

## SAG™ TP-325

### SAG\* TP-325

#### Description

SAG TP-325 silicone antifoam is based on a unique organosilicone structure, making it a new generation of antifoams for diesel fuel. SAG TP-325 silicone antifoam contains only 9.4% silicon.

#### Key Features and Benefits

- Enables longer storage stability for diesel fuels
- Permits fast and virtually complete filling of fuel tanks
- Helps maintain high performance in wet diesel fuel
- Minimizes silica deposits on fuel injection
- Provides excellent durability in wet and dry diesel fuels
- Requires low silicon level (one-half that of current state-of-the-art antifoam)
- Requires low usage levels – 5 ppm
- Quick foam knockdown
- Insoluble in water
- Halogen free

#### Typical Physical Properties

Appearance	Clear to slightly yellow
Form	Liquid
Apparent Specific Gravity at 20°C	1.03
Viscosity at 25°C, cSt	400
Refractive Index at 25°C	1.4450
Flash Point, Pensky-Martens Closed Cup, °C (°F)	103 (218)
Freezing Point, °C (°F)	<-32 (<-26)

## Potential Applications

SAG TP-325 silicone antifoam is an excellent candidate for use in diesel additive packages (DAPs) and helps achieve cost-effective foam control of diesel fuels.

## Processing Recommendations

In every case tested, SAG TP-325 silicone antifoam exhibited superior performance – at half the concentration – to the competitive state-of-the-art antifoam, especially in wet diesel fuel.

The performance of SAG TP-325 silicone antifoam and a competitive state-of-the-art antifoam was evaluated in various diesel fuels. The antifoams were incorporated in different DAPs at varying levels. These DAPs were added at 200 ppm to particularly high and low-foaming commercial diesel fuels and allowed to stand overnight in order to simulate typical use conditions. The studies were conducted according to the DHYCCA (Direction Française d'Hydrocarbures) test, which consists of injecting the diesel fuel at 1.5 bar into a graduated cylinder and measuring the collapse time.

The antifoams were evaluated in both “dry” diesel (50 ppm water) and “wet” diesel (1000 ppm water). The final concentration of SAG TP-325 silicone antifoam was 7.5 ppm for high-foaming and 5 ppm for low-foaming diesel fuel. The competitive antifoam concentration, based on supplier-recommended addition rates, was 15 ppm and 10 ppm, respectively. Results of the eight-week test are summarized in Table 1 (high-foaming) and Table 2 (low-foaming).

Relative defoam times are shown in Figures 1 and 2 for high-foaming diesel fuel and in Figures 3 and 4 for low-foaming diesel.

### **Table 1: Antifoam Performance in High-Foaming Diesel Fuel**

Test Sample	Antifoam Level, ppm	Defoam Time, sec		Defoam Time (at 8 wks) Relative to Control, %
		Initial	After 8 wks	
Dry Diesel Fuel <sup>(1)</sup>				
Control (Neat Diesel)	—	62	78	—
With SAG TP-325 silicone antifoam	7.5	8	9	11
With State-of-the-Art AF	15	10	11	14
Wet Diesel Fuel <sup>(2)</sup>				
Control (Neat Diesel)	—	56	78	—
With SAG TP-325 silicone antifoam	7.5	5	9	11
With State-of-the-Art AF	15	19	31	40

(1) 50 ppm water

(2) 1000 ppm water

**Table 2: Antifoam Performance in Low-Foaming Diesel Fuel**

Test Sample	Antifoam Level, ppm	Defoam Time, sec		Defoam Time (at 8 wks) Relative to Control, %
		Initial	After 8 wks	
Dry Diesel Fuel <sup>(1)</sup>				
Control (Neat Diesel)	—	27	37	—
With SAG TP-325 silicone antifoam	5	8	9	11
With State-of-the-Art AF	10	10	11	14
Wet Diesel Fuel <sup>(2)</sup>				
Control (Neat Diesel)	—	27	33	—
With SAG TP-325 silicone antifoam	5	3	4	12
With State-of-the-Art AF	10	7	12	32

(1) 50 ppm water

(2) 1000 ppm water

SAG TP-325 MB MPM indd\_Chemical Structures\_Image1.JPG

### **Critical Antifoam Concentration**

Antifoam performance may be lost below a certain critical concentration; it will depend on the diesel fuel and the DAP.

Figure 5 shows the effect of low silicon concentrations for SAG TP-325 silicone antifoam measured in a typical diesel fuel. The critical concentration corresponds to the sharp change in the curve and occurs at around 0.4-0.5 ppm silicon for TP-325 silicone antifoam compared to 0.9-1.0 ppm for the typical diesel fuel antifoam.

The results are expressed as a percentage of the defoam time for the control (neat diesel fuel).

SAG TP-325 MB MPM indd\_Chemical Structures\_Image2.JPG

### **Availability**

SAG TP-325 silicone antifoam is available in 200-kg drums. Alternate packaging is available upon request.

### **Patent Status**

Standard copy to come

### **Product Safety, Handling and Storage**

Standard copy to come

### **Limitations**

Standard copy to come

### **Contact Information**

Email

[commercial.services@momentive.com](mailto:commercial.services@momentive.com)

### **Telephone**

<b>Americas</b>	<b>Latin America</b>	<b>EMEAI- Europe, Middle East, Africa &amp; India</b>	<b>ASIA PACIFIC</b>
+1 800 295 2392 Toll free*	<b>Brazil</b> +55 11 4534 9650 Direct Number	<b>Europe</b> +390510924300 Direct number	<b>China</b> 800 820 0202 Toll free +86 21 3860 4892 Direct number
+704 805 6946 Direct Number	<b>Mexico</b> +52 55 2169 7670 Direct Number	<b>India, Middle East &amp; Africa</b> + 91 44 71212207 Direct number*	<b>Japan</b> +81 3 5544 3111 Direct number
*All American countries		<b>*All Middle Eastern countries, Africa, India,</b>	<b>Korea</b> +82 2 6201 4600

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