



# Silwet\* L-77

## Description

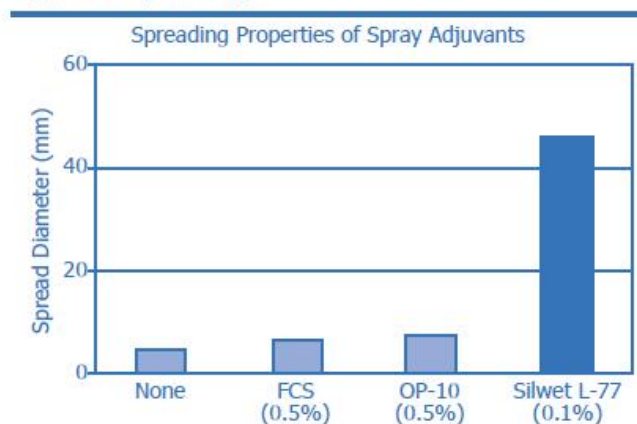
Silwet L-77 spray adjuvant is a superspreading surfactant based on a trisiloxane ethoxylate. Silwet L-77 spray adjuvant lowers the surface tension of spray solutions, beyond that which is achievable with conventional adjuvants.

Typically, Silwet L-77 spray adjuvant (@ 0.1 wt %) gives an aqueous surface tension of 20.5 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.

The bottom line? Silwet L-77 spray adjuvant helps lower the aqueous surface tension more effectively than conventional spray adjuvants.

Because Silwet L-77 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).

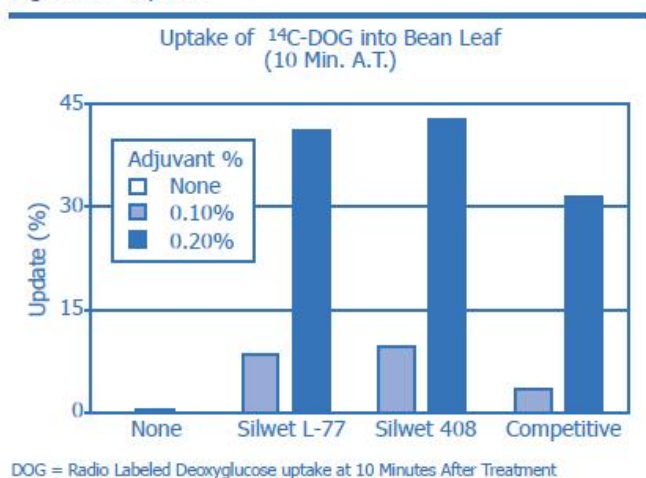
**Figure 1: Spreading**



FCS = Fluorocarbon surfactant; OP-10 = Octylphenol Ethoxylate, 10EO.

Additionally, under specific conditions, Silwet L-77 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 (Figure 2).

Figure 2: Uptake



Silwet L-77 spray adjuvant is nonionic in nature, making it useful with a broad range of agrochemical formulations.

### Key Features and Benefits

- Superspreader
- Promotes spray volume reduction
- Promotes rapid uptake of agrochemicals (rainfastness)
- Improves spray coverage
- Nonionic
- Meets requirements of EPA 40CFR§180.910

### Typical Physical Properties

Surface Tension (0.1%, mN/m) <sup>(a)</sup>	20.5
Cloud Point (0.1 wt%), °C	<10
Viscosity, cPs @ 25°C	20
Specific Gravity @ 25/25°C	1.007
Flash Point, <sup>(b)</sup> °C	116

(a) Surface Tension by Wilhelmy Plate Method.

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

### Potential Applications

Silwet L-77 spray adjuvant has been used successfully in spray applications globally. Typical applications include:

Application	Typical Use Rate <sup>(a)</sup>
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%

(a) Note: use rates are dependent on crop, agrochemical and spray volume requirements.

## Product Usage

### In Agrochemical Formulations

Silwet L-77 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 L-77 spray adjuvant be used at a concentration of at least 5%, based on the total formulation.

### As A Tank Mix Adjuvant

Silwet L-77 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 L-77 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 L-77 spray adjuvant. In fact, Silwet L-77 spray adjuvant may provide adequate coverage in many low volume spray applications at rates between 0.025% and 0.1%.

## Patent Status

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

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