



## Technical Data Sheet

### DOWSIL™ ACP-3379 Antifoam Compound

Foam control agent and process aid for kraft and sulfite process stock washing

#### Features & Benefits

- Formulated with materials that conform to FDA Regulation 21 CFR 176.170, 176.180 and 176.210
- Cost effective alternative to mineral oil-based products
- Improved pulp drainage
- Reduced soda losses and steam consumption
- Easily formulated and preserved in dilute emulsions
- Pourable liquid

#### Composition

- Reaction product of polydimethylsiloxane and silica, and silicone organic copolymers
- Blend of silicone glycol, polydimethylsiloxanes and silica

#### Applications

- For Silicone Antifoam: DOWSIL™ ACP-3379 Antifoam Compound is an outstanding foam control agent and process aid for both kraft and sulfite process stock washing.

#### Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Property	Unit	Result
Appearance		Viscous liquid
Active Ingredients	%	100
Viscosity at 25°C (77°F)	cp	10,000–20,000
Flash Point	°C (°F)	> 100 (> 212)
Specific Gravity, at 25°C (77°F)		1.0
Consistency, at 25°C (77°F)	cp	Thick (13,000)
Chemical Composition		Blend of silicone glycol, polydimethylsiloxanes and silica

#### Description

##### Silicone Antifoam Applications

DOWSIL ACP-3379 Antifoam Compound is a 100 percent active, self-dispersing and emulsifiable antifoam concentrate that provides outstanding persistence at a small fraction of use levels required for conventional mineral oil-based antifoams.

##### Chemical Manufacturing Applications

DOWSIL ACP-3379 Antifoam Compound is an organic silicone compound that is 100 percent Active. Effective in aqueous systems at concentrations as low as ten parts per million.

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DOWSIL™ ACP-3379 Antifoam Compound

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**Silicone Antifoam Applications**

For preparation of dilute emulsions, simply add DOWSIL ACP-3379 Antifoam Compound, thickened water with moderate agitation. See Table 1 for data on various thickening agents and Table II for suitable preservatives. A more detailed preparation procedure is also provided later in this data sheet.

In pulp mills, direct addition of emulsified DOWSIL ACP-3379 Antifoam Compound to the vats has proved very effective. Distribution across the vat will influence both defoaming and drainage efficiency. Start at 1/5 to 1/10 of the active ingredient relative to oil-based antifoams. Run at this level until the seal tanks have been completely saturated with the emulsion of DOWSIL ACP-3379 Antifoam Compound. Then slowly reduce levels until minimum use levels are determined.

**Chemical Manufacturing Applications: Amount Needed**

DOWSIL ACP-3379 Antifoam Compound works effectively in very low concentrations. One to 100 parts of antifoam per million parts foamer are sufficient to eliminate most foams. Begin trials at higher use levels (50 ppm active silicone), then work down to the level of foam control desired. The following are parts per million equivalents:

To Yield 50 ppm Antifoam	Mixed In
33.4 ounces	500 gallons
66.7 ounces	1,000 gallons
166.8 ounces	2,500 gallons
50.0 ounces	25,000 gallons

**Chemical Manufacturing: Adding the Antifoam**

To produce optimal foam control, it is necessary to have the antifoam completely dispersed in the foaming medium. Follow these steps to achieve complete dispersion:

1. Agitate the product prior to use.
2. Predilute with 3 to 10 parts water to aid in dispersion. Add the antifoam to the water with slow mixing. Prediluted material should be used immediately.

The use of a surfactant such as DOWSIL™ OFX-5247 Fluid may help to disperse the antifoam. Starting levels of 5–10 percent based on the total diluted volume are suggested.

3. Add the antifoam prior to the point where foaming occurs within the system, if possible.

Table 1

Thickeners for Preparing 15% Emulsions of DOWSIL ACP-3379 Antifoam Compound

Thickener	FDA Status <sup>1</sup>	Weight %	Viscosity <sup>2</sup>	Cold Water Dispersability	Appearance
KELCOLOID® <sup>3</sup> HVF	Food Grade	1.00	2250	Good	Fair
KELTROL® <sup>3</sup> T	Food Grade	1.00	3600	Poor	Excellent

1. FDA 21 CFR 176.170, 176.180, 176.210.

2. Brookfield, LVT #3 Spindle, 12 rpm.

3. Registered trademark of Kelco, Division of Merck & Co., Inc.

Table 1 (Cont.)

Thickener	FDA Status	Weight %	Viscosity	Cold Water Dispersability	Appearance
Insta-thick <sup>®4</sup> Xanthan Gum	Food Grade	1.00	6000	Excellent	Good
METHOCEL <sup>™</sup> A1M	Food Grade	1.20	2800	Good	Good
METHOCEL <sup>™</sup> E4M	Food Grade	1.50	7850	Good	Excellent
CARBOPOL <sup>®5</sup> 941	Non-Food	0.05	2400	Very Good	Fair

4. Registered trademark of Zumbro, Inc.

5. Registered trademark of B.F. Goodrich Chemical Company.

Table 2

Preservatives for 15% DOWSIL ACP-3379 Antifoam Compound

(Other preservatives may also be effective. Customers should test their individual formulations to ensure sufficient antimicrobial activity.)

Preservative <sup>1</sup>	Minimum Recommended Effective Level (ppm)
KATHON <sup>™</sup> LX 1.5	1000
TEKTAMER <sup>®2</sup> 38LV	300

1. Addition of antimicrobial agents to an emulsion formulation may affect its regulatory status. The user should review the regulatory status of any antimicrobial agent to determine its suitability of use for an intended application.
2. Registered trademark of Calgon Corporation.

## Toxicological Information

### Chemical Manufacturing Applications

DOWSIL ACP-3379 Antifoam Compound should present no significant adverse health hazard when used in typical industrial applications. As with all industrial chemicals, contact with eyes or skin should be avoided.

In case of eye contact, rinse promptly with water. Contaminated skin should be flushed with water as soon as possible

## Spills And Disposal Of Product And Container

### Silicone Antifoam Applications

Cleanup of industrial spills can be accomplished by using a dry absorbent material, which should be collected and disposed of per applicable local, state and federal regulations. Conventional industrial cleaning materials can be used to remove remaining traces of product after removal of the absorbent material.

### Chemical Manufacturing Applications

Clean-up of industrial spills should be accomplished by using a dry, absorbent material for subsequent disposal.

Conventional industrial cleaning materials should be used to remove remaining traces.

Containers will have residues when emptied. However, these residues do not pose a disposal hazard. Container is not intended for reuse.

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DOWSIL<sup>™</sup> ACP-3379 Antifoam Compound

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## Accidental Discharge Into Lakes And Streams

### Silicone Antifoam Applications

DOWSIL ACP-3379 Antifoam Compound should not be discharged directly into lakes or streams. If an accidental discharge into public waters occurs, no deleterious effects on the following environmental factors are anticipated below a level of 100 ppm DOWSIL ACP-3379 Antifoam Compound, based on available environmental and toxicological data of components similar to those found in DOWSIL ACP-3379 Antifoam Compound.

### Environmental

Silicone Antifoam Applications:

Biological Oxygen Demand (BOD) – negligible

### Toxicological

Silicone Antifoam Applications:

Bluegill Sunfish, Rainbow Trout, Cockles, Shore Crabs, Brown Shrimp, White Leghorn Chickens, Mallard Ducks, Bobwhite Quail and Daphnia.

## Dibenzodioxin And Dibenzofurans

### Silicone Antifoam Applications

Analysis completed by an independent testing laboratory has shown that DOWSIL ACP-3379 Antifoam Compound does not contain detectable levels of dibenzodioxin and dibenzofuran precursors (detection limit of 0.5–0.6 ppb for both dibenzodioxin and dibenzofuran).

## Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT [WWW.CONSUMER.DOW.COM](http://WWW.CONSUMER.DOW.COM), OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

## Usable Life And Storage

### Chemical Manufacturing Applications

Product should be stored at or below 32°C (90°F) in original, unopened containers.

### Silicone Antifoam Applications

Some minor separation of the components is possible under some storage conditions, but will not affect product performance as long as full containers are used to prepare dilute emulsions, and are emptied completely. For bulk storage, a slow continuous recycle is recommended. The bulk storage vessels should be kept clean, and suitable biocides for microbial suppression in both liquid and vapor areas are recommended.

## Limitations

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

Not intended for human injection.

## Health And Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

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

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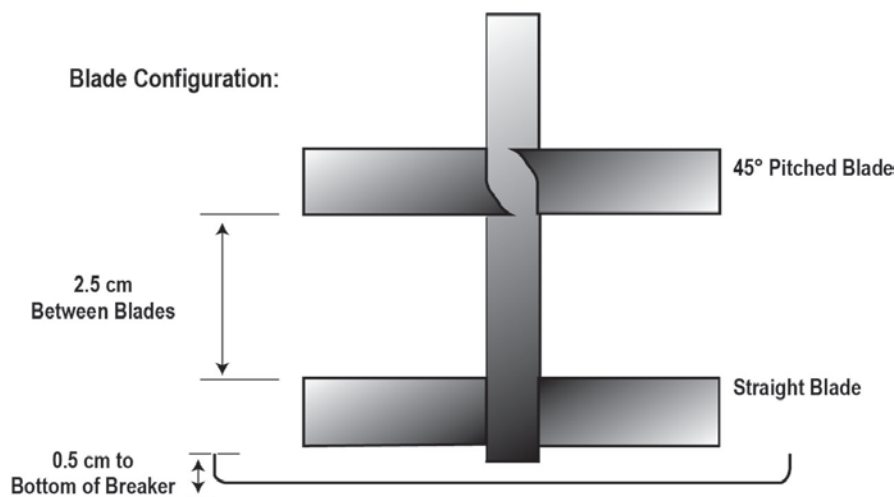


Figure 1  
Sample Preparation – 15% Emulsion of DOWSIL ACP-3379 Antifoam Compound

1. Raw Materials
  - 83.9% (419.5 g) tap water at room temperature
  - 1.0% (5.0 g) Insta-thick® xanthan gum
  - 0.1% (0.5 g) KATHON™ LX 1.5%
  - 15.0% (75.0 g) DOWSIL ACP-3379 Antifoam Compound
  - 500.0 g batch
2. Equipment
  - T-line stirrer
  - 1000 mL stainless steel beaker
  - 2.5 inch blades
3. Procedure
  - A. Weigh water and KATHON LX 1.5%, respectively, into the steel beaker and begin mixing at 500 rpm. Mix for 5 minutes.
  - B. Weigh the xanthan gum out in 1 gram batches into small, plastic weigh dishes.
  - C. Gradually add the xanthan gum to the water/KATHON mixture at a rate of 1 gram per minute.
  - D. After adding all the xanthan gum, stir the mixture for 10 minutes at 500 rpm.
  - E. After the 10 minute period, add DOWSIL ACP-3379 Antifoam Compound into the vortex of the stirring mixture.
  - F. Stir the final mixture for 30 minutes at 500 rpm.
4. Special Notes
  - A. KATHON LX 1.5% can also be added after the emulsion has been made. It is not absolutely necessary that it be used at the beginning of the process.
  - B. One can monitor viscosity of the water/gum mixture as a function of dispersing time. Once a viscosity plateau is achieved, hydration of the gum should be complete.
  - C. Some biocides can be sensitive to pH. It is a good practice to monitor pH conditions during the process to ensure that sufficient concentrations of biocide remain active.

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