# FF170

**FF170**

**Description**

FF160 and FF170 fluorosilicones are 100% active silicone polymers (modified with fluoro containing groups) that may be excellent candidates to provide significant performance in difficult non-aqueous foam systems. By combining the advantages of silicone and fluorocarbon chemistries, they may offer excellent foam control characteristics in a variety of systems, particularly those found with petroleum stocks in high pressure separators.

**Key Features and Benefits**

- Excellent foam control due to insolubility in a variety of solvents, including petroleum stocks
- Long lasting antifoam effect due to excellent resistance to emulsification
- Resistance to chemicals and oxidation may enable their use in extreme air temperatures (–60 to 200°C) and high chemical reactivity
- Low surface tension
- Foam control at very low treat rates
- Foam control in situations where there are few cost -effective alternatives

**Typical Physical Properties**

| | FF160 | FF170 |
|---|---|---|
| Appearance | Clear, colorless fluid | Tanslucent colorless fluid |
| Odor | Odorless | Slight, characteristic |
| Viscosity, 25°C, m $m^2$/sec | 20,000 | 4,000 |
| Density at 25°C, g/cm | 1.12 | 1.13 |
| Refractive Index at 25°C | 1.38 | 1.38 |
| Flash Point, °C | 315 | 93 |
| Soluble in | Toluene, ketones such as acetone, methyl ethyl ketone, low molecular weight esters and ether | Ketones, such as acetone or methyl ethyl ketone, low molecular weight esters and ethers, cyclosiloxanes |

**Potential Applications**

It is well known that foam control of non-aqueous foams, particularly certain solvent based systems, can be very problematic. Conventional antifoams, such as those based on polydimethylsiloxanes, are likely to be soluble and may have the opposite effect of foam stabilization rather than foam control. The chemical and petroleum industries as well as the dry-cleaning industry (during recycling of used chlorinated solvents), are industries that may need a more potent foam control agent.

Benefits in High Pressure (gas-oil) Separators
1. FF160 and FF170 fluorosilicones exhibit excellent foam control in this application by enabling near zero liquid carry-over and gas carry-under. This may ensure that the downstream compressors and secondary/tertiary separators will operate optimally.
2. FF160 and FF170 fluorosilicones may allow the use of smaller high pressure separators while retaining the same throughput. This may be particularly useful in offshore platform designs, where space is at a premium.
3. FF160 and FF170 fluorosilicones can increase the productivity of existing equipment without the need to install new machinery and this may save cost for the end user.
4. FF160 and FF170 fluorosilicones may reduce capital costs, particularly for deep water drilling and their off-shore platforms.
5. FF160 and FF170 fluorosilicones can materially reduce the risk of shut down, particularly in deep water off-shore platforms where pressure excursions can lead to uncontrolled foaming when conventional antifoams are used.

**Product Usage**
FF160 and FF170 fluorosilicones can be used as received but it is recommended that they be diluted in an appropriate solvent to reduce their viscosity and ensure accurate, low dose treat rates. Depending on the lowest possible setting of the dosing pumps, dilutions can vary between 1 and 5% by weight. It is highly recommended that diluted solutions be used within four weeks, or some loss in performance may be experienced.

Solvents that are recommended are ketones, esters and ethers. However, THF (tetrahydrofuran) and dioxane should not be used because they may degrade the polymer. If a high boiling point solvent is needed, we recommend the use of tributyl phosphate. If high flash point solutions are desirable, we recommend esters of dicarboxylic acids.

It is generally observed that as the viscosity of the fluorosilicone increases, so does the antifoaming effect. However, it may also be more difficult to disperse the material.

The location of the dosing points is of critical importance to the optimum performance of FF160 and FF170 fluorosilicones. In general, we recommend that the dosing points be situated just before a high shear/mixing equipment, such as a recirculation pump, or at the entry point of the crude oil in the high pressure separator. This may help ensure maximum dispersion of the antifoam throughout the foaming medium and lead to excellent foam control.

FF160 and FF170 fluorosilicones are less sensitive to droplet size distribution than typical antifoams based on polydimethylsiloxanes and can withstand high turbulence environments.

When using FF160 and FF170 fluorosilicones as foam control agents in high pressure separators, there is

no need to co-inject an antifoam to prevent gas carry-under. FF160 and FF170 fluorosilicones function both as an antifoam (killing foam at the surface of the crude) and as a de-aerator (facilitating the removal of gas from the mass of the liquid).

FF160 and FF170 fluorosilicones have shown utility in all types of crude, irrespective of their viscosity, asphaltene/resins content, temperature and amount of gas that needs to be separated.

**Availability**
FF160 fluorosilicone is available in drums of 180 kgs net weight and in pails of 18 kgs net weight. FF170 fluorosilicone is available in drums of 227 kgs net weight.

**Patent Status**
Standard copy to come
**Product Safety, Handling and Storage**
Standard copy to come
**Limitations**
Standard copy to come

**Contact Information**
For product prices, availability, or order placement, contact our customer service at Momentive.com/CustomerService/

For literature and technical assistance, visit our website at: www.momentive.com

**DISCLAIMER:**

**THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS INC. AND ITS SUBSIDIARIES AND AFFILIATES (COLLECTIVELY "SUPPLIER"), ARE SOLD SUBJECT TO SUPPLIER'S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SUPPLIER MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (i) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING ITS PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN SUPPLIER'S STANDARD CONDITIONS OF SALE, SUPPLIER AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN**. Each user bears full responsibility for making its own determination as to the suitability of Supplier's materials, services, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating Supplier's products, materials, or services will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of Supplier's standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Supplier. No statement contained herein concerning a possible

or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Supplier covering such use or design, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right.