

SILBREAK* 638

silicone demulsifier

SPECIALTY FLUIDS - OIL & GAS



Silbreak 638 silicone demulsifier is based on a modified polydimethylsiloxane that contains no added halogens. It is an excellent candidate to consider to efficiently break water-in-oil emulsions, control foam in oil-based systems, and is expected to be approved for use under European requirements for use and discharge of offshore chemicals.

Silbreak 638 silicone demulsifier may possess exceptional crude oil demulsification performance either on its own or in combination with non-silicone organic demulsifiers to which it may deliver a remarkable boost in the speed of separation. It may also control foam in gas/oil separators where typical polydimethylsiloxane oils may not be effective or do not satisfy European regulations for the use and discharge of offshore chemicals.

Silbreak 638 silicone demulsifier is inherently degradable in seawater, and has a molecular weight that exceeds 600. Finally, Silbreak 638 silicone demulsifier has passed ecotoxicity tests using a variety of aquatic species.

Demulsifiers can be very selective depending on the crude that is to be demulsified. It is therefore recommended that bottle tests be run before finalizing on a demulsification formulation.

Key Features and Typical Benefits

- acts in gas/oil separators both as demulsifier as well as foam control agent
- can boost performance of demulsifier formulations
- fast separation of water from crude oil, particularly during the initial phase of separation
- low BSW
- potential overall cost reduction due to lower dosages
- essentially free of phenolic derivatives
- can be easily blended with organic demulsifiers

Typical Physical Properties

Polarity (HLB)	7
Silicone RSN	12.7
Viscosity cSt, 20°C	160
Density g/cm ³ , 20°C	0.91
Silicone Molecular Weight	16000
Solubility in Water (1%)	Dispersible
Preferred Solvents	Aromatics, 2-ethyl-hexanol
Flash Point (°C, Closed Cup)	>80

Typical data are average data and actual values may vary. Typical data shall not be used as product specifications.

The information shown above on the polarity and molecular weight may be useful in case blending with other materials is desired. The polarity is based on the best estimate of HLB as calculated from the solubility parameters (Barton, A.F.M. *Handbook of Solubility Parameters and Other Cohesion Parameters*, Boca Raton: CRC Press, 1983) based on the composition of Silbreak 638 silicone demulsifier.

The RSN value was determined experimentally.

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Regulatory Status

Silbreak 638 silicone demulsifier has been tested for biodegradability according to SOP E227 based on OECD guidelines for Testing of Chemicals Biodegradability in Seawater reference 306 and has been found to be greater than 20% biodegradable.

- the molecular weight of Silbreak 638 silicone demulsifier exceeds 600.
- ecotox tests were run on a variety of species as summarized below:

Species	Test Conditions	Results
<i>Skeletonema Costatum</i> (diatom)	72 hr EC ₅₀	>18 mg/l
<i>Corophium Volutator</i> (mud shrimp)	10 day LC ₅₀	>9000 mg/kg
<i>Acartia Tonsa</i> (crustacean)	48 hr LC ₅₀	>75 mg/l
<i>Scophthalmus Maximus</i> (fish-turbot)	96 hr	Exhibited no effect @ 32 mg/l

How to Use

Typically, Silbreak 638 silicone demulsifier may be introduced into the stream of crude oil prior to the gas/oil separator as a solution in an organic solvent, we recommend consideration of aromatics or 2-ethylhexanol, but other solvents may also be considered.

Blending with commonly used organic demulsifiers is an equally important way to consider using Silbreak 638 silicone demulsifier. In such cases, Silbreak 638 silicone demulsifier may be considered at levels as high as 50% of the final formulation, although it is expected to show its benefits at levels as low as 2%. In some cases a compatibilizing solvent may be necessary.

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Patent Status

Technical subject matter in this publication is described and protected by one or more of the following U.S. Patents and their foreign counterpart patents and/or patent applications: U.S. Patent Nos. 5,001,248; 6,001,140; 6,093,222 and 6,221,815. Other U.S. and foreign patents and/or patent applications not listed covering the subject matter may be relevant.

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.

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Customers considering the use of this product should review the latest Material Safety Data Sheet and label for product safety information, handling instructions, personal protective equipment if necessary, and any special storage conditions required. Material Safety Data Sheets are available at www.momentive.com or, upon request, from any Momentive Performance Materials representative. Use of other materials in conjunction with Momentive Performance Materials products may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

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