

Defoamers for paints and coatings



Selecting the best defoamer for a given formulation requires finding a balance between the defoaming power or strength of the defoamer and the compatibility and solubility of the defoamer in the system. Defoamers that are highly incompatible may give very effective foam control but may also cause surface defects, whereas more compatible defoamers may not give effective foam control. Increasing the defoamer use level can improve foam control but may also increase surface defects.

The selection of a defoamer for a given formulation must take into consideration many factors, including the coating raw materials, method of manufacture, means of application, and cure conditions. Air Products offers a full spectrum of defoamer chemistries and formulations, including organic oil-based, mineral oil-based, siloxane-based and our own unique molecular defoamers based on Gemini technology. When selecting a defoamer, it is important to consider how all factors affect defoamer performance as well as the defoamer compatibility in a given formulation; therefore, defoamers must always be screened for suitability. The selector guide suggests the appropriate starting defoamers to screen, based on the formulation type and application method.

- Very suitable
- Suitable

Defoamer	Defoamer type	Point of addition		Pigmentation		Interior paints			Exterior paints			Coating								
		Grinding stage	Letdown stage	Pigmented	Unpigmented	Flat/satin	Semigloss	High-gloss	Flat/satin	Semigloss	Gloss	2K epoxy	2K PU	Acrylic	Alkyd	Polyester	PU	PU/acrylic	Styrene acrylic	VAE
Airase® 5100 defoamer	SSDL*	●		●		●	○	○	●	○	○			●					●	●
Airase 5200 defoamer	SSDL	●		●		●	●	○	●	●	○		●	●					●	●
Airase 5300 defoamer	SSDL	●		●	○	●	●	○	●	●	○		●	○		○	○	○	○	○
Surfynol DF-695 defoamer	Siloxane	○		●							○	○	○				○			
Airase 4500 defoamer	Organic oil	○	○	●		●	○		●	●	○		○	○	●			●	●	
Airase 5400 defoamer	SSDL	●	○	●	○	○	○	●	○	○	●		○	○	○	●	○	○	○	
Surfynol DF-220 defoamer	Mineral oil	○	○	●	○	○	○		○	●	○		○	○	●			○		
Surfynol DF-58 defoamer	Siloxane	●	●	●	●		○	●		○	●		○	●	●	●	●	●		
Airase 8070 deaerator	Siloxane	●	●	●	●		○	○		○	○	○	●	●	●	○	●	●	○	
Surfynol DF-37 defoamer	Organic oil	○	●	●	○	○	○	○	○	○	●	○	○	○				●	●	
Airase 5500 defoamer	SSDL	○	●	●	○	○	○	●	○	○	●	○	●	●		●	●	●	○	
Surfynol DF-62 defoamer	Siloxane	○	●	●	●		○	●		○	●	○	●	○		●	●	○		
Surfynol DF-66 defoamer	Siloxane		●	●	●		○	●		○	●	○	●	○	●	●	●	○		
Airase 5600 defoamer	SSDL	○	●	●	●		○	○		○	○	○	○	●	○	○	●	●	○	
Surfynol DF-178 defoamer	Siloxane	○	●	○	●		○	○		○	●		○	○		○	●	○		
Surfynol DF-110 defoamer	Molecular	●	●	○	●			○		○	●	●	○	○		●	○	○		
Airase 5700 defoamer	SSDL		●	●	●			○		○	●	○	○	○	○	○	○	●	○	
Surfynol AD01 surfactant	Molecular	●	●	○	●			○		○	○	○	○	○	○	○		○		
Surfynol MD-20 defoamer	Molecular	○	●	○	●			○		○	○		○	○		○		○		
Surfynol 104 surfactant	Molecular	●	○	○	●								○	○	○			○		
Surfynol PC defoamer	Molecular		○		○									○	○					

*SSDL™ = Structured Siloxane Defoamer Line defoamers
 NOTE: Surfynol DF-110 and Surfynol 104 are available diluted in different solvents.
 All products may not be available in all regions. Please contact your local supplier for availability.

Carrier type	Product name	Description	Use level wt %
Organic oil	Airase 4500	An organic oil defoamer designed to eliminate foam, pinholes and entrapped air in water-based paints without generating surface defects. Contains no added mineral oils, HAPs or APEs. Has several US FDA 21CFR 175 and 176 compliances.	0.2–1.0
Mineral oil	Surfynol DF-220	A shear-stable, oil-based defoamer that provides excellent long-term foam control for medium to high pigment volume concentration paints and coatings. Also useful for formulation for application over absorbent substrates.	0.2–1.0
Organic oil	Surfynol DF-37	A formulated organic defoamer for both macrofoam and microfoam control that can also provide additional substrate wetting.	0.2–1.0
SSDL*	Airase 5100	The strongest defoamer of the SSDL series. Designed for applications where strong defoaming is required and the formulations are not sensitive to cratering.	0.05–0.5
SSDL	Airase 5200	Designed for applications where strong defoaming is required and the formulations are not particularly sensitive to cratering. Provides excellent long-term, persistent defoaming in formulations. Better film compatibility than Airase 5100 defoamer.	0.05–0.5
SSDL	Airase 5300	Designed for applications where strong defoaming is required with good long-term persistency, especially in high shear applications.	0.05–0.5
SSDL	Airase 5400	Designed for applications where strong defoaming is required with good long-term persistency, especially in high shear applications. Better film compatibility than Airase 5300 defoamer.	0.05–0.5
SSDL	Airase 5500	Can be incorporated in the grind or used as a letdown defoamer. Designed for applications where good defoaming is required with good long-term persistency and film compatibility.	0.05–0.5
SSDL	Airase 5600	Can be incorporated in the letdown of a coating or ink. Airase 5600 defoamer provides an excellent balance of effective defoaming and film compatibility.	0.1–0.5
SSDL	Airase 5700	Formulated for incorporation in the letdown of a coating or ink and has the best compatibility in the SSDL series. Airase 5700 defoamer provides an excellent balance of effective defoaming and film compatibility.	0.1–0.6
Siloxane	Airase 8070	A proprietary deaerator designed to eliminate microfoam, pinholes, and solvent popping problems in water-based coatings applied by airless (or air assisted) spray technologies and without generating surface defects.	0.1–1.0
Siloxane	Surfynol DF-695	A siloxane emulsion defoamer requiring high shear incorporation for pigment grinds and paint applications.	0.1–0.5
Siloxane	Surfynol DF-58	A highly efficient, shear stable, siloxane-based defoamer that provides fast action foam control in water-based paints and industrial coatings.	0.05–0.25
Siloxane	Surfynol DF-62	A shear stable, polysiloxane defoamer that provides an excellent balance of initial foam knockdown and persistency in water-based paints and industrial coatings.	0.1–0.3
Siloxane	Surfynol DF-66	A self-emulsifiable, formulated polysiloxane defoamer with good compatibility in waterborne coatings formulations.	0.1–0.5
Siloxane	Surfynol DF-178	A formulated siloxane-based defoamer and deaerator combining strong defoaming and microfoam control for spray applications.	0.1–0.5
Molecular	Surfynol DF-110	A powerful, silicone-free, acetylenic diol-based defoamer that provides defect-free foam control and deaeration of aqueous formulations.	0.2–1.0
Molecular	Surfynol AD01	A 100% active molecular defoamer, nonionic wetting agent, and coalescing surfactant that combines good defoaming performance with substrate wetting and improved film formation in waterborne paints and coatings.	0.5–1.0
Molecular	Surfynol MD-20	A nonionic, organic defoaming/deaerating molecular defoamer that provides both foam and microfoam control without surface defects.	0.1–1.0
Molecular	Surfynol 104	A high performance surfactant that offers both dynamic surface wetting and excellent antifoaming properties in waterborne paints and coatings. Dilutions in other solvents are also available.	0.1–1.0
Molecular	Surfynol PC	A liquid molecular defoamer designed specifically to provide foam control and pigment shock reduction in paper coating formulations. It provides long-lasting defoamer activity and is stable through continued recycling of the formulation.	0.1–1.0

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