



Technical Data Sheet

DOWSIL™ 402 LS Additive

Description

DOWSIL™ 402 LS Additive is a silicone polyether based additive that has multi-functional benefits including improvements in leveling, slip, anti-blocking, and applied hiding. System compatibility includes both waterborne and radiation curable coatings for industrial, architectural, ink, and overprint varnish applications.

Features & Benefits

- Improved flow and leveling
- Improved applied hiding
- Reduced coefficient of friction
- Blocking resistance up to 40°C
- Effective at low addition levels
- Good compatibility with waterborne acrylics

Composition

- Effective at low addition levels
- Good compatibility 100% Silicone Polyether copolymer
- BTX free
- Solventless

Applications

- Architectural
- Industrial metal and wood
- Inks and overprint varnish
- Pigmented and clear formulations

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Test ¹	Property	Unit	Result
CTM0176B	Appearance	Pass minimum	Clear to hazy liquid
CTM0004B	Viscosity (25°C)	mm ² /s	280 to 400

1. CTM: Corporate Test Method, copies of CTMs are available on request.

How to Use

Effective at low concentrations, DOWSIL 402 LS Additive is recommended to use at approximately 0.1 to 1.0% as supplied, based on the total formulation (amount required depends on the type of formulation). A low viscosity liquid, it can be added and incorporated easily during the letdown stage of the process. This 100% silicone polyether copolymer allows high shear stability and flexibility in the order of addition in the paint process. DOWSIL 402 LS Additive may solidify if exposed to freezing conditions (< 10°C). Solidified product can be melted and mixed to reverse solidification.

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Flow and Leveling

Performance Properties

As its primary function, DOWSIL 402 LS Additive brings good flow and leveling to waterborne and radiation cure formulations. Figure 1 demonstrates performance in a range of interior and exterior waterborne acrylic architectural formulations.

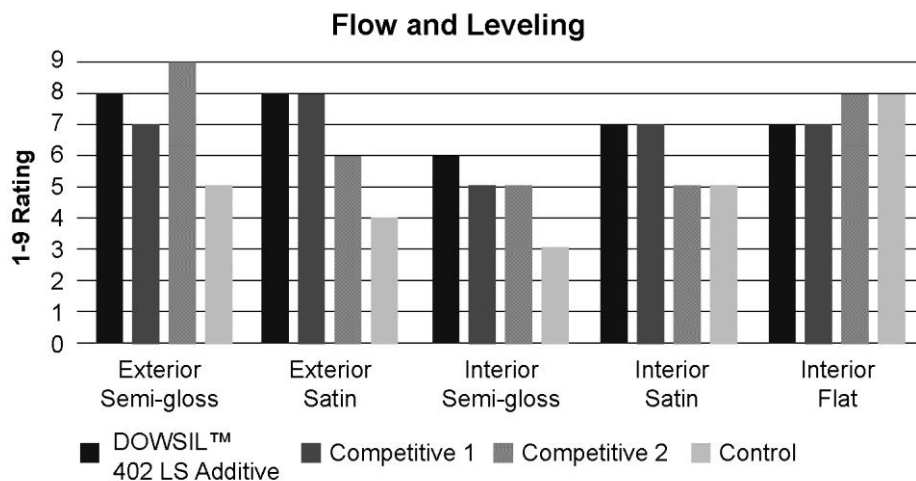


Figure 1: DOWSIL 402 LS Additive versus competitive additives. (~7 lbs/100gal).

Figure 2 shows the improved smoothness of an exterior semi-gloss formulation that has been applied with a brush.



Figure 2

Slip Performance

DOWSIL 402 LS Additive can be used to improve slip by reducing the coefficient of friction (CoF), as demonstrated in a waterborne urethane emulsion paint (Figure 3).

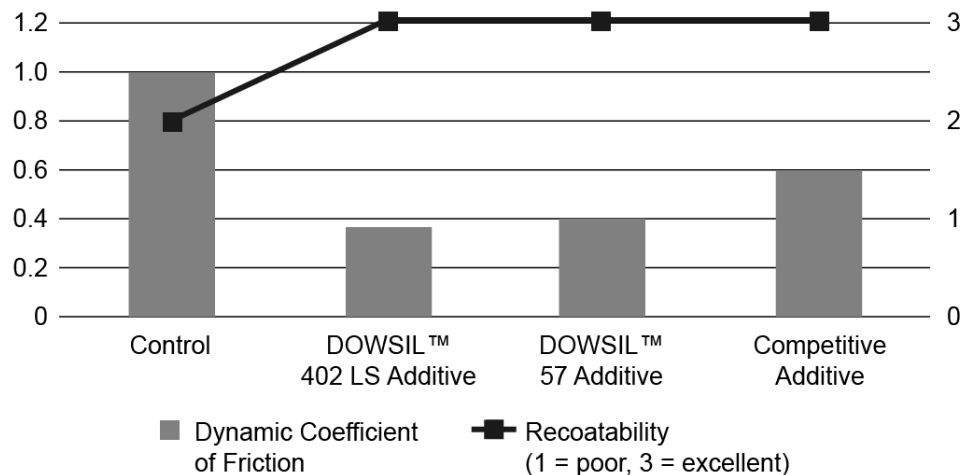


Figure 3

The coefficient of friction and recoatability of a waterborne, urethane emulsion paint with the addition of DOWSIL 402 LS Additive versus competitive additives is shown in Figure 3. Additives were added at 0.2 weight percent in the total formulation. The best coefficient of friction performance is seen with DOWSIL 402 LS Additive, with no negative impact on recoatability.

Applied Hiding Properties

DOWSIL 402 LS Additive can reduce the surface roughness imparted by the application process. The improved surface pattern and reduction in non-uniformity can result in improved applied hiding.

The improvement in applied hiding is shown in Figure 4. The application chart reflects an acrylic based exterior satin containing 7 lbs/100 gallons DOWSIL 402 LS Additive applied with a roller.

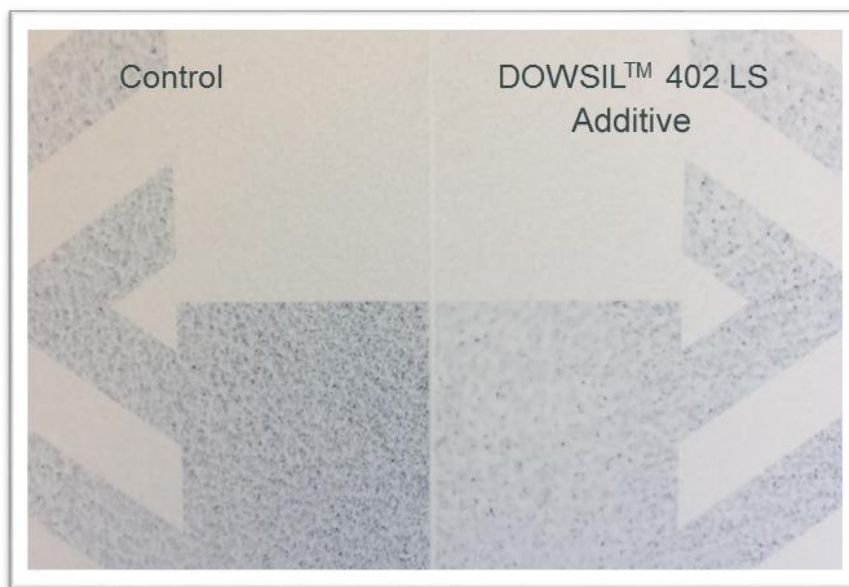


Figure 4

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Blocking Resistance

DOWSIL 402 LS Additive offers a fluoro free option to improve blocking resistance. A minimum of 0.5% of the formulation by weight is recommended for improved blocking.

Figure 5 compares the blocking performance of DOWSIL 402 LS Additive to competitive fluoro based additives in a tinted acrylic clear. Blocking evaluations were based on an exposure of a 5 cm² sample set to 500 grams for 30 minutes. Ratings were based on a 1–10 scale, with 10 indicating no tack/block.

Duration	Temperature	Control	Fluoro #1	Fluoro #2	DOWSIL 402 LS Additive
1 day dry	23	5.5	4.5	4.5	8
7 day dry	23	7.5	8	7.5	8.5
1 day dry	40	Peeled	Peeled	Peeled	8
7 day dry	40	6.5	7.5	7	8.5

Figure 5

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT WWW.CONSUMER.DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

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