



## DOWSIL™ 29 Additive

Carbinol functional silicone glycol surfactant used to provide leveling and wetting and improve gloss

### Features & Benefits

- Paste
- Enhances flow, leveling and gloss
- Compatible with acrylic, epoxy, polyesters and urethane systems
- Can prevent pigment flotation

### Composition

- Reactive silicone glycol surfactant with carbinol functionality
- ABA copolymer

### Applications

DOWSIL™ 29 Additive has been successful in these industrial applications<sup>1</sup>:

To improve leveling and wetting:

- Ink: Solvent-based flexographic ink  
Water-based letterpress ink at 0.2–0.5%
- Coating: Solvent-based coil coating  
Solvent-based overprint varnish

To provide gloss:

- Coating: Solvent-based coil coating

<sup>1</sup>All usage levels are weight percents based on the total formulation.

### Typical Properties

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

Property	Unit	Result
Specific Gravity at 25°C (77°F)		1.04
Flash Point, Closed Cup	°C (°F)	67 (153)
Viscosity at 25°C (77°F)	cs	310
Glycol Type		Polyethylene oxide
Number of OH Sites/Molecule		2
Suitable Diluents		Water, alcohols, toluene, methylene chloride

## How to Use

DOWSIL™ 29 Additive is effective at low concentrations. The amount required depends on the type of formulation, the solvent it contains, resin system and total system solids. DOWSIL™ 29 Additive is generally effective at concentrations typically ranging from 0.2–1.0 weight percent, based upon total formulation. This additive can be added during the grind, let down or be post-added. Characteristics may vary when used with different systems and formulations. DOWSIL™ 29 Additive is compatible with acrylic, epoxy, polyesters, and urethane systems. Thorough preproduction testing is necessary to ensure expected performance.

## Results of Ultraviolet Overprint Varnish Studies

This data is based on laboratory studies. The control in both of these studies consisted of the formulation with no additives added.

In Formulation 1, DOWSIL™ 29 Additive increased the mar resistance over the control by 18 percent. The 20° gloss of the overprint varnish was not compromised to provide increased mar resistance.

In Formulation 2, DOWSIL™ 29 Additive provided a 76.6 percent increase in the distinction of image (DOI) thus indicating an improvement in appearance of the automotive topcoat.

**Table 1:** Test Conditions

Formulation 1		Formulation 2		Result
Ingredient	Percent	Ingredient	Percent	
Eb-584	54.7	Joncryl 500		58
HDODA	18.2	Cymel 303		20
Eb-4827	18.2	Butanol		8
Eb-P115	4.6	Methyl Amyl Ketone		12.9
Irgacure 500	4.3	Nacure 2500		1.1

## Formulations

DOWSIL™ 29 Additive was tested in an ultraviolet overprint varnish and solvent-based automotive topcoat. Formulation 1 consisted of a diacrylate, an aromatic urethane diacrylate and a chlorinated polyester with DOWSIL™ 29 Additive added to the formulation at 0.5% based on total formulation at 1200 rpm. Formulation 2 consisted of a solvent-based acrylic melamine system with DOWSIL™ 29 Additive added to the formulation at 600 ppm at 1000 rpm.

## Samples

Formulation 1 – Drawn down on an N2C Lenetta chart using a #3 wire wound rod.

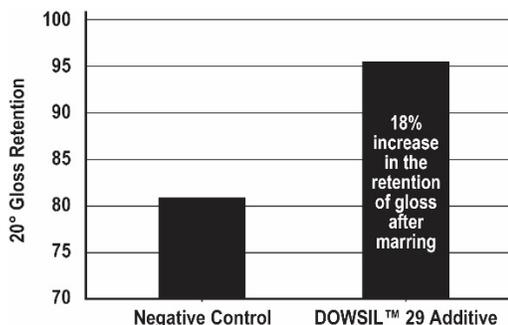
Formulation 2 – Sprayed using a siphon spray gun onto an ACT cold roll steel panel with a wet film thickness of 3–4 mils, flashed for ten minutes, and cured at 130°C (266°F) for 20–30 minutes.

## Mar Resistance

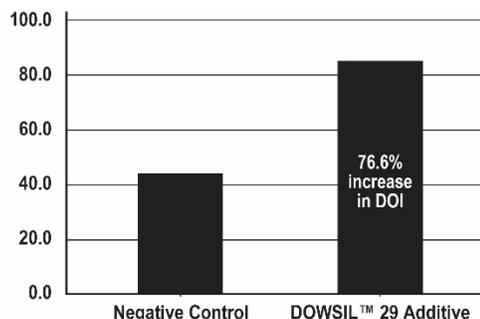
Using a Sutherland Rub Tester, the sample was marred at 100 double rubs across an uncoated NWH Lenetta chart using a four-pound weight at a rate of 42 rubs per minute. The 20° gloss readings were measured with a Micro Tri-Gloss Meter.

## Distinctness of Image

Tested using a Landolt Light box, Model GI-GB11-8GM.



**Figure 1:** Mar Resistance Performance in Formulation 1



**Figure 2:** Mar Resistance Performance in Formulation 2

## Handling Precautions

CAUTION: DIRECT CONTACT WITH EYES MAY CAUSE IRRITATION. REPEATED AND PROLONGED EXPOSURE MAY CAUSE IRRITATION TO THE SKIN

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 DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

## Usable Life and Storage

When stored above -50°C (-58°F) and below 50°C (122°F), DOWSIL™ 29 Additive has a shelf life of 30 months from manufacture. Refer to product packaging for “Use By” date.

## Packaging Information

DOWSIL™ 29 Additive is available in 16.9 fl oz (500 mL) samples; 44 lb (20 kg) pails and 441 lb (200 kg) drums.

## Shipping Limitations

Class 2 freezable product. Not damaged/avoid freeze.

**Limitations**

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

**Health and Environmental Information**

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, [dow.com](http://dow.com) or consult your local Dow representative.

**Disposal Considerations**

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

**Product Stewardship**

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

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