

SILWET* OC Adjuvant

SPECIALTY FLUIDS - AGRICULTURE



Silwet OC Adjuvant is a synergistic combination of organosilicone and nonionic surfactants for use in petroleum oils. This new product allows Ag formulators to develop potentially cost-effective adjuvant blends with petroleum oil base stocks. The addition of Silwet OC Adjuvant to petroleum oils results in excellent spreading and penetration, in addition to improved adhesion when compared to conventional petroleum oil concentrates (POC), which are also commonly referred as crop oil concentrates (COC).

Optimized petroleum COCs containing both Silwet OC Adjuvant and petroleum oil can provide additional advantages to growers. Organosilicone surfactants are well known for requiring much lower water volumes in pesticide spray applications than conventional surfactants since they provide better foliar spreading and rainfastness. They can also enhance pesticide uptake.

Key Features and Typical Benefits

- Excellent spreading to enable lower spray volumes and related application costs
- Lower dynamic surface tension for better foliar adhesion and pesticide efficacy
- Mixes readily with a variety of petroleum oils
- Easy to disperse in water and tank mix applications
- Equivalent efficacy at lower use rates than commercial petroleum oils

Typical Physical Properties

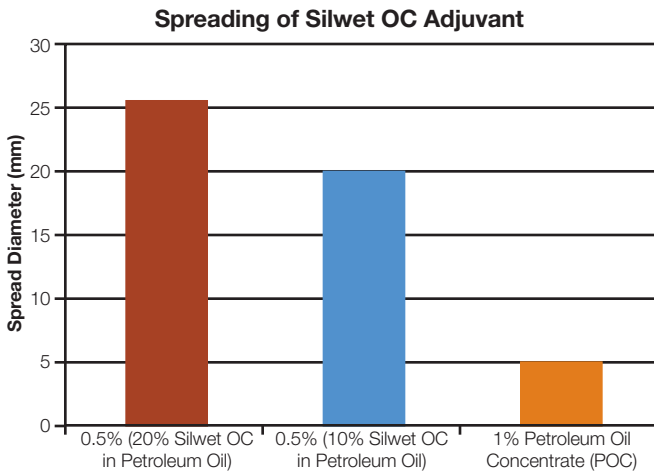
Property	Average Value
Appearance	Clear liquid
Color	Colorless
HACH Number	0.4 - 2 NTU
Viscosity @ 25 °C (#1 spindle @ 50 rpm)	17 - 24 cP
pH of a 10% aqueous solution, (25 °C)	6 - 8
Density (g/cc @ 22 °C)	0.91
Pour Point	0 °C
Spread Diameter (0.2% solution)	25 - 30 mm

Typical properties are average data and are not to be used as or to develop specifications.

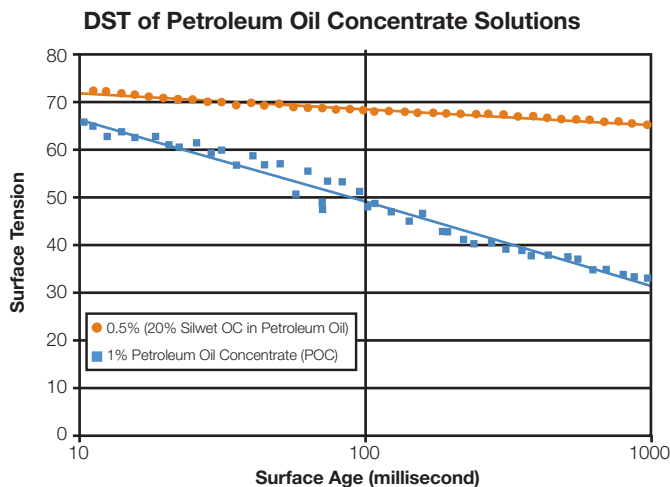
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Performance

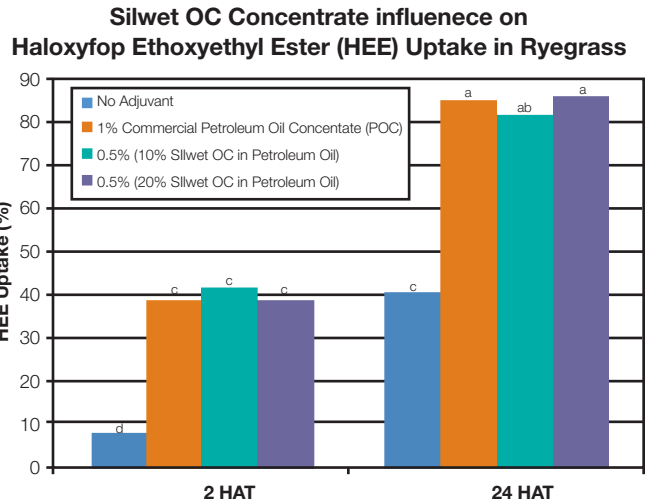
The spreading performance of 20:80 and 10:90 blends of Silwet* OC Adjuvant and a standard petroleum oil were compared to that of a conventional POC. The Silwet OC Adjuvant blends were evaluated at concentrations of 0.5% and compared to a 1.0% solution of a conventional POC. The results are shown in the figure below. It can be seen that the blends of Silwet OC Adjuvant and petroleum oil gave much better spreading than the conventional petroleum oil concentrate used at twice the concentration.



The dynamic surface tension of a blend of Silwet OC Adjuvant and petroleum oil were compared with that of a conventional POC. It can be seen in the figure below that a 0.5% use rate of Silwet OC Adjuvant in petroleum oil had a significantly lower dynamic surface tension than the higher 1% recommended rate of a conventional POC. Therefore, petroleum oils containing Silwet OC Adjuvant may exhibit improved foliar adhesion compared to conventional POCs used at higher rates.



The effect of Silwet OC Adjuvant on the uptake of the haloxyfop ethoxyethyl ester (HEE) herbicide into perennial ryegrass foliage was measured 2 hours and 24 hours after treatment (HAT). It can be seen from the following data that the blends of the Silwet OC Adjuvants provided at least equivalent amounts of herbicide uptake at half the 1% recommended use rates of a commercial



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General Considerations for Use

Silwet OC Adjuvant was developed to be used as the surfactant component of petroleum oil adjuvants. It can be added directly to the oil to provide better spreading and foliar adhesion, which may result in lowering overall petroleum use rates in spray applications. Formulations may contain 10-20% of the Silwet OC Adjuvant depending on the desired degree of spreading and the economics of the spray treatment. Typical recommended starting dose levels are shown in the following table.

Typical Recommended Dosage Levels for Silwet OC Adjuvant/Petroleum Oil Formulations

Dosage Ranges Based on POC Concentration			
Formulation	Concentration (wt%)	Spray Volume (L/ha)	Notes
Silwet OC Adjuvant / Oil (10/90)	0.5 - 1.0	100 - 200	Hard to wet crops(1)
	0.25 - 0.75	100 - 300	Easy to wet crops(2)
Silwet OC Adjuvant / Oil (20/80)	0.5	100 - 200	Hard to wet crops
	0.25	100 - 300	Easy to wet crops
Dosage Ranges in Liters of POC per Hectare			
Formulation	Dosage (L/ha)	Spray Volume (L/ha)	Notes
Silwet OC Adjuvant / Oil (10/90)	0.5 - 2.0	100 - 200	Hard to wet crops(1)
	0.25 - 2.3	100 - 300	Easy to wet crops(2)
Silwet OC Adjuvant / Oil (20/80)	0.5 - 1.0	100 - 200	Hard to wet crops
	0.25 - 0.75	100 - 300	Easy to wet crops

(1): e.g. canola, most grasses and cereals

(2): e.g. apple, soy, variegated thistle

If very nonpolar petroleum oils are being used, or low concentrations of Silwet OC Adjuvant in the petroleum oil are desired, it may be necessary to add 1-3% by weight of a fatty alcohol as a coupler.

Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Product Safety, Handling and Storage

Customers should review the latest Material Safety Data Sheet (MSDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. MSDS are available at www.momentive.com or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

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