

Silwet™ HS-312

Silwet* HS-312

Description

Silwet HS-312 spreader is a new, hydrolytically stable silicone with a broad pH stability range allowing formulators many options to incorporate it as a cost-effective adjuvant in many in-can pesticide products.

Silwet HS-312 spreader is an excellent candidate to consider for superb spreading performance and extended stability in water-based formulations between pH 3 to pH 12. This product offers excellent performance as a spreader, relative to commercial surfactants, for the effective delivery of many in-can pesticides with lower spray application rates. In addition, Silwet HS-312 spreader is used at much lower rates compared to conventional surfactant adjuvants.

Silwet HS-312 spreader is compatible with many agrochemical components and can therefore be dispersed into water-based agricultural formulations yielding products with excellent storage stability.

Key Features and Benefits

- 4-10X more surface spreading than surfactant adjuvants
- Improves spray coverage on crops
- Promotes spray volume reduction
- Compatible with Ag formulations
- Excellent stability with Ag formulations between pH 3-12

Typical Physical Properties

Appearance	Yellow to amber liquid
Surface Tension, mN/m (0.1 wt%) ^(a)	26.7
Spreading Diameter, mm	35
Viscosity 25°C, cps (LVT No 3, 100 rpm)	70
Cloud Point, °C	42
Specific Gravity	1.0
pH Stability	3-12

(a) Wilhelmy Plate Method; solutions prepared in 0.005M NaCl

Product Usage

Silwet HS-312 spreader is a cost-effective spreader that can be used in in-can pesticide products in the 3-12 pH range. It can be added as a component directly to such formulations to provide better spreading during spray application.

The addition levels of Silwet HS-312 spreader are dependent on the level of spreading required in the spray application of the pesticide. A recommended use rate is 5% of the total pesticide formulation, or 0.05% - 0.20% of the tank-mix mixture.

Processing Recommendations

Performance Data

Because the Silwet HS-312 spreader has very low surface tension, the contact angle of spray solutions on leaf surfaces is reduced compared to other surfactant adjuvants. This important property is shown in Figure 1 below, which illustrates Silwet HS-312 spreader having less than 5° contact angle relative to the Octylphenol Ethoxylate containing 10 EO units (OPE-10), having a 31° contact angle. It is also important to note that the lower Silwet HS-312 spreader contact angle is achieved at much lower concentrations compared to the OPE-10 surfactant concentration.

Figure 1: Contact Angles of Spreader Adjuvants



Figure 2 illustrates the excellent wetting properties of the Silwet HS-312 spreader. Compared to OPE-10 at equal concentrations, Silwet HS-312 spreader has 5 times larger spread diameter, which results in improved surface coverage during spray applications. Even at significantly lower concentrations, Silwet HS-312 spreader has better spreading performance than conventional adjuvants, which can potentially lower spray volumes during the application of pesticides to a crop.

Figure 2: Spread Diameter vs. Adjuvant Use

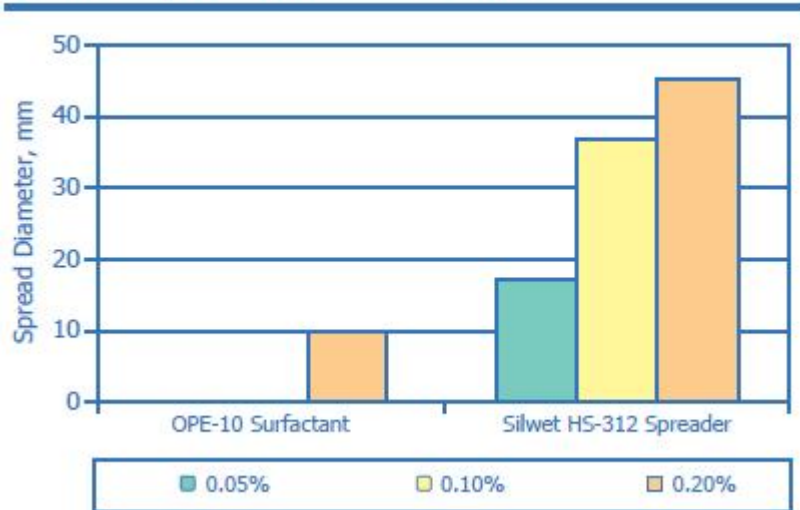


Figure 3 illustrates an improvement in efficacy of a 1% glyphosate treatment on Velvetleaf (*Abutilon theophrasti*), when using Silwet HS-312 spreader. Plants grown indoors were treated at the 2 - 4 leaf stage with 1% glyphosate, using a track sprayer at a relative spray volume of 100 L/ha. Silwet HS-312 spreader was included as an adjuvant at 0.1% rate. Rain (2.5 cm) was applied two hours after treatment. A visual assessment was made at 7 and 14 days after treatment as compared to an untreated control.



Patent Status

US and foreign Patent applications pending

Standard copy to come

Product Safety, Handling and Storage

Standard copy to come

Limitations

Standard copy to come

Contact Information

Email

commercial.services@momentive.com

Telephone

Americas	Latin America	EMEAI- Europe, Middle East, Africa & India	ASIA PACIFIC
+1 800 295 2392	Brazil	Europe	China
Toll free*	+55 11 4534 9650	+390510924300	800 820 0202
+704 805 6946	Direct Number	Direct number	Toll free
Direct Number			+86 21 3860 4892
			Direct number
*All American countries	Mexico	India, Middle East & Africa	Japan
	+52 55 2169 7670	+ 91 44 71212207	+81 3 5544 3111
	Direct Number	Direct number*	Direct number
		*All Middle Eastern countries, Africa, India,	Korea
			+82 2 6201 4600

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