Consumer Solutions

Enhanced Drainage With Improved Pulp-Washing Efficiency

Siloxylated Polyether (SPE) Performance Modifiers from Dow

Features and Benefits

- Improved drainage in pulp-washing process applications
- Foam-knockdown effect and persistence over time
- Stability improvement for formulating emulsions
- Food contact as specified in the food regulatory profile

Antifoam compounds can have positive effects on drainage in pulp-washing process applications. DOWSIL™ ACP-3073 Antifoam Compound is optimum for such performance, combining excellent knockdown, persistence and drainage properties. However, formulators often prefer to customize and boost the performance of their own silicone or mineral-oil antifoam formulations. Select siloxylated polyethers (SPEs) have been developed to assist them in enhancing drainage performance.

Silicone-based surfactants developed by Dow are among the leading choices for use in pulp-washing processes designed for high production rates coupled with reduced water usage. One of the key challenges silicones help meet involves controlling foam during kraft brownstock-washing (BSW) processes. Kraft or sulfate pulping remains the most common chemical process used to produce bleached or unbleached high-quality pulp for paper mills.

DOWSIL™ 5290 Performance Modifier and DOWSIL™ OFX-5573 Fluid from Dow are silicone polyether performance modifiers designed to give users an effective solution for better drainage/deaeration performance. The products can help to improve pulp-washing efficiency by reducing the amount of entrapped air in the pulp mat.

		Performance Modifier		
95% Compound with 5% Performance Modifier	**Feature**	**No booster**	**DOWSIL™ OFX-5573 Fluid**	**DOWSIL™ 5290 Performance Modifier**
DOWSIL™ ACP-3073 Antifoam Compound	D	+++++++	+++++++++	+++++++
	K	++	++	+
	P	++	+++	+
DOWSIL™ ACP-3258 Antifoam Compound	D	•	+	+++++
	K	•	•	•
	P	•	+	+++
DOWSIL™ ACP-3056 Antifoam Compound	D	+++	++++++	++++++
	K	-	•	-
	P	•	•	---
DOWSIL™ ACP-3990 Antifoam Compound	D	•	++	++
	K	•	•	--
	P	----	---	-----

Key: D – drainage; K – knockdown; P – persistence
Performance rated from poorest (-----) to neutral (•) to best (+++++++++)

Prototype Formulation

Ingredient	Weight %
DOWSIL™ ACP-3258 Antifoam Compound	19
Drainage performance modifier (e.g., DOWSIL™ OFX-5573 Fluid)	1
Surfactants	4
Biocide and thickener in water-based solution	31
Water	45

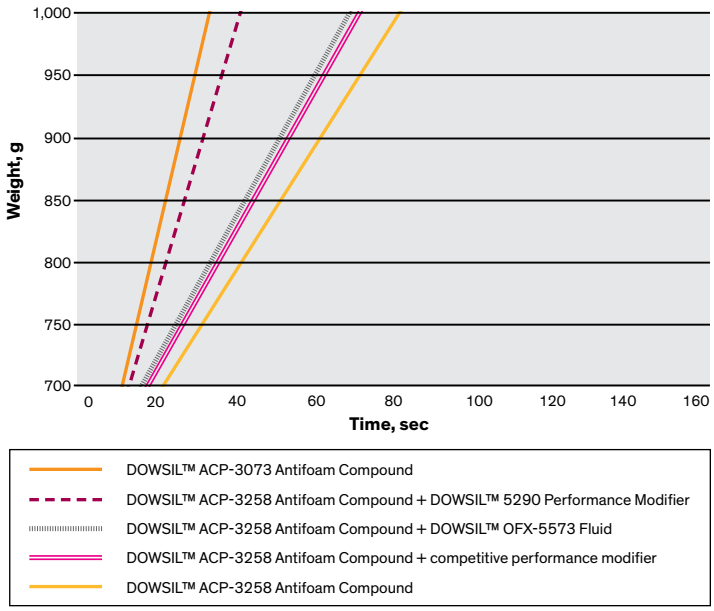
Procedure

1. Load DOWSIL™ ACP-3258 Antifoam Compound.
2. Load drainage performance modifier.
3. Add surfactants.
4. Mix.
5. Add biocide and thickener in water-based solution in multiple steps with high-speed mixing.
6. Add water.

Drainage Performance

35 ppm antifoam compound vs. dry fiber hardwood/synthetic liquor competition; performance modifiers from Dow formulated at 5% of antifoam compound content.

Figure 1. Drainage performance of various combinations of antifoam compounds and performance modifiers, including products from Dow and a competitive dry fiber hardwood/synthetic liquor.



Learn More

Dow offers an extensive line of efficient, high-quality products to meet defoaming challenges in pulp and paper processing – including silicone polyether (SPE) performance modifiers that enhance the stability, knockdown, persistence and drainage of antifoam emulsions.

For expert pulp-drainage assistance and product selection guidance, please contact your Dow representative.

Whether you need industry-leading innovation or greater cost efficiency, Dow can help. Solutions by Dow are dedicated to meeting your needs for specialty materials, collaborative problem-solving and innovation support. Learn how we can help you at **consumer.dow.com.**

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