



## Consumer Solutions

## DOWSIL™ 100F Additive for Solventborne and Solventless Radiation-Cure Coatings

**DOWSIL™**

Providing Efficient Foam Control with Good Surface Appearance, Even After Long-Term Storage

**Power Up**  
YOUR COATINGS

### Advantages of DOWSIL™ 100F Additive:

- Fluorosilicone for high-efficiency defoaming
- Effective at very low use levels
- Does not affect recoatability
- In-can stability for continued performance, even after long-term storage
- Does not cause severe surface defects in the applied coating
- Does not cause gloss change or haze in the coating finish



### Foam Control in Solventborne and Radiation-Cure Coating Formulations

Foam control is generally considered a problem of waterborne formulations. But foam generation also can cause issues during the production, filling and application of solvent-based and radiation-curable paints, inks and coatings. Defoaming of high-solids solventborne systems can be particularly difficult.

DOWSIL™ 100F Additive is a fluorosilicone defoaming agent that is effective in solvent-based and radiation-cured coating formulations, including high-

solids systems. Because it is suitable for multiple formulations, synergies in manufacturing and the supply chain can be achieved. And because it is used at very low levels, it does not affect the appearance or recoatability of the applied film. DOWSIL™ 100F Additive also provides excellent foam control, even after long-term storage in a formulated coating.

Globally available, DOWSIL™ 100F Additive can help address the foaming issues in your coatings for protective, industrial and OEM applications, as well as your solventborne inks and solvent-based and solventless UV-cure formulations.

**Table 1:** Properties of DOWSIL™ 100F Additive

Property	DOWSIL™ 100F Additive
Appearance	Clear, colorless
Solvent carrier	DIBK
Non volatile content	0.95 - 1.05%
Flash point (tag closed cup)	47°C

## Efficient Foam Control at Very Low Use Levels

The low surface tension of DOWSIL™ 100F Additive enables very efficient foam control. As a result, this new additive performs at very low concentrations, giving effective foam control at very low silicone addition levels, even in high-solids formulations. Importantly, DOWSIL™ 100F Additive improves foam control performance beyond the competitive fluorosilicone solutions available today.

Due to the low addition levels required, DOWSIL™ 100F Additive also does not cause issues with recoatability. The amount required is formulation-dependent, but DOWSIL™ 100F Additive is typically added up to 0.7% by weight (equivalent to 50 ppm fluorosilicone).

## Reliable Foam Control, Even After Long-Term Storage

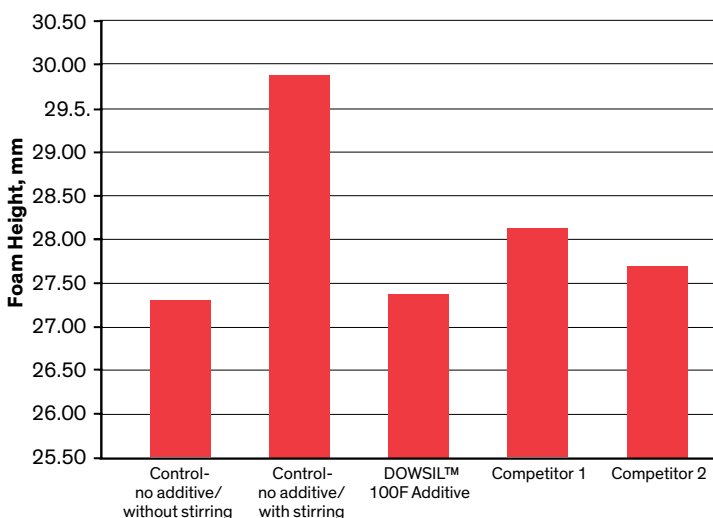
In addition to increased foam control at very low use levels, DOWSIL™ 100F Additive also provides better stability in coating formulations months after manufacturing has been completed. Its enhanced in-can stability gives long-term foaming protection for increased customer satisfaction. The increased stability applies to both solvent-based and solventless formulations.

After aging at 50°C for four weeks, good long-term foam control is still observed with DOWSIL™ 100F Additive. In a high-solids (59%) paint, DOWSIL™ 100F Additive also out performs the competitor solution for foam control.

In a white, high-solids, solvent-based coating, after storage for three months at 50°C, DOWSIL™ 100F Additive provides better long-term foam control compared to a competitor antifoam, with both lower and consistent foam height.

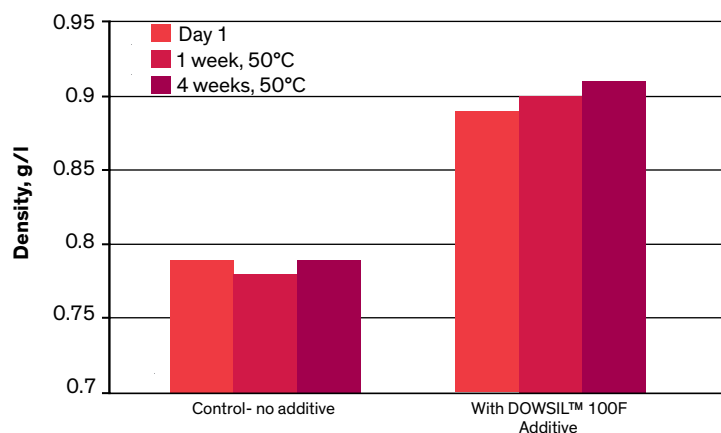
Furthermore, when stored between 0 and 32°C (32 and 90°F) in the original unopened containers, this product has a usable life of 9 months from the date of production.

**Figure A:** DOWSIL™ 100F Additive compared to competitor additives in a solventless, UV-curing acrylate varnish.



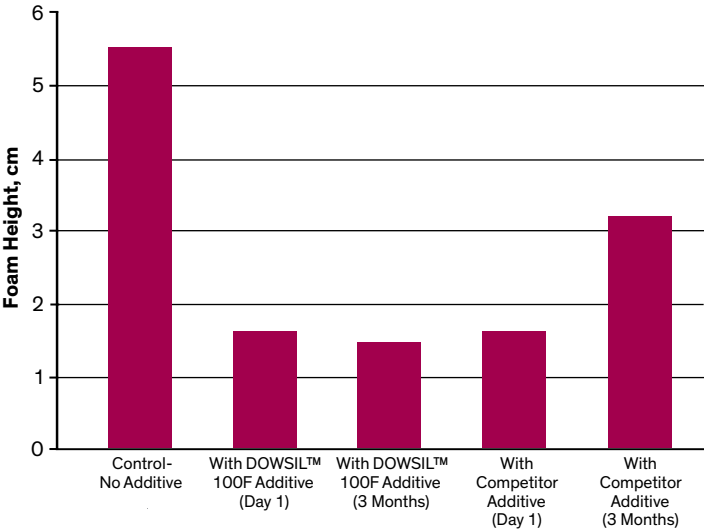
Foam height after shearing for 1 minute at 5,000 rpm using a dissolver blade.

**Figure B:** DOWSIL™ 100F Additive at 0.5 weight percent (50 ppm silicone) in a high-solids red paint.



Density (g/l) is reported after shearing 5 minutes at 2,800 rpm using a dissolver blade for un-aged and heat-aged (1 and 4 weeks at 50°C) paint.

**Figure C:** DOWSIL™ 100F Additive at 0.5 weight percent (50 ppm silicone) in a white, high-solids, solventborne paint (non-aromatic).



Foam height after shearing 1 minute at 5,000 rpm using a dissolver blade for un-aged and heat-aged (3 months/ 50°C) paint. Competitor added at 0.71% to account for actives levels.

**Effective Foam Control Without Affecting Coating Appearance**

Because DOWSIL™ 100F Additive is effective at very low addition levels, excellent foam control can be achieved without compromising the surface appearance of the coating. It shows good compatibility in solventborne and radiation-curable coatings and has a low tendency to cause craters. As a clear and colorless formulation, DOWSIL™ 100F Additive also does not affect the gloss or clarity of the coating. In addition, it can be added in the let-down stage without causing surface defects.

In a high-solids red paint, the addition of DOWSIL™ 100F Additive does not have a negative influence on the gloss or haze level of the paint, as can be seen in Table 2. The prevention of micro-bubbles and pinholes significantly improves the surface appearance after roller application.

DOWSIL™ 100F Additive provides improved foam control performance beyond that of other fluorosilicone-based products available on the market today. And because the additive is effective at very low use levels, it achieves that excellent foam control without compromising the surface appearance, even after storage.

**Table 2:** The impact on surface aesthetics of DOWSIL™ 100F Additive in a high-solids red paint is assessed by rolling down onto cardboard.

Test	Control - No Additive	With DOWSIL™ 7 Additive	With DOWSIL™ 100F Additive
20° gloss	79	78	77
60° gloss	89	89	89
Haze	37	38	36
Surface appearance with roller application	Many bubbles/pinholes; foamy	Slight orange peel	Good; few pinholes

**Table 3:** Differentiated performance of DOWSIL™ 100F Additive after long-term storage and with roller application.

Property	DOWSIL™ 100F Additive	DOWSIL™ 7 Additive	Competitor
Foam Control (day 1)	• • •	• • •	• • •
Foam Control (after storage)	• • •	• • •	•
Impact on gloss and haze	• • •	• • •	• • •
Surface appearance with roller application	• • •	•	•

• Good •• Better ••• Best



## More Than Additives

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- Antifouling
- Feel and touch
- Impact deadening
- UV resistance
- Heat and temperature resistance

## For More Information

Visit **consumer.dow.com** to learn how Dow's innovative coatings technology platforms can help you power up your product line.

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