Technical Information

SURFYNOL® DF-178 Defoamer

Description

Surfynol® DF-178 defoamer is a formulated defoamer and de-aerator that provides strong defoaming and microfoam control and is particularly effective in spray applications. It is a liquid, 100% active, silicone-based product developed specifically for applications in water-borne coatings and graphic arts that demand both powerful defoaming and defect-free surfaces. Typical physical properties of Surfynol® DF-178 defoamer are shown in Table 1.

Recommended Usage

Recommended use levels of Surfynol® DF-178 defoamer in coatings and inks vary from between 0.1 - 0.75 wt% on finished systems.

Advantages

- Strong defoaming and de-aeration plus microfoam control
- Excellent compatibility in many resin systems
- HAPs-free and alkylphenol ethoxylate-free

Typical properties

Appearance	Clear to slighty hazy, yellow liquid
pH (5% wt. % in distilled water)	6-8
Density at 21 °C	1.0 g/ml
Flash Point (Pensky Martens closed cup)	135 °C
Vapor Pressure at 21 °C	119 mPa-sec

These are typical properties only and do not represent sales or manufacturing specifications.

Applications

Surfynol® DF-178 defoamer was developed to provide the defoaming strength of a silicone-based defoamer but with the superior system compatibility needed in higher gloss and clear coat applications. As a result, the product is suitable for use in a large number of different resin systems. For polyurethane dispersion, polyurethane/acrylic hybrid, and two-component epoxy formulations, Surfynol® DF-178 defoamer should be the first choice of the formulator because it enables the production of foam-free, defect-free clear and pigmented coatings. Strong performance in two-component polyurethane, water-based alkyd, acrylic and styrene-acrylic systems has also been observed, and the product can provide excellent defoaming in pigment dispersions, flexographic news inks and flexible packaging inks.

The outstanding performance of Surfynol® DF-178 defoamer in a polyurethane dispersion-based coating formulation is shown in Table 2. While the competitive mineral oil and silicone defoamers are able to lower the foam (increase the agitated foam density) of this system, the resultant coatings contain many craters that result from poor defoamer compatibility. In contrast, the Surfynol® DF-178 defoamer is able to eliminate the foam without causing surface defects.

Defoaming Performance of Surfynol® DF-178 Defoamer in a Polyurethane Dispersion

Defoamer	Use Level	Final Coating Appearance	Agitated Density of Formulation Immediately After Preparation (g/mL)	Agitated Density of Formulation After Aging for 7 Days at 50 °C (g/mL)
None	–	Many bubbles	0.80	0.80
Competitive Mineral Oil Defoamer	**0.5%**	Numerous craters	0.89	0.90
Competitive Silicone Defoamer	**0.3%**	Numerous craters	0.99	0.99
Surfynol® DF-178 Defoamer	**0.5%**	Three tiny craters	1.00	0.99

Storage and Handling

Surfynol® DF-178 defoamer should be stored under dry and clean conditions between -10 °C and 50 °C.

Product is freeze-thaw stable; if it phase separates or freezes at colder temperatures, warm container to 20-30 °C and mix thoroughly before use.
Please refer to Material Safety Data Sheet.

Shelf-Life

12 months from the date of manufacture.

Hazardous goods classification

Information concerning

- classification and labelling according to regulations for transport and for dangerous substances
- protective measures for storage and handling
- measures in case of accidents and fire
- toxicity and ecological effects

is given in our material safety data sheets.

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