Silwet* 618
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Description
Silwet 618 spray adjuvant is a proprietary trisiloxane alkoxylate based wetting agent, used where spray coverage is needed but rapid uptake of agrochemicals is undesirable.

Silwet 618 spray adjuvant lowers the surface tension of spray solutions, beyond that which is achievable with conventional adjuvants.

Because Silwet 618 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, Silwet 618 spray adjuvant may help improve spray droplet adhesion of agrochemicals on plant foliage, thus potentially allowing reduction in spray volume. Since more of the spray is delivered to the target, less water is required to cover a given leaf surface (Figure 2).

**Figure 1: Spreading**

![Spread Profile for Spray Adjuvants](image)

**Figure 2: Droplet Adhesion**

![Influence of Adjuvant on Droplet Adhesion on Canola Leaf](image)
Spray droplet adhesion was measured on the upper surface of canola leaf, using 750 µ droplets, applied from a free-fall distance of 50 cm. The leaf was positioned at a 22° angle of incidence. Figure 2 illustrates the improved droplet adhesion for Silwet 618 spray adjuvant as compared to a conventional adjuvant.

Silwet 618 spray adjuvant is nonionic in nature, making it useful with a broad range of agrochemical formulations.

Use level depends on spray volume, spray equipment and agrochemical application. Typical use rates for Silwet 618 spray adjuvant range from 0.01 to 0.05% for insecticide and fungicide applications and from 0.025 to 0.1% for herbicide applications.

Key Features and Benefits

- Superspreader
- Promotes spray volume reduction
- Improves spray coverage
- Nonionic
- Meets requirements of EPA 40CFR§180.910

Typical Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Tension (0.1%, mN/m)</td>
<td>23</td>
</tr>
<tr>
<td>Cloud Point (0.1 wt%), °C</td>
<td>49</td>
</tr>
<tr>
<td>Viscosity (cSt @ 25°C)</td>
<td>112</td>
</tr>
<tr>
<td>Specific Gravity (25/25°C)</td>
<td>1.0102</td>
</tr>
<tr>
<td>Flash Point (°C (°F))</td>
<td>165 (330)</td>
</tr>
</tbody>
</table>

(a) Surface Tension by Wilhelmy Plate Method.
(b) Pensky-Martens Closed Cup, ASTM Method D93

Product Usage

In Agrochemical Formulations

Silwet 618 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 618 spray adjuvant be used at a concentration of at least 5%, based on the total formulation.

As A Tank Mix Adjuvant
Silwet 618 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 618 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 618 spray adjuvant. In fact, Silwet 618 spray adjuvant has the potential to 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 the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

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