



# CHEM GUARD S-228M

## High Performance Low Foaming Fluorosurfactant

### Product Description

Chemguard S-228M is a special low foaming blend of short-chain perfluoro/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
- Composed of short chain C-6 perfluoro telomer

### Typical Properties<sup>1</sup>

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

<sup>1</sup>Not for specification purposes.

## Typical Applications

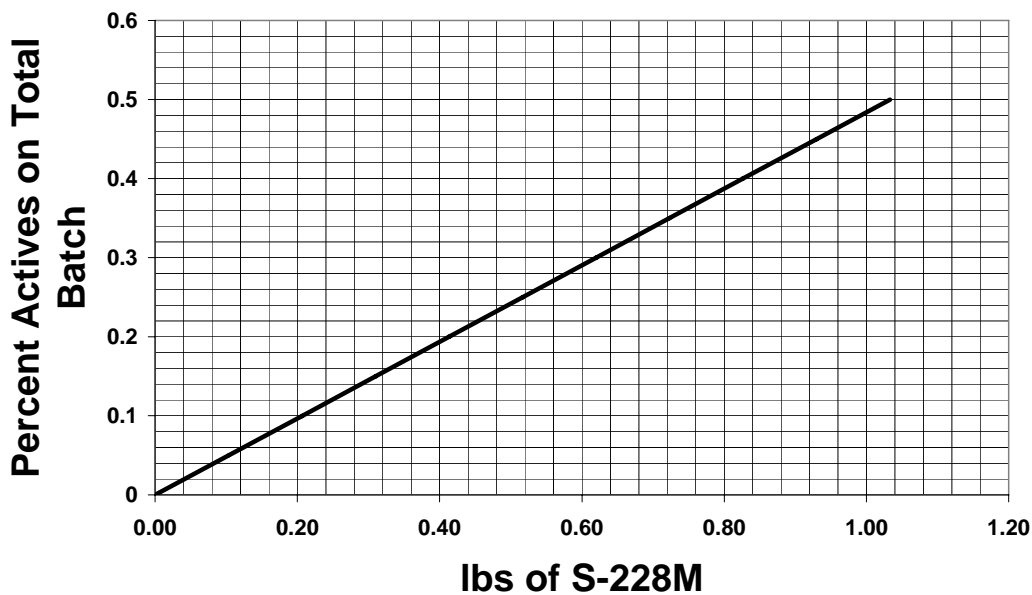
Chemguard S-228M is a dilute solution composed of 48% active fluorosurfactant in a water and solvent miscible diluent. Typical uses include paints and coatings, adhesives, inks, waxes, polishes, caulks, and for applications requiring low foaming.

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

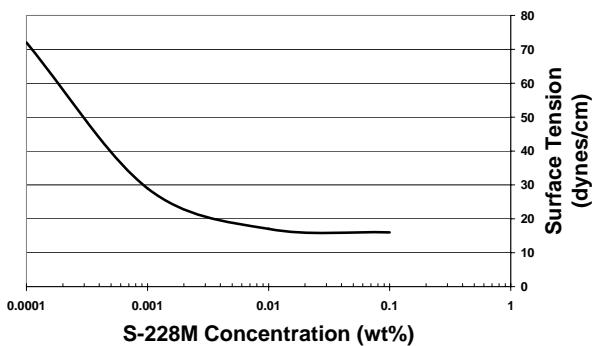
Recommended application rates depend on the formulation makeup but typical levels of 0.05% to 0.3% are common.

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.

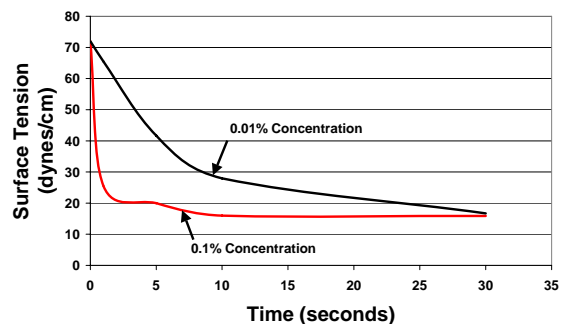
### Addition Rate of S-228M for 100 lb. Batch



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.

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

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 five years if stored tightly sealed in the original container at a temperature not exceeding 49°C.

## **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-228M 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.

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