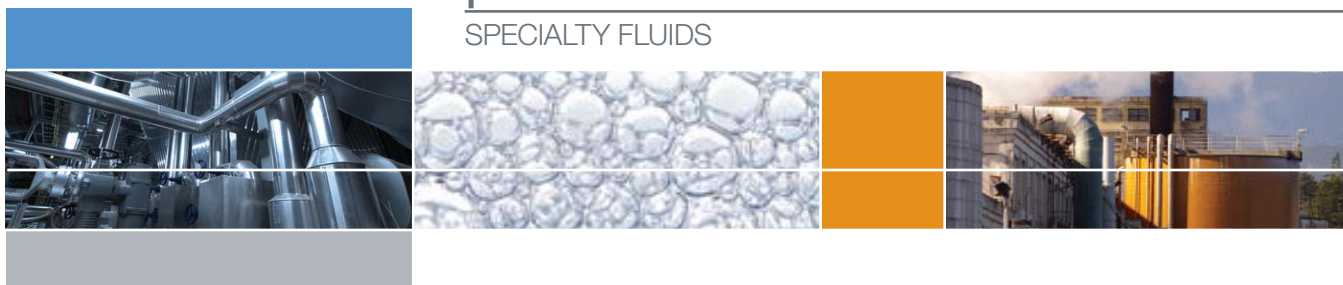


SILWET* DA

performance additives

SPECIALTY FLUIDS



Silwet DA performance additives are FDA-regulated additives that improve the performance of brown stock pulp defoamers used in the manufacture of paper and paper-board for indirect food contact. They enhance the dispersion and efficiency of formulated defoamers and also act as defoamers above their cloud point. In addition, they increase water drainage through pulp mats by significantly reducing entrained air and associated foam. Silwet DA additives are highly compatible with organic defoamers and are dioxin-free.

Key Features and Typical Benefits

- permitted under FDA regulation 21 CFR 176.210
- improved dispersion and efficiency of other defoamer actives
- cloud point defoamers
- enhance pulp drainage
- dioxin-free
- easy to use in formulation

Typical Physical Properties

Silwet DA performance additives are made up of 100-percent active products. They are uncapped, polyether-modified silicone copolymers, described by CAS #68937-55-3.

Potential Applications

Silwet DA performance additives boost the performance of defoamers used in the Kraft pulping process during brown stock washing and screening. They can also enhance the effectiveness of defoamers used to reduce entrained air in paper-processing white water.

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Silwet Performance Additive

Property	DA-33	DA-40	DA-63
Cloud Point, °F (°C)	104 (40)	77 (25)	<77 (<25)
Viscosity at 25°C, cSt	3500	1000	1100
Flash Point, °F (°C) Pensky-Martens Closed Cup	275 (135)	275 (135)	290 (143)
Cleveland Open Cup	>300 (149)	480 (249)	550 (228)
EO ⁽¹⁾ : PO ⁽²⁾ Weight Ratio of Pendant Groups	40:60	20:80	20:80
Molecular Weight, avg.	30,000	12,000	17,000

(1) Ethylene oxide

(2) Propylene oxide Silwet DA performance additives are based on silicone copolymer technology. Ethylene and propylene oxides form the building blocks of the pendant groups used to modify the physical properties of the silicone backbone.

Advantages

Silwet DA performance additives offer a number of important advantages to the pulp and paper processor:

FDA Regulated Additives

Silwet DA performance additives conform to FDA regulation 21 CFR 176.210, which identifies substances that may be used in the manufacture of paper and paperboard for indirect food contact.

Improved Dispersion

By improving the dispersion of brown stock pulp defoamers, Silwet DA performance additives improve the efficiency of other defoamer actives in formulated products.

Cloud Point Defoaming

At temperatures above their cloud points, Silwet DA performance additives aid in the foam control of aqueous processes. This performance improves dramatically as one goes from Silwet DA-33 to DA-40 to DA-63 performance additives.

Enhanced Pulp Drainage

Two types of foaming characterize pulp and paper processes: surface foam and foam related to entrained air. Entrained air retards water drainage, which increases paper processing costs downstream. Silwet DA performance additives will significantly reduce entrained air and improve drainage efficiency.

No Adverse Environmental Effects

Silwet DA performance additives will not add to Biological Oxygen Demand (BOD) in water treatment. They do not contribute to the formation of dioxin. Toxicological information is available upon request.

Easy to Use, Compatible Additives

Silwet DA performance additives are liquid products that may readily be incorporated in defoamer formulations. Furthermore, they are compatible with commonly used organic compounds, such as mineral oil, fatty esters or silicone oil.

Formulation Suggestions

Silwet DA performance additives should be added at 0.2-1.5 wt % to your formulated defoamers to improve dispersibility. At slightly higher addition levels, they contribute to the defoaming capability of your product. Call your Momentive Performance Materials Technical Representative for additional assistance.

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Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Product Safety, Handling and Storage

Customers should review the latest Material Safety Data Sheet (MSDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, and any special storage conditions required for safety. MSDS are available at www.momentive.com or, upon request, from any Momentive Performance Materials (MPM) representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

Emergency Service

Momentive Performance Materials maintains an around-the-clock emergency service for its products.

<u>Location</u>	<u>Emergency Service Provider</u>	<u>Emergency Contact Number</u>
Mainland U.S., Puerto Rico	CHEMTREC	1-800-424-9300
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Middle East	NCEC	+44 (0) 1235239671
Asia Pacific (except China)	NCEC	+44 (0) 1235239670
China	NCEC	+86-10-5100-3039
Latin America (except Brazil)	NCEC	+44 (0) 1235239670
Brazil	SOS Cotec	08000111767 or 08007071767
All other locations world wide	NCEC	+44 (0) 1235239670
At sea	Radio U.S. Coast Guard in U.S. waters NCEC in International waters	+44 (0) 1235239670

For Health related calls, contact Momentive Performance Materials at +1-518-233-2500 (English only).

DO NOT WAIT. Phone if in doubt. You will be referred to a specialist for advice.

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