

ELEMENTIS

SUPREAD™ 3410

A low-foaming silicone-based wetting agent

Key benefits

- Excellent substrate wetting
- Reduced static surface tension
- Low foaming
- Good compatibility and long-term performance
- Maintained blocking resistance

A growing need for effective, low-foaming wetting agents

As industrial coating manufacturers transition from solvent-based to water-based systems to meet strict VOC reduction regulations, effective additives are becoming increasingly important. In particular, because water-based systems often have a higher surface tension, many coating manufacturers must use wetting agents. By reducing surface tension in the top layer of the liquid, these wetting agents help coatings to spread more evenly.

Silicone-based wetting agents are particularly effective, since they can reduce surface tension more easily than silicone-free wetting agents. This is particularly important for wetting on porous substrates like wood. However, some silicone wetting agents can cause foaming issues. And, as many coating manufacturers will know, low foaming is often as important as good wetting – particularly since non-compatible defoamers can cause cratering.

How does surface tension affect wetting?

In coatings, equilibrium surface tension refers to the stable surface tension achieved by a liquid coating once it has been applied to, and settled on, a surface. Equilibrium surface tension determines how effectively the liquid will ‘wet’ or spread over the surface. In turn, this influences properties such as adhesion and coverage. Lower equilibrium surface tension generally indicates better wetting and spreading properties, especially on porous surfaces like wood.



SUPREAD™ 3410: Specially designed to reduce surface tension

Our Elementis scientists created SUPREAD™ 3410 to address these needs. SUPREAD™ 3410 is a silicone-based wetting agent with a unique branch structure and precise hydrophilic control. This design reduces surface tension and enables control of liquid-gas and liquid-solid adsorption. In this way, SUPREAD™ 3410 effectively manages the surface tension and interactions between a surface and its coating.

SUPREAD™ 3410's low surface tension allows for efficient droplet formation during spraying. It lowers equilibrium surface tension enough to improve a coating's ability to spread over surfaces and reduce stickiness. At the same time, SUPREAD™ 3410's gemini molecular structure also prevents foam stability. Together, these features enable excellent wetting, alongside controllable low-foaming and anti-cratering properties. SUPREAD™ 3410 is especially effective on wood and other porous substrates, but it can also be used on plastic and in other industrial applications.

SUPREAD™ 3410 also offers environmental benefits: it can reduce emissions of volatile organic compounds (VOCs) and replace per- and polyfluoroalkyl substances (PFAS).

Chemical & physical properties

- Composition: Specially designed multi-functional branch-modified silicone blend
- Appearance: Amber, clear-to-hazy liquid
- Active content: >90%
- Brookfield viscosity: 200-800 cP (25 °C)
- Storage: Between 4-40 °C (40-100 °F). Avoid placing in direct sunlight.

Tested performance properties

To validate SUPREAD™ 3410's performance, we tested several of its key properties. An overview of the outcomes from these tests is below.

Substrate wetting

Across seven wetting tests, SUPREAD™ 3410 delivered:

- Good wetting ability, including at a low contact angle and on wood, polypropylene, and iron
- Fewer defects than other wetting agents when tested in a clear basecoat on polypropylene
- Fewer visible wood grains than other wetting agents when tested in a semi-gloss paint on wood

Gloss

Across three tests, SUPREAD™ 3410 demonstrated:

- High gloss levels when tested in a clear basecoat
- Good gloss levels when tested in a protective basecoat
- Comparable gloss levels to other wetting agents when tested in a semi-gloss paint

Static surface tension

In our static surface tension test, SUPREAD™ 3410 delivered:

- Effective surface-tension reduction in a water solution

Foaming

In our low-foaming tests, SUPREAD™ 3410 showed:

- Low foaming behavior, particularly in clear coats on wood and semi-gloss paint
- Good defoaming properties

Compatibility and long-term performance

In our anti-crater tests, SUPREAD™ 3410 demonstrated:

- Excellent wetting and compatibility on contaminated surfaces and in systems overdosed with defoamers
- Excellent cratering resistance on contaminated surfaces
- Better leveling than other wetting agents on contaminated surfaces

Blocking resistance

When tested in a gloss paint based on ALBERDINGK® AC 3630, all wetting agents demonstrated:

- No impact on stack blocking resistance
- No recoatability issues

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Unique chemistry,
sustainable solutions