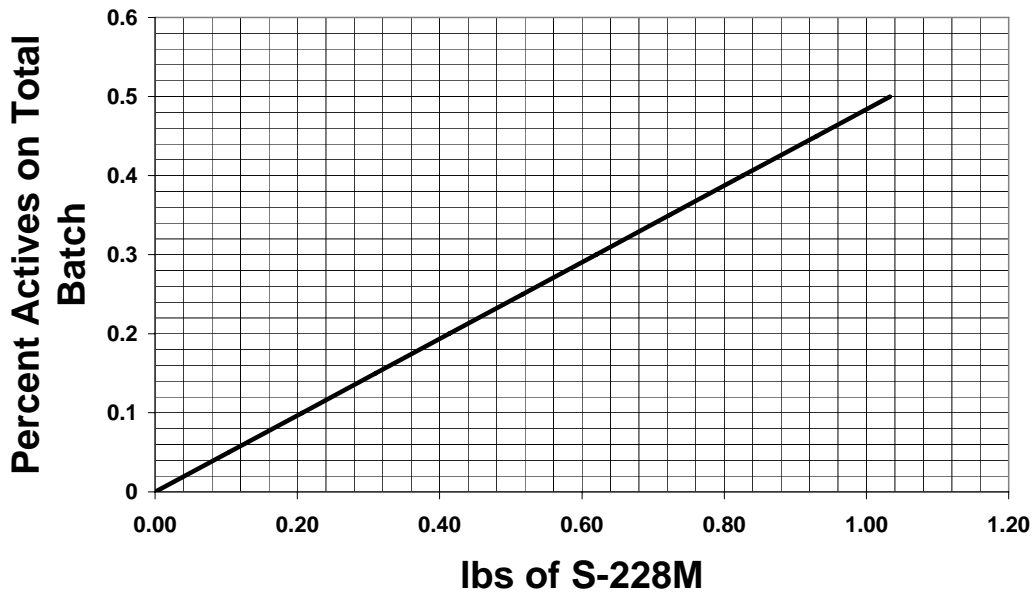
Chemguard S-228M is a dilute solution composed of 48% active fluorosurfactant in a water and solvent miscible diluent. Typical uses include paints and coatings, adhesives, inks, waxes, polishes, caulks, and for applications requiring low foaming.

Fluorosurfactants such as Chemguard S-228M are much more chemically stable than typical hydrocarbon surfactants, particularly in the presence of acids, alkalies, or heat.

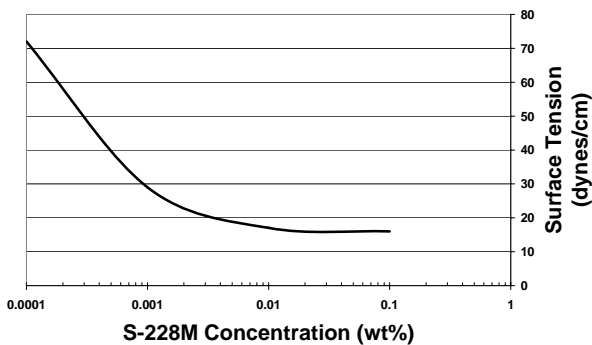
Recommended application rates depend on the formulation makeup but typical levels of 0.05% to 0.3% are common.

The charts below will aid in determining the amount of Chemguard S-228M 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.

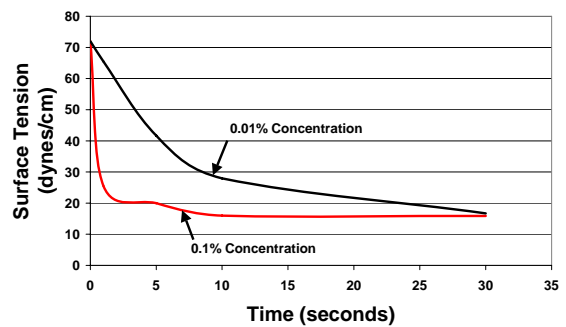
Addition Rate of S-228M for 100 lb. Batch



Surface Tension of S-228M



S-228M Dynamic Surface Tension



Solubility

Chemguard S-228M is soluble in water and most organic solvents. The chart below is an example of the solubility of S-228M in many solvent systems. Chemguard can assist in determining solubility in any system.

Solvent	Grams of Chemguard S-228M/ 100 grams of solvent
Distilled Water	>2
Isopropanol	>2
1:1 Water/Isopropanol	>2
Methyl Alcohol	6.2
Butyl Carbitol	6.2
Toluene	Insoluble
Methyl Propyl Ketone	Insoluble

All values measured at 25°C

Storage and Shelf Life

Chemguard S-228M begins to separate below 8°C. If frozen or if solids separate, warming to room temperature with slight agitation will return the product to a clear liquid. Freezing and thawing will not affect the properties or performance.

Shelf life is at least one year if stored tightly sealed in the original container at a temperature not exceeding 49°C.

Health and Safety

Chemguard S-228M Fluorosurfactant is intended for use in contained and non-dispersive applications. Chemguard does not recommend this product for use in applications involving repeated exposure to skin contact, inhalation, or ingestion. This product is not intended to be used for medical, cosmetic, food or pharmaceutical applications.

Chemguard Fluorosurfactants do not contain PFOS, PFOA or derivatives that decompose them. All perfluoro-intermediates are derived from the telomerization process.

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

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