



# Thetawet™ FS-8000

Short-Chain telomer-based fluorosurfactant

## Overview

- Short-Chain Fluorochemical Technology (meets the goal of the US EPA 2010/2015 PFOA Stewardship Program)
- Water-soluble nonionic fluorosurfactant effective at low end-use concentrations (10-100 ppm typical)
- Exceptional surface tension reduction for wetting low-energy substrates such as plastic, metal and glass
- Optimized for surfactant performance, Thetawet short-chain technology meets or exceeds performance of long-chain products
- 100% active material ideally suited for non-aqueous and many solvent reducible applications
- Nonionic character allows compatibility with all surfactant types.
- Effective in high or low pH, hard or soft water
- Stable in concentrated acids, bases and oxidizing solutions
- Narrow-range ethoxylation for high consistency in critical-use applications such as ink-jet media

## Applications

- Floor finishes and sealers
- Adhesives
- Degreasers
- Caustic bottle washing
- Floor cleaners and strippers
- Caulks and sealants
- Industrial cleaners
- Household cleaners
- Inks
- Brine foaming
- Paints and coatings
- Pickling baths
- Mold release
- High acid/base, oxidizer formulations

## Technical Information

Thetawet FS-8000 is a water soluble nonionic fluorosurfactant that contains no water or solvents. A low-melting wax, **Thetawet FS-8000 should be melted and mixed well immediately prior to use to ensure consistent performance.** The absence of any solvent or water makes Thetawet FS-8000 ideal in water sensitive systems, 100% solids and/or high solids applications, and as an additive to existing systems wherein minimal modification to the overall formulation is desirable. For ease of handling, a 50% aqueous version (Thetawet FS-8050) is also available.

Thetawet FS-8000 is an excellent choice for wetting difficult to wet surfaces such as plastics, oily substrates, waxy surfaces, and silicone and fluoropolymer treated fabrics because the surface tension of aqueous solutions and emulsions can be reduced to 20 dynes/cm.

## Formulary

Melt the Thetawet FS-8000 to about 50°C to melt it completely. Mix well before use. Then, add it to the formulation system, with mixing. Dramatic surface tension reduction of all types of aqueous systems can be achieved with the addition of 0.001 to 0.01% of Thetawet FS-8000. It performs well and is stable in severe thermal and chemical environments (strong acid, base or oxidizing solutions). Low surface tensions can be achieved in both highly alkaline and highly acidic systems.

## Typical Properties

PROPERTY	VALUE
Appearance	Yellow paste
Odor	Mild
Ionic character	Nonionic
Water solubility	Soluble
pH (1% aq.)	6.0±1.0
Density@50°C	1.32±0.04 g/ml
Melting Point	<55°C
Flash point	None
Storage	Freeze/thaw stable
Shelf life	3 years

## Packaging and Handling

Thetawet FS-8000 is available in:  
55 gallon plastic drums (Net Wt. 440 lbs)  
5 gallon pails (Net Wt. 40 lbs)

Refer to the Safety Data Sheet (SDS) for information on the safe use, handling, and disposal of this product.

DOT Classification: Non-Regulated

Whether you're looking for a replacement product or an ingredient for a specific attribute, give us a call. We can provide assistance based upon your particular formulation requirements and composition; please feel free to contact us.

*Please refer to back page for important information*

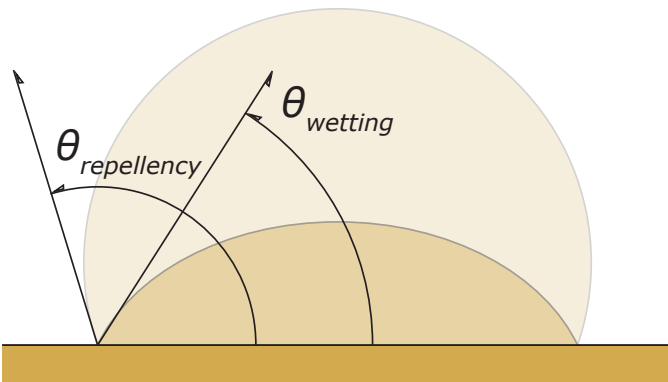
## Thetawet™ FS-8000

Short-Chain fluorosurfactant

Through extensive product development, application research and manufacturing optimization, Thetawet FS-series short-chain fluorosurfactants deliver performance on-par with long-chain alternatives, meeting the goal of the US EPA 2010/2015 PFOA Stewardship Program.

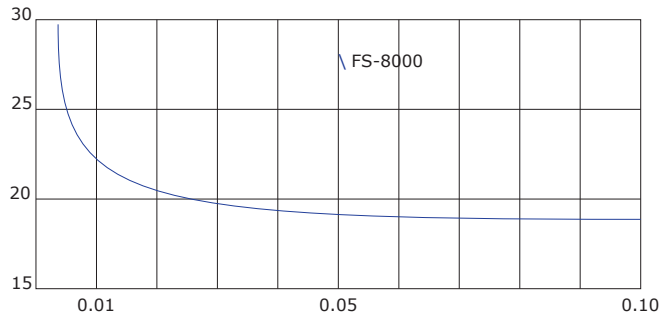
Often used along with traditional and specialty surfactants, Thetawet FS-series short-chain fluorosurfactants deliver maximum performance not achievable with traditional and specialty alkyl, acetylenic diol and silicone surfactants alone. Thetawet FS-series short-chain fluorosurfactants are exceptional wetting agents efficient at low end-use concentrations, typically in the 10-100 ppm range. Very low end-use concentrations allow for economical use and often eliminate re-wet properties characteristic of the higher end-use concentrations required with traditional and specialty surfactants.

Physical Scientists assigned the Greek Letter Theta  $\theta$  to represent the angle formed by a liquid at the three phase boundary where a solid, liquid, and gas intersect. It is also known as the contact angle. The measurement of Theta is the means by which we can quantify both how well a liquid can wet out a surface, or by contrast, how well a surface can resist being wetted. The manipulation and control of Theta is critical in the design of effective oil, water, and stain repellents, and the reduction of surface tension necessary to make improved coatings and cleaning products. As illustrated below, a decreasing  $\theta$  represents increasing wetting and adhesiveness, and an increasing  $\theta$  represents increasing repellency.



It is only fitting that ICT chose Theta  $\theta$  to represent these new and exciting products.

Thetawet FS-8000 is an excellent choice for wetting difficult to wet low energy surfaces such as plastics, oily substrates, waxy surfaces, and silicone and fluoropolymer treated fabrics. The ability of FS-8000 to lower the aqueous surface tension of liquids, allows those liquids to wet low energy surfaces. By contrast, typical alkyl surfactants, at any concentration, will only lower aqueous surface tension to about 30 dynes/cm, meaning that a typical alkyl surfactant solution will not wet a 25 dynes/cm surface, resulting in lack of coverage, incomplete leveling or inadequate cleaning performance.



**Aqueous Surface Tension, duNoüy ring,  
Wt.% actives, dynes/cm @25°C**

Demonstrated above, the surface tension of aqueous solutions and emulsions can be reduced to 19 dynes/cm with Thetawet FS-8000. This low surface tension results in better wetting, spreading, and penetration which translates into improved film uniformity, enhanced adhesion, reduced pinholes and craters for coatings, improved spreading for reduced water spotting, and smoother and more even films for finishes and polishes. It also translates into better wetting and penetration of cleaning solutions which makes them more effective.

Thetawet FS-8000 provides far greater surface tension reduction than can be achieved with either hydrocarbon or silicone based surfactants. When used in conjunction with “conventional” hydrocarbon surfactants, it is possible to achieve a system that not only dramatically reduces surface tension, but also lowers interfacial tension resulting in a liquid that easily wets and spreads on otherwise hard to wet surfaces.

This information relates only to the specific material referred to herein and not to its use in combination with any other material or in any process, unless explicitly stated herein. Such information is, to the best of our knowledge and belief, accurate and reliable as of the date compiled; however, no warranty, guarantee or other representation is made as to its accuracy, reliability, or completeness, or regarding any liabilities arising from others' intellectual property rights. ID# 20220620