Thetawet™ FS-8250

Short-Chain telomer-based fluorosurfactant

Overview

- Short-Chain Fluorochemical Technology (meets the goal of the US EPA 2010/2015 PFOA Stewardship Program)
- VOC-free, 28% active water-dispersible anionic fluorosurfactant effective at low end-use concentrations
- Powerful low foam wetting and leveling performance for smoother, defect-free coatings
- Does not impart color, or change the optical properties of a coating (beyond potential gloss or DOI - distinctness of image - improvement from higher reflectance)
- Partially replaces coalescent solvents for further VOC formulation reductions
- Orients and concentrates at all liquid interfaces, imparting block resistance, release properties, improved weatherability and soil resistance, and improved open time
- Reduces foaming tendency in paints and coatings, waxes and adhesives
- Readily dilutes in water/alcohol/glycol mixtures with excellent shelf stability
- WERCS ID number: WPS1513753
- WERCS Validation number: WPS1513753

Applications

- High solids coatings
- Floor finishes and sealers
- Automotive finishes and top coats
- Lacquers and polishes
- Adhesives
- Industrial and architectural paints & coatings
- Release additive, anti-block
- Mold release

Technical Information

Thetawet FS-8250 is a 28% active aqueous emulsion, water dispersible, low foam anionic fluorosurfactant. 100% VOC-free, Thetawet FS-8250 is ideal for use in VOC sensitive systems. For applications that require non-aqueous ingredients, a 100% solids, un-neutralized version (Thetawet FS-8200) is also available.

Thetawet FS-8250 is an excellent choice for wetting difficult to wet surfaces such as plastics, oily substrates, waxy surfaces, and for reduction in coating surface defects, enhanced gloss development and improved weatherability and soil resistance. Surface diffusion properties impart block resistance, mold release and increased open-time for coatings.

Formulary

Thetawet FS-8250 is dispersible in water, and readily soluble in a range of polar organic solvents such as glycol ethers, alcohols, ketones, acetone and ethyl acetate. Sensitive to hard water, dilution with deionized or softened water is recommended.

Recommended use concentrations vary for Thetawet FS-8250 with application, but in general, 0.05-0.25% is recommended for leveling, gloss development and foam control in water based systems, and 0.25-0.75% in neat or solvent based systems.

Thetawet FS-8250 is stable as delivered, however for long-term storage of stock solutions, use of a preservative such as Proxel GXL, Nipacide BIT 20 or VeriGuard 19S is recommended, as determined by the formulator.

Typical Properties

PROPERTY	VALUE
Appearance	Amber emulsion
Odor	Mild
Ionic character	Anionic
Water solubility	Dispersible
pH (as is)	9.0±1.0
Density@25°C	1.14±0.02 g/ml
Boiling Point	100°C
Flash point	None
Storage	Perishable if frozen. Also, store below 55°C (131°F)
Shelf life	12months

Packaging and Handling

Thetawet FS-8250 is available in:
275 gallon totes (Net Wt. 2205 lbs)
55 gallon plastic drums (Net Wt. 440 lbs)
5 gallon pails (Net Wt. 40 lbs)

In spray applications, use a coarse spray device, such as a trigger sprayer or pressurized dispenser, that does not produce respirable fine particles. DO NOT AEROSOLIZE OR ATOMIZE. This product can only be used in consumer spray applications in concentrations at or below 0.1 weight percent of active ingredient (0.35% as sold). For further Safety Information, please 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.

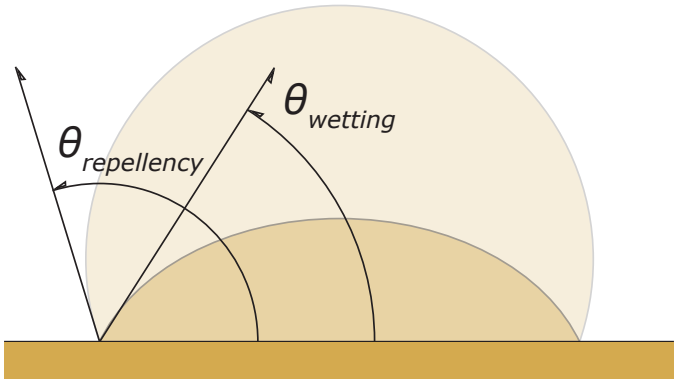
Please refer to back page for important information

Thetawet™ FS-8250

Short-Chain fluorosurfactant

Through extensive product development, applications 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.

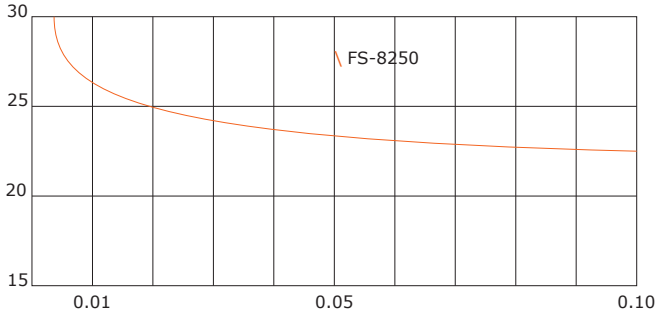
Often used along with traditional and specialty surfactants, Thetawet FS-series short-chain fluorosurfactants deliver maximum performance not achievable with traditional and specialty alkyl, acetylenic diol and silicone surfactants alone. Thetawet FS-series short-chain fluorosurfactants are exceptional 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 θ 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 θ represents increasing wetting and adhesiveness, and an increasing θ represents increasing repellency.

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

Thetawet FS-8250 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-8250 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 23 dynes/cm with Thetawet FS-8250. 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.

A unique property of fluorinated surfactants, and FS-8250 in particular, is the ability to migrate and diffuse to the surface-air interface. In high solids, low VOC coatings that rely on low Tg resins, Thetawet FS-8250 contributes not only to wetting, spreading and leveling, but reduces the tendency of glossy paint films to block, or stick to themselves. Improved block resistance properties contributed by FS-8250, along with reduction in film tackiness, and properties that allow the formulator to reduce hydrophobic additives, leveling aids, open-time extenders and so on, resulting in painted surfaces that are more efficient to produce and bring additional value through improved soil resistance and weatherability.