

## Silwet™ DA-33

### Performance Additive

#### Description

Silwet DA performance additives are FDA compliant additive that improve the performance of brown stock pulp defoamers used in the manufacture of paper and paperboard 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 formulated without dioxin.

#### Key Features and Typical Benefits

- Permitted under FDA regulation 21 CFR 176.210 <sup>(1)</sup>
- Improved dispersion and efficiency of other defoamer actives
- Cloud point defoamers
- Enhance pulp drainage
- Dioxin-free
- Easy to use in formulation
- Halal Certified <sup>(2)</sup>

(1) Note: Please consult the FDA regulations for specifications and limitations, which may apply. The customer has the sole responsibility for determining that their product complies with all applicable FDA specifications and limitations and is fit for food contact use.

(2) This product is produced under the supervision of the Islamic Food and Nutrition Council of America (IFANCA). This product is in compliance with the halal requirements under Islamic laws.

### 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.

### 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)	149 (ASTM D93)	290 (143)
Cleveland Open Cup	>300 (149)	480 (249)	550 (228)
EO <sup>(1)</sup> : PO <sup>(2)</sup> Weight Ratio of Pendant Groups	40:60	20:80	20:80
Molecular Weight, avg.	30,000	12,000	17,000

Typical physical properties are average data and are not to be used as or to develop specifications.

(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.

### Potential Applications

Silwet DA performance additives can be considered for use to 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.

### Advantages

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

### **FDA Regulated Additives**

Silwet DA-33, DA-40, and DA-63 are compositionally compliant with FDA 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 can help 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 typically 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 can help significantly reduce entrained air and improve drainage efficiency.

### **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 most commonly used organic compounds, such as mineral oil, fatty esters or silicone oil.

### **General Considerations for Use**

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.

### **Patent Status**

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### Product Safety, Handling and Storage

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at [www.momentive.com](http://www.momentive.com) or, upon request, from any 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.

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