



Technical Data Sheet

XIAMETER™ OFX-5211 Fluid

Performance enhancer for agricultural chemicals. Silicone glycol copolymer for leathers. Water sheeting and anti-fog agent for hard surface cleaners.

Features & Benefits

- Very low surface energy in agricultural chemicals
- Low surface energy in leathers
- Rapid spreading and wetting for agricultural chemicals
- Highly efficient wetting agent for leathers
- Use below 1% for leathers
- Offers long-lasting water sheeting, anti-rain and anti-fog properties to hard surface care cleaners

Composition

- Low viscosity silicone polyether liquid

Applications

- To enhance the performance of agricultural chemicals, especially water-soluble broadleaf herbicides, insecticides, fungicides and plant growth regulators
- Wetting agent for synthetic leather manufacture. It wets the release paper to obtain a perfect replica of the embossment in transfer coating
- Prevents crater formation in aqueous coatings when the substrate has a low surface tension.
- In glass cleaners, depending on the formulation structure, it can provide excellent water sheeting, anti-rain and anti-fog properties for home and care as industrial and institutional formulations.

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Test	Unit	Result
Appearance		Clear, amber - colored fluid
Viscosity at 25°C (77°F)	cSt	40
Flash point, closed cup	°C (°F)	> 100 (> 212)
Solids	%	100

Description

Leather Applications

XIAMETER™ OFX-5211 Fluid is a low viscosity, non-ionic poly-oxyethylene-modified polydimethyl-siloxane, more commonly referred to as silicone glycol copolymer. This product has been designed with a specific silicone to glycol ratio to afford a range of performance characteristics.

Description (Cont.)

Leather Applications (Cont.)

XIAMETER™ OFX-5211 Fluid is a highly efficient, low surface energy surfactant. This low surface energy can be achieved utilizing concentrations of the superwetting agent as low as 0.01 percent by weight.

Agricultural Applications

XIAMETER™ OFX-5211 Fluid is a low molecular weight nonionic silicone polyether surfactant, developed to improve the wetting, spreading and penetration of agricultural chemicals. It may be used as a formulation ingredient in pesticide products, or as a tank-mix adjuvant¹ for foliar applied chemicals.

Home Care & Industrial and Institutional Applications

XIAMETER™ OFX-5211 Fluid is a low molecular weight non-ionic silicone polyether liquid. It has a very low molecular weight which allows it to wet and spread easily on a surface even at low concentrations. Depending on the glass cleaner formulation structure, it can bring a long-lasting anti-rain, anti-fog and water sheeting effect on glasses or mirrors.

¹"Use as an adjuvant" refers to the use of this product as an additive to a pesticide for the purpose of enhancing the pesticide's effectiveness for wetting more of the leaf surface (delivering the pesticide to a greater surface area for increased leaf penetration) and thereby providing rainfastness.

Performance Characteristics

Agricultural Applications

XIAMETER™ OFX-5211 Fluid reduces the surface tension of aqueous agricultural mixtures significantly lower than is achievable with conventional nonionic surfactants. At concentrations as low as 0.01 percent, XIAMETER™ OFX-5211 Fluid reduces surface tension below 23 dynes/cm (see Table 1), which produces very rapid wetting and spreading on hard-to-wet surfaces such as waxy leaves. Thus, complete coverage can be achieved with herbicides, insecticides, fungicides and other agricultural chemicals.

In addition to the rapid wetting and spreading, XIAMETER™ OFX-5211 Fluid also greatly increases the uptake of chemicals into plant tissues. Adding XIAMETER™ OFX-5211 Fluid to a herbicide tank-mix may significantly enhance its efficacy, particularly in the control of broadleaf weeds with water-soluble herbicides. The rapid uptake produces "rainfastness"; i.e., herbicides are not washed off by rainfall because they have penetrated into the plant surface. Figures 1, 2, and 3 show the enhancement achieved with XIAMETER™ OFX-5211 Fluid in greenhouse tests with low rates of Roundup Classic and Blazer herbicides.

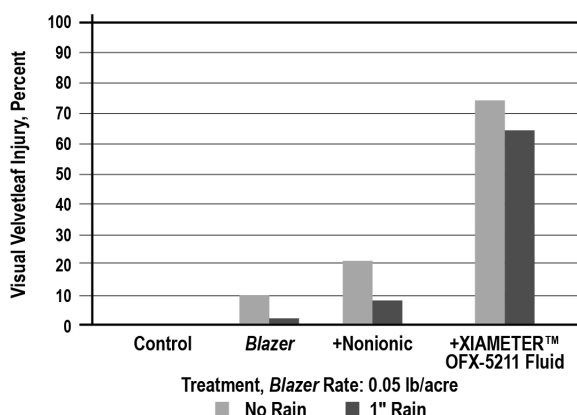


Figure 1: Effect of surfactants on activity of Blazer herbicide on velvetleaf

Performance
Characteristics
(Cont.)

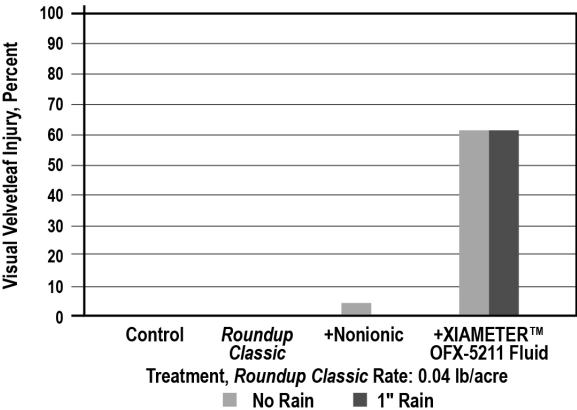


Figure 2: Effect of surfactants on activity of Roundup Classic herbicide on velvetleaf

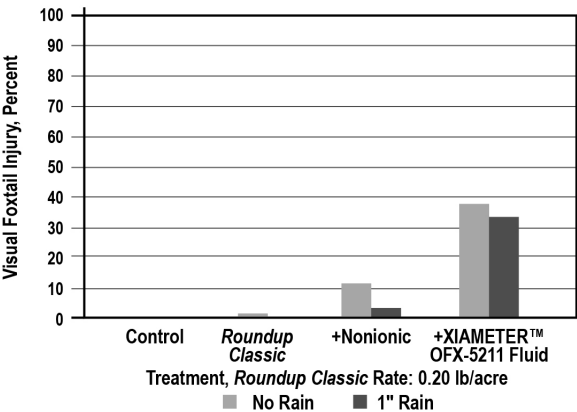


Figure 3: Effect of surfactants on activity of Roundup Classic herbicide on giant foxtail

Table 1

Performance characteristics of XIAMETER™ OFX-5211 Fluid as an agricultural chemical compared with a conventional nonionic surfactant

	XIAMETER™ OFX-5211 Fluid	Nonionic Surfactant
Equilibrium Surface Tension, dynes/cm		
1.0% in H ₂ O	20.7	Cloudy
0.1% in H ₂ O	21.1	28.7
0.01% in H ₂ O	22.7	
Dynamic Surface Tension, dynes/cm		
1.0% in H ₂ O	23.1	Cloudy
0.1% in H ₂ O	34.0	34.0
0.01% in H ₂ O	54.0	64.0

Performance Characteristics (Cont.)

Table 1 (Cont.)

	XIAMETER™ OFX-5211 Fluid	Nonionic Surfactant
Draves Wetting Time, on cotton, seconds		
0.5% in H ₂ O at 25°C (77°F)	3.0	
0.1% in H ₂ O at 25°C (77°F)	8.7	1.9
0.025% in H ₂ O at 25°C (77°F)	35.9	17.0
Polyethylene Wetting Radius, 0.2 mL drop, PE Surface Energy 22 dyne, cm		
1.0% in H ₂ O	1.90	0.75
0.1% in H ₂ O	1.65	0.62
0.01% in H ₂ O	0.76	0.62
Pure H ₂ O	0.30	0.30
Ross Miles Foam Height, cm		
1.0% in H ₂ O	5.4	22.5
0.1% in H ₂ O	3.6	19.0
0.01% in H ₂ O	2.1	12.4
Cloud Point		
1.0% in H ₂ O, °C (°F)	< 10 (< 50)	None

How to Use

Agricultural Chemical Formulations Applications

XIAMETER™ OFX-5211 Fluid may be used as an ingredient in formulations, provided all the ingredients are compatible.

XIAMETER™ OFX-5211 Fluid is stable in neutral aqueous formulations (pH=7), but will degrade rapidly in acidic or alkaline formulations. New product formulations should be thoroughly tested for performance and shelf stability before taking to market.

As an Agricultural Chemical Tank-Mix Adjuvant

XIAMETER™ OFX-5211 Fluid may be added to tank-mixes to enhance the biological performance of the spray solution. With herbicides, XIAMETER™ OFX-5211 Fluid should be used at 1 to 3 pints per 100 gallons of spray solution (0.125 to 0.375 percent). With insecticides and fungicides, use 3 to 16 oz per 100 gallons of spray solution. Test a small area first to ensure that crop damage does not occur. Use pesticides according to manufacturers' label recommendation.

CAUTION: Keep away from heat, sparks and open flame.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life and Storage

XIAMETER™ OFX-5211 Fluid has a usable life of 720 days.

Agricultural Applications

Product should be stored at or below 20°C–40°C (68°F–104°F) in original, unopened containers.

Leather Applications

Product should be stored at or below 20°C–40°C (68°F–104°F) in original, unopened containers.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses. Not intended for food use.

IMPORTANT NOTE: APPLICABLE LOCAL REGULATORY REQUIREMENTS MAY LIMIT THE USE OF THIS MATERIAL IN SPECIFIC APPLICATIONS, INCLUDING AGRICULTURAL. IT IS THE USER'S SOLE RESPONSIBILITY TO CONFIRM THAT ITS PRODUCT USE COMPLIES WITH ALL LOCAL, STATE (PROVINCIAL), AND COUNTRY REGULATIONS.

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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