

# EMULSOL K-SIL 408 Spray Adjuvant for agricultural applications

### Product Description

EMULSOL K-SIL 408 spray adjuvant is a superspreading surfactant based on a trisiloxane ethoxylate. EMULSOL K-SIL 408 spray adjuvant lowers the surface tension of spray solutions, beyond that which is achievable with conventional adjuvants.

Typically, EMULSOL K-SIL 408 spray adjuvant (@ 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.

The bottom line EMULSOL K-SIL 408 spray adjuvant helps lower the aqueous surface tension more effectively than conventional spray adjuvants.

### Key Features and Typical Benefits

- Superspreader for soluble liquid and emulsifiable concentrate formulations
- Promotes spray volume reduction
- Promotes rapid uptake of agrochemicals (rainfastness)
- Improves spray coverage
- Nonionic

### Typical Physical Properties

Property	Result
Surface Tension (0.1%, mN/m)(a)	21.5
Cloud Point (0.1 wt%), °C	<10
Viscosity (cSt @ 25°C)	35
CMC (Wt%) (b)	0.007
Pour Point, °C	- 8
Specific Gravity (25/25°C)	1.020
Flash Point(c) °C	118

(a) Surface Tension by Wilhelmy Plate Method

(b) Critical Micelle Concentration

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

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Because EMULSOL K-SIL 408 spray adjuvant is a superspreading surfactant, the contact angle of spray solutions on leaf surfaces is reduced, leading to an increase in spray coverage.

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Additionally, under specific conditions, EMULSOL K-SIL 408 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.

Unlike other trisiloxane alkoxyates, which are negatively affected by oil based components (i.e. EC formulations, spray oils, etc.), EMULSOL K-SIL 408 spray adjuvant provides enhanced spreading in many of these types of formulations relative to competitive organo silicone based adjuvants.

EMULSOL K-SIL 408 spray adjuvant is non ionic in nature, making it useful with a broad range of agrochemical formulations.

## How to Use

### In Agrochemical Formulations

EMULSOL K-SIL 408 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 EMULSOL K-SIL 408 spray adjuvant be used at a concentration of at least 5%, based on the total formulation.

### As A Tank Mix Adjuvant

EMULSOL K-SIL 408 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. EMULSOL K-SIL 408 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 EMULSOL K-SIL 408 spray adjuvant. In fact, EMULSOL K-SIL 408 spray adjuvant has the potential to provide adequate coverage in many low volume spray applications at rates between 0.025% and 0.1%.

### Potential Applications

EMULSOL K-SIL 408 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 %

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

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## **Product Safety**

When considering the use of any of KAISER - Silicones products in a particular application, you should review our latest Material Safety Data Sheets and undertake appropriate testing to ensure that your intended use can be accomplished safely. For Material Safety Data Sheets and other product safety information, contact the KAISER sales office nearest you. Before handling any of the products mentioned in the text, please obtain available product safety information and take necessary steps to ensure safety of use.

## **Product Safety, Handling and Storage**

Customers considering the use of this product should review the latest Material Safety Data Sheet and label for product Safety information, handling instructions, personal protective equipment if necessary, and any special storage conditions required. Material Safety Data Sheets are available at [www.kaiserindustries.com](http://www.kaiserindustries.com) or, upon request, from any KAISER Performance Materials representative. Use of other materials in conjunction with KAISER Performance Materials products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials. 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.

## **Limitations**

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