

## *Dow Corning*<sup>®</sup> 54 Additive

### **FEATURES**

- Provides slip, mar resistance and leveling
- Aids defoaming in some systems
- Improves gloss
- Can improve abrasion resistance, water repellency and flow-out of urethane systems
- Meets BGA recommendations after full evaporation of solvent from the final coating

### **COMPOSITION**

- Silicone glycol surfactant supplied at 100 percent active concentration

Silicone glycol copolymer provides slip, mar resistance and leveling

### **APPLICATIONS**

- Primarily for solvent-borne and high-solids systems
- Evaluated in waterborne and powder coating systems

*Dow Corning*<sup>®</sup> 54 Additive has been successful in these industrial applications<sup>1</sup>:

- To provide leveling:
  - Inks Solvent-based inkjet ink at 0.05-0.1%
  - Solvent-based screen printing ink at 0.1-0.5%
- To improve mar resistance and slip:
  - Inks Water-based screen printing ink at 1.0-2.0%

<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. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

| <b>Test</b>                     | <b>Unit</b> | <b>Result</b>           |
|---------------------------------|-------------|-------------------------|
| Appearance                      |             | Colorless, clear liquid |
| Active Component                | percent     | 100                     |
| Glycol Type                     |             | Polypropylene oxide     |
| Specific Gravity at 25°C (77°F) |             | 0.975                   |
| Flash Point, closed cup         | °C (°F)     | >101 (>214)             |
| Viscosity at 25°C (77°F)        | cs          | 149-185                 |

### **HOW TO USE**

*Dow Corning* 54 Additive is effective at low concentrations. The amount required depends on type of formulation, the solvent it contains, resin system and total system solids.

*Dow Corning* 54 Additive is generally effective at concentrations typically ranging from 0.2 to 1.0 weight percent or as low as 0.05 to 0.1 weight percent, based upon total formulation. This additive can be added during the let-down or can be post-added. Characteristics may vary when used with different systems and formulations.

*Dow Corning* 54 Additive is compatible with acrylic, alkyd, epoxy, polyesters, polyurethane and vinyl systems. Thorough preproduction testing is necessary to ensure expected performance.

### **RESULTS OF STUDIES FOR A WATER-BASED FLEXOGRAPHIC INK**

This data is based on a laboratory study. The control consisted of the formulation with no additives added. See Figures 1 and 2 for results.

Dow Corning 54 Additive provided a 97.6 percent retention in 85° gloss after marring. That was a 28.9 percent improvement in gloss retention over the control. This performance was achieved with no pinholes seen in the drawdown and a 15.3 percent improvement in the defoaming performance over the control.

**Test Conditions: Water-based Flexographic Ink**

Dow Corning 54 Additive was tested in a water-based, flexographic ink that consisted of a non-film-forming, styrene-acrylic resin for paper and paperboard. Dow Corning 54 Additive, at 0.5 weight percent, based on actives, was post-added at 1200 rpm.

**Formulation**

| <u>Ingredient</u>                       | <u>Percent</u> |
|---|----------------|
| Joncryl® 87                             | 45.5           |
| Flexiverse® Diarylide Yellow Dispersant | 52.9           |
| Water                                   | 1.6            |

**Drawdowns**

On a NWH Leneta chart using a #6 wire wound rod.

**Defoaming**

Shearing the ink at 3500 rpm for 20 minutes. The density was measured immediately after shearing and compared to the initial density. The higher the percentage retention in density, the more effective a defoamer is at eliminating the air entrapped during shearing.

**Mar Resistance**

Using the Sutherland Rub Tester, the sample was rubbed against the white portion of a N2C Leneta chart for 100 double rubs using the four-pound test block. 85 degree gloss was measured before and after the marring. The higher the percent retention in gloss, the more effective an additive is in protecting the coating/ink.

**HANDLING PRECAUTIONS**

**Caution:** Direct contact with eyes irritates slightly with redness and swelling. Single, short exposure to skin may irritate.

Product safety information required for safe use is not included. Before handling, read product and safety data sheets and container labels for safe use, physical and health hazard information. The material safety data sheet is available on the Dow Corning website at [dowcorning.com](http://dowcorning.com). You can also obtain a copy from your local Dow Corning sales representative or Distributor or by calling your local Dow Corning Global Connection.

**USE LIMITATIONS**

This product is neither tested nor represented as suitable for medical or pharmaceutical uses. Not for human injection.

**SHIPPING LIMITATIONS**

None.

**USABLE LIFE AND STORAGE**

When stored above -50°C (-58°F) and at or below 50°C (122°F), Dow Corning 54 Additive has a shelf life of 30 months from date of manufacture. Refer to product packaging for “Use By” date.

**PACKAGING INFORMATION**

Dow Corning 54 Additive is available in 500-mL (16.9-fl oz) samples, 20-kg (44.1-lb) pails, and 190-kg (419-lb) drums.

**LIMITATIONS**

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

Figure 1. Mar Resistance Performance

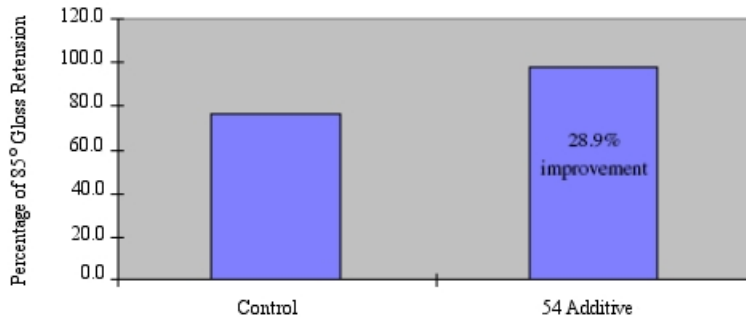
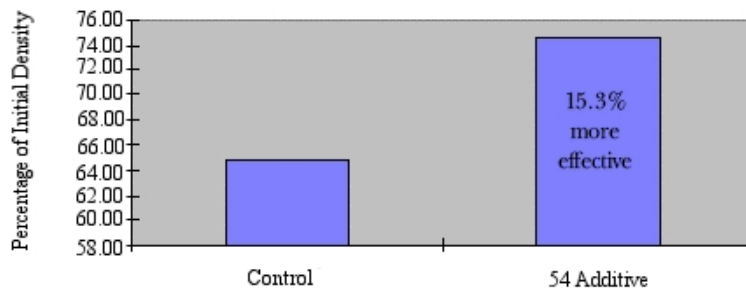


Figure 2. Defoaming Performance – Density Measured Immediately After Shearing



## **HEALTH AND ENVIRONMENTAL INFORMATION**

To support Customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

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

## **LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY**

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

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Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

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