Silicones Simplified

www.xiameter.com

XIAMETER® from DOW CORNING

XIAMETER® brand Antifoams

Europe Product Information

Foam is a problem.

When excess foam causes processing vessels to overflow, maintenance costs increase. Capacity is lost, reducing production efficiency. Processing time increases, and larger, more expensive equipment may be required to handle the foam.

Silicone foam control is the solution.

Silicone foam control agents from Dow Corning eliminate problem foam. Eliminating foam can increase productivity and reduce your production costs.

Silicone foam control agents are available as fluids, compounds and emulsions and are suitable for use in both aqueous and nonaqueous systems. They have found success in a wide range of applications in diverse industries around the world, including:

- Chemical manufacturing
- Petrochemicals
- Food processing
- Wastewater treatment
- Metalworking
- Agrochemicals
- Textiles
- Paper and printing
- Adhesives and coatings

General Product Information and Characteristics

Foaming Environment or System		Product	Active Ingredients, %	Suggested Starting Concentration, as supplied, ppm[1]	Suitable Diluents	Powder (P) Emulsion (E) Compound (C) Fluid (F)	Consistency and Color	Emulsification System	Food Contact Approved[2]	Effective at High Temperatures		Usable in Strong Acid or Alkaline Systems
										Above 49°C (120°F)	Above 100°C (212°F)	
	Aqueous	XIAMETER® AFE-0700 Antifoam Emulsion	10	500	Water	E	Thin, off-white liquid	Nonionic		●		●
		XIAMETER® AFE-0110 Antifoam Emulsion	10	50	Water	E	Medium, white liquid	Nonionic		●		●
		XIAMETER® AFE-1510 Antifoam Emulsion	10	100	Cool water	E	Medium, white liquid	Nonionic	●	●	●	
		XIAMETER® AFE-1520 Antifoam Emulsion	20	50	Cool water	E	Thin, white liquid	Nonionic	●	●	●	
		XIAMETER® AFE-2210 Antifoam Emulsion	10	500	Water	E	Medium, off-white liquid	Nonionic		●	●	●
		XIAMETER® AFE-0400 Antifoam Emulsion	10	50	Water	E	Thin, white liquid	Nonionic		●	●	●
		XIAMETER® AFE-2010 Antifoam Emulsion	10		Use without predilution	E	Thin, off-white liquid	Nonionic		●		
		XIAMETER® AFE-0310 Antifoam Emulsion	30	50	Water	E	Medium, white liquid	Nonionic		●		●
		XIAMETER® AFE-3034 Antifoam Emulsion	58	100	Water	E	Medium, white – cream liquid	Nonionic		●		●
	Aqueous or Nonaqueous	XIAMETER® ACP-0544 Antifoam Compound	100	50	Cool water	C	Medium, off-white liquid			●	●	●
		XIAMETER® ACP-0100 Antifoam Compound	100	10	Aliph., arom. or chlor. sol.	C	Medium, light gray liquid			●	●	●
		XIAMETER® ACP-1500 Antifoam Compound	100	10	Food-grade glycols	C	Medium, light gray liquid		●	●	●	
		XIAMETER® ACP-1000 Antifoam Compound	100	10	Aliphatic solvents	C	Medium, light gray liquid			●	●	
		Dow Corning® FS-1265 Fluid, 300 cSt	100	5	Cellosolve acetate	F	Thin, clear fluid			●	●	
		Dow Corning® FS-1265 Fluid, 1,000 – 10,000 cSt	100	5	Cellosolve acetate	F	Thin-thick, clear fluid			●	●	

[1]To determine the concentration of antifoam required for a particular application, start at the recommended concentration. Results will indicate whether to increase or decrease the level of antifoam for optimum performance.

[2]See product data sheet for details.

Note: Shelf life information can be found on the XIAMETER® website (www.xiameter.com) product pages under "Sales Specification."

Major Applications for Silicone Foam Control Agents

Foaming Environment or System		Product	Foods				Chemicals					Petrochemicals					Waste-water Treatment		Adhesives/ Coatings[1]		Metalworking			Paper/ Printing		Textiles			
			Fermentation	Beverages and Preserves	Meat, Poultry and Seafood	Rendering	Distillation	Glycol Scrubbing	Resin Manufacturing	Pesticides, Herbicides and Fertilizers	Detergents	Oil Refining	Gas-Oil Separation	Delayed Cokers	Asphalt	Aromatic and Chlorinated Solvents	Wastewater Treatment	Heating/Cooling Water Treatment	Adhesives and Glues	Latexes	Metal Cleaning and Degreasing	Etching Solutions	Cutting Oils	Paper Coatings	Resin Sizing	Jet Dyeing	Latex Backing	Sizing/Starching	Dry Cleaning
	Aqueous	XIAMETER® AFE-0700 Antifoam Emulsion					❍	❍		●	●	❍					●		❍								●	●	
		XIAMETER® AFE-0110 Antifoam Emulsion						❍			❍	❍	❍				❍	❍						❍	●			●	
		XIAMETER® AFE-1510 Antifoam Emulsion	●	●	❍					●	❍	❍					●	❍											
		XIAMETER® AFE-1520 Antifoam Emulsion	●	●	●					❍	❍						●	❍											
		XIAMETER® AFE-2210 Antifoam Emulsion					❍	❍									❍	●	●	●			❍						
		XIAMETER® AFE-0400 Antifoam Emulsion								●	●						●	●									●	●	
		XIAMETER® AFE-2010 Antifoam Emulsion								●	●						●											●	
		XIAMETER® AFE-0310 Antifoam Emulsion						●		●	●																	●	
		XIAMETER® AFE-3034 Antifoam Emulsion					●													●									
	Aqueous or Nonaqueous	XIAMETER® ACP-0544 Antifoam Compound					●	❍			❍												❍			●			
		XIAMETER® ACP-0100 Antifoam Compound					❍	●	●	●	●	●			●	❍					●		●						
		XIAMETER® ACP-1500 Antifoam Compound			●	●		❍															❍						
		XIAMETER® ACP-1000 Antifoam Compound							❍	●					●				●										
		Dow Corning® FS-1265 Fluid, 300 cSt										❍	❍			●					❍								●
		Dow Corning® FS-1265 Fluid, 1,000 – 10,000 cSt										❍	❍			●					❍								●

● Primary Recommendation
❍ Alternate Recommendation

[1]Refer to separate Dow Corning coating additive literature for antifoam recommendations for paints, inks and coatings. Request Form No. 24-391.

Why and how is foam controlled?

To achieve maximum return on investment in processing equipment and raw materials, process foam must be controlled. Foam control promotes smooth, efficient operation and the production of consistent, high-quality products.

There are two ways to control problem foam:

- Destroy it (defoam)
- Prevent it (antifoam)

Defoamers – Chemicals or formulated products that destroy, or knock down, foam that has already formed. Defoamers, except in relatively large amounts, don't prevent foam from forming.

Antifoams – Chemicals or formulated products that prevent the formation of foam.

Sometimes antifoams are called defoamers and vice versa. When discussing these materials, it is important to notice at what point in the process they are used. There are other factors you should consider as well.

What should I consider when choosing an antifoam?

There are thousands of chemicals that behave as antifoams, either alone or in combination with others. When selecting an antifoam, you must consider numerous variables, including:

- Regulatory status
- Effectiveness
- Cost
- Service by the supplier

Antifoam products should be formulated to have minimal impact – other than foam suppression – on the products in which they are used. Generally, the smaller the amount of antifoam required, the less impact there will be on the product. This is one reason why silicone antifoams are frequently the first choice for combating foam in industrial processes.

Silicone antifoams:

- Are efficient
- Are long-lasting
- Act as antifoams and defoamers
- Are safe (many comply with FDA, EPA, USDA and other regulatory requirements)
- Have low surface tension for effective foam control in a variety of foaming media

How do silicone antifoams work?

Basically, a silicone antifoam droplet or particle penetrates a bubble wall, spreading the liquid-gas interface and causing the bubble wall to become unstable and collapse.

How do I know which antifoam to use?

To obtain the best antifoam for your process, you may want to work with an expert – such as a XIAMETER® brand distributor. You can also contact the XIAMETER® Technical Information Center or visit our website, **www.xiameter.com**. When requesting assistance, be prepared to answer these questions:

1. Is the system aqueous or nonaqueous?
2. If aqueous, what is the pH?
3. What is the temperature of the foaming system?
4. Is there agitation? If so, what type?
5. What is the volume or batch size of the foaming material?
6. What defoamer are you using now?

Be prepared to briefly describe the process and explain where it foams.

And remember, while proper product formulation is important, so is efficient use.

How can I test an antifoam?

Simulate the conditions in which the antifoam is expected to perform. Use a test medium that is similar – preferably identical – to the foaming medium in which the antifoam will be used.

Various test methods are available to assist in your evaluation:

- ASTM D 892-74 simulates bubble formation at the base of a reaction vessel.
- ASTM D 1173-53 can predict foam generation in showers or cascading liquids.
- ASTM D 3519-76 uses a blender to simulate conditions of high shear and air entrapment.
- ASTM D 3601-77 simulates a low-shear foaming environment.

Whichever test method you choose, follow these procedures:

- Use only clean apparatus.
- Avoid cross-contamination between runs.
- Make multiple runs and statistical evaluations to avoid wrong conclusions.
- Compare your findings with in-plant performance.

For more information and technical data sheets, please visit **www. xiameter.com**.

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HANDLING PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL 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, OR FROM YOUR DOW CORNING SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CORNING CUSTOMER SERVICE.

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