

Silwet* 806 Spray Adjuvant



MARKETING BULLETIN

SPECIALTY FLUIDS - AGRICULTURE

Silwet 806 spray adjuvant is a superspreading surfactant based on a trisiloxane alkoxyolate. Silwet 806 spray adjuvant can help lower the surface tension of spray solutions, beyond that which is achievable with conventional adjuvants.

Typically, Silwet 806 spray adjuvant (at 0.1 wt %) gives an aqueous surface tension of ~22 mN/m. On the other hand, an octylphenol ethoxylate containing 10 EO units (a commonly used nonionic surfactant) at 1.0 wt % gives a surface tension of only 30 mN/m.

Silwet 806 spray adjuvant can help lower the aqueous surface tension more effectively than conventional spray adjuvants.

Because Silwet 806 spray adjuvant is a superspreading surfactant, the contact angle of spray solutions on leaf surfaces is reduced, leading to an increase in spray coverage (Figure 1).

Additionally, under specific conditions, Silwet 806 spray adjuvant promotes rapid uptake of agrochemicals into plants via stomatal infiltration. Spray solutions taken into plants in this way become rainfast, thereby improving application reliability.

The low foam properties of Silwet 806 spray adjuvant may make it easier to handle than other organosilicone based spreading agents (Figure 2).

Silwet 806 spray adjuvant is nonionic in nature, making it useful with a broad range of agrochemical formulations.

Key Features and Typical Benefits

- Superspreader
- Can help improve rainfastness
- Can help promote rapid uptake of agrochemicals
- Can help promote spray volume reduction
- Low pour point for low temperature applications
- Low foaming
- Nonionic
- Meets EPA 40 CFR §180.910 requirements⁽¹⁾

Typical Physical Properties

Property	Result
Surface Tension (0.1%, mN/m) ^(a)	21.5
Cloud Point (0.1 wt%), °C	< 10
Critical Micelle Concentration (wt%)	0.003
Pour Point, °C	-30
Viscosity (cSt at 25 °C)	35
Specific Gravity at 25 °C	1.002
Flash Point ^(b) °C	143

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

(1) The components meet the requirements of U.S. EPA regulation 40 CFR §180.910, and are therefore exempt from tolerances in food when used as an inert ingredient in agricultural applications in accordance with the other conditions of that regulation.

(a) Surface Tension by Wilhelmy Plate Method

(b) Pensky-Martens Closed Cup, ASTM Method D93.

*Silwet is a trademark of Momentive Performance Materials Inc.

Potential Applications

In Agrochemical Formulations

Silwet 806 spray adjuvant may be used as a component in agrochemical formulations. Although organosilicone surfactants are subject to hydrolysis under acidic or basic conditions, optimum performance is achieved by buffering the formulation to pH 6.5 -7.5. Additionally, it is recommended that Silwet 806 spray adjuvant is used at a concentration of at least 5%, based on the total formulation.

As A Tank Mix Adjuvant

Silwet 806 spray adjuvant, when used as a tank-side adjuvant may be used to improve spray coverage, improve uptake or to allow for a reduction in spray volume. Silwet 806 spray adjuvant is most effective as a tank-side adjuvant when spray mixtures are 1) within a pH range of 5-8, and 2) used within 24 hours of preparation.

High spray volumes, coupled with high surfactant rates, are not required to achieve sufficient coverage with Silwet 806 spray adjuvant. In fact, Silwet 806 spray adjuvant may provide adequate coverage in many low volume spray applications at rates between 0.025% and 0.1%.

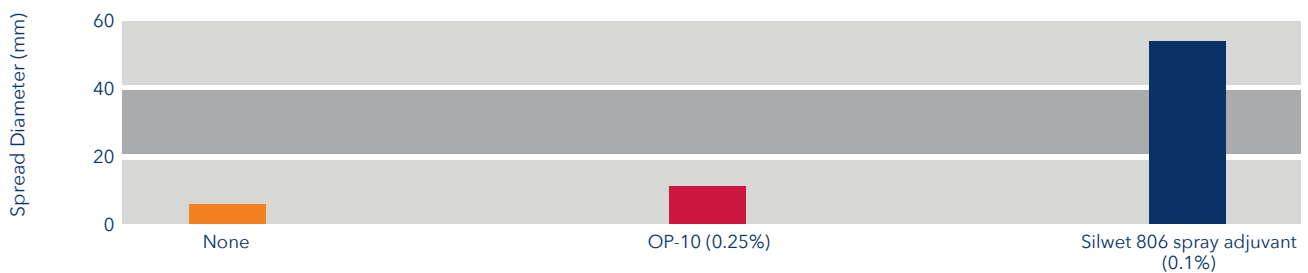
Potential Applications

Silwet 806 spray adjuvant has been used successfully in spray applications globally. Typical applications include:

Application	Typical Use Rate ^(a)
Plant Growth Regulators	0.025% to 0.05%
Herbicide	0.025% to 0.15%
Insecticide	0.025% to 0.1%
Fungicide	0.015% to 0.05%
Fertilizers and Micronutrients	0.015% to 0.1%

Figure 1: Spreading

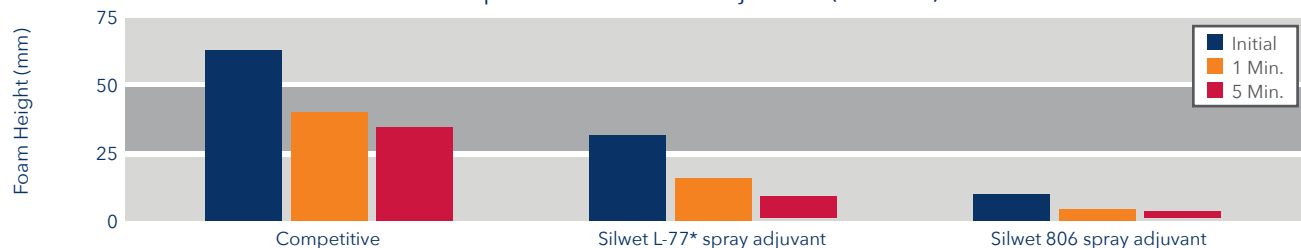
Effect of Adjuvant on Spreading Properties of Spray Solutions



Spreading on polyacetate film; OP-10 = Octylphenol Ethoxylate, 10 EO.
 Note: Test data. Actual results may vary.

Figure 2: Foam Properties

Foam Properties of Silicone Adjuvants (0.1 wt%)



Note: Test data. Actual results may vary.

Patent Status

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