

## FC PRO™ - PERFORMANCE SURFACTANTS

Introducing FC PRO™ 300, 400 & 500 series performance nonionic surfactants from FC PRO, LLC., a complete line of readily biodegradable, nonionic surfactants for use in oilfield and industrial cleaning.

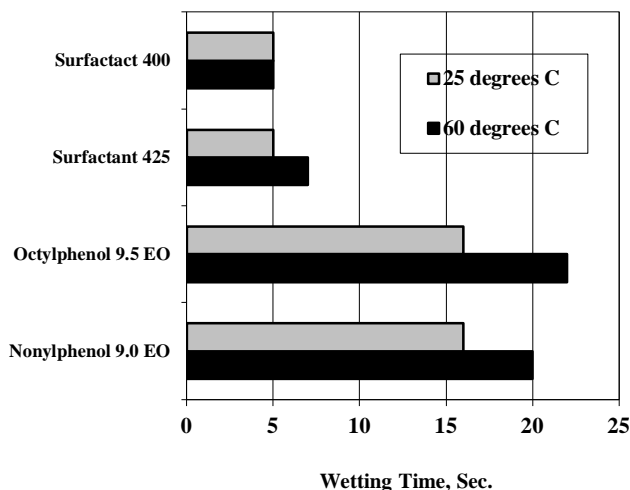
FC PRO performance nonionic surfactants have been developed as effective alternatives to nonylphenol ethoxylates and other nonionic surfactants. The FC PRO series performance nonionic surfactants are readily biodegradable, and offer excellent performance and handling characteristics.

### Outstanding performance properties

FC PRO™ 300, 400 & 500 series performance nonionic surfactants are high purity products and are available with varying water solubility properties. FC PRO performance nonionic surfactants provide fast wetting and less odor compared to other competitive surfactants. They act as powerful substrate wetters and emulsifiers, which help hold soil in suspension so emulsion can be completed quickly and efficiently, as shown in Fig. 2.

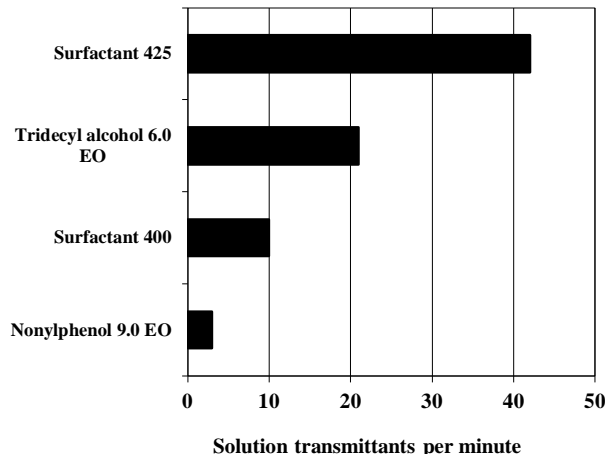
**Fig. 1 - Draves Wetting Times of FC PRO 400 Series**

ASTM D-2281 5g cotton skein, 3g hook, 0.1%w surfactant, deionized water.



**Fig. 2 - Dodecane Oil Solubilization Rate**

1.0 wt.% surfactant at 25 degrees centigrade.





A Division of Florida Chemical Company, Inc.

FC PRO Surfactant series performance nonionic surfactants find application in a variety of oilfield and industrial cleaning formulations. They are especially suited for operations requiring rapid wetting, good soil removal, chemical stability, and relatively controlled foaming. The rapid biodegradability and high performance of these products make them the excellent choices for substrate wetting and cleaning.

### **FC PRO™ 300, 400 & 500 Series Physical and Chemical Properties**

<b>FC PRO Surfactant Series</b>	<b>Melting range °C</b>	<b>Color (APHA)</b>	<b>Sp. Gravity @ 25°C</b>	<b>Viscosity, cSt @ 100°F</b>	<b>Surface Tension (0.1wt.%)</b>	<b>Flash pt. °C</b>	<b>Cloud pt. °C</b>	<b>Pour pt. °C</b>	<b>CMC, %w</b>	<b>HLB</b>
<b>Surfactant 300</b>	2 to 26	5-10	0.965	34	30	186	50	19	0.0009	12.3
<b>Surfactant 400</b>	4 to 20	5-10	0.996	28	26	165	58	13	0.010	12.9
<b>Surfactant 425</b>	4-20	5-10	0.98	48	29	147	36	13	0.012	11.8
<b>Surfactant 430</b>	-15 to 4	5-10	0.936	10	-	142	-	-7	-	8.7
<b>Surfactant 450</b>	2 to 15	5-10	0.98	15	29	159	64	8	0.023	13.1
<b>Surfactant 500</b>	7 to 24	5-10	1.008	39	30	159	80	15	0.027	13.9

### **FC PRO™ Surfactants and the environment**

Tests have shown FC PRO Surfactant series are readily biodegradable. Primary biodegradation is measured by loss of the chemical and physical properties of a surfactant. Ultimate aerobic biodegradation is measured by the capability of microorganisms found in sewage treatment plants to degrade an organic chemical, such as a nonionic surfactant, to water and carbon dioxide.

The data in this bulletin list some of Florida Chemicals Inc. standard products and their typical properties. For samples and technical assistance, we invite you to write or call.

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