

Product Information

Lubrication Products

DOW CORNING

Dow Corning[®] FS-1265 Fluid

FEATURES

- Resists oxidation, harsh chemicals, fuels, wide temperature ranges
- Available in 300, 1000 and 10,000 cs
- Service temperature range of -40 to 204°C (-40 to 400°F); see caution statement under “Toxicity”

COMPOSITION

- Fluorosilicone oil

Fluorosilicone fluid designed for lubricating in harsh environments

APPLICATIONS

Dow Corning[®] FS-1265 Fluid is typically used as a lubricating oil in vacuum pumps handling reactive gases; in high- and low-temperature bearings; in bearings subjected to washing by fuels or solvents; in vapor cycle engines, such as those handling steam or *Freon*^{®1}; and as a base fluid for thickening greases.

Mechanical Vacuum Pumps

Besides giving excellent lubricity, *Dow Corning* FS-1265 Fluid resists breakdown and sludge formation caused by trace amounts of reactive chemicals such as acids, bases and halogens. This oil's stability at elevated temperatures and good film strength protect vacuum pumps from chemical corrosion or wear. Because this fluid is insoluble in water, any moisture entering the pump system will be purged without affecting the pumping characteristics or causing corrosion.

Porous Bronze Bearings

Dow Corning FS-1265 Fluid is used to lubricate small, lightly loaded porous bronze bearings. Besides excellent lubricity, it provides superior wear life, stability from -40 to 204°C (-40 to 400°F) and resists degradation by corrosive chemicals.

DESCRIPTION

Dow Corning FS-1265 Fluid is a fluorosilicone oil for lubricating steel and bronze under severe environmental conditions. It offers:

- Outstanding lubricity even in the presence of harsh chemicals and fuels
- Excellent fire, flash and oxidation resistance
- A high viscosity index; relatively flat viscosity-temperature curve
- Good film adherence
- Reduced maintenance costs
- Increased safety from fires and explosions
- Reduced process contamination

In addition, *Dow Corning* FS-1265 Fluid is insoluble in water, most fuels, oils and solvents, and is compatible

with most elastomers. It is available in viscosities of 300, 1000 and 10,000 centistokes.

PERFORMANCE

Solubility

The solubility of *Dow Corning* FS-1265 Fluid in various solvents is shown in Table I.

Chemical Resistance

Dow Corning FS-1265 Fluid resists degradation by acids and acidic hydrogen gases; water, aqueous salts, steam and ozone; hydrocarbons; hydrogen chloride, chlorine and other chlorinated hydrocarbons; *Freon*, ammonia and hydrogen sulfide. It resists the washing action of such gases as methyl chloride and methane, and it minimizes oil contamination in such gases as carbon dioxide, nitrogen, argon and other industrial gases.

¹*Freon* is a registered trademark of E.I. du Pont de Nemours & Co.

TYPICAL PROPERTIES

Specification Writers: Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Test	Unit	Result		
		Viscosity Grade, centistokes at 25°C (77°F)		
		300	1000	10,000
Color		Clear to straw	Clear to straw	Clear to straw
Viscosity at:				
-18°C (0°F)	cs (SUS)	5500 (25,300)	22,000 (101,200)	440,000 (2,024,000)
100°C (210°F)	cs (SUS)	30 (138)	74 (341)	690 (3,174)
204°C (400°F)	cs (SUS)	5.5 (25.3)	11.5 (52.8)	80 (368)
Specific Gravity at 25°C (77°F)		1.25	1.28	1.30
Temperature Range	°C (°F)	-40 to 204 (-40 to 400)	-40 to 204 (-40 to 400)	-40 to 204 (-40 to 400)
Melt Point	°C (°F)	-48 (-55)	-40 (-40)	-32 (-25)
Pour Point	°C (°F)	-43 (-45)	-41 (-42)	-1 (30)
Flash Point, closed cup	°C (°F)	260 (500)	304 (580)	315 (600)
Fire Point	°C (°F)	>315 (600)	>315 (600)	>315 (600)
Volatility ¹				
After 4 hours at 200°C (392°F)	percent weight loss	2.0	1.5	—
After 120 hours at 200°C (392°F)	percent weight loss	18.0	5.0	—
Gel Time, ¹ at 200°C (392°F)	hours	552	576	336
Surface Tension	dynes per cm	25.7	26.1	28.7
Viscosity Temperature Coefficient		0.84	—	—
Viscosity Index		220	—	—
Coefficient of Thermal Expansion				
25 to 204°C (77 to 400°F), per °F		0.949 x 10 ⁻³	—	—

¹Determined by heating 35 to 40 grams in an air-circulating oven. The fluid was contained in a 150-mL beaker having a bottom area of about 3 square inches.

Lubricity

Shell Four-Ball Lubricity Tests:

The test results in Table II were obtained using *Dow Corning* FS-1265 Fluid as a steel-on-steel lubricant in a Shell 4-Ball Tester. The tester was operated for two hours in each test at 1200 rpm, using 52-100 steel balls.

Pump Wear Tests:

To check the lubricity of *Dow Corning* FS-1265 Fluid in pumps, samples of the fluid were subjected to tests at high pressures and high temperatures in a Vickers V-105Y vane pump. The pump vanes were weighed both before and after each run, and the wear was measured as the weight loss in the vanes. Two pumps were used, one that had been previously run in with other oils and a new pump that was run in with *Dow Corning* FS-1265 Fluid.

The following papers provide further information concerning the lubricity of *Dow Corning* FS-1265 Fluid:

- Schiefer, H.M., Awe, R.W., and Whipple, C.L., "Extending the Utility of Silicone Lubricants Through Structural Modifications," *J. Chme. Eng. Data*, 6, 155-160 (1961).
- Schiefer, H.M., and VanDyke, J. A., "Boundary Lubricating Properties of Fluoroalkyl Silicones in Bench and Pump Tests," *ASLE Trans.*, 7, 32-42 (1964).
- Schiefer, H.M., Azzam, H.T., and Miller, J.W., "Industrial Fluoro-silicone Applications Predicted by Laboratory Tests," *Lubrication Engineering*, 25, 210-220 (1969).

- Smith, R.E., Groenhof, E.D., and Winer, W.O., "The Behavior of Fluorosilicones as Lubricants," Synthetic Lubricants Symposium (February 1970).

TOXICITY

Caution: Trace amounts of toxic vapors may evolve from *Dow Corning* FS-1265 Fluid at temperatures above 149°C (300°F) in air. Provide adequate ventilation if temperatures are likely to range above this point. Please read Material Safety Data Sheet (MSDS) for safety and handling details. The fluid is essentially nontoxic, except when heated in air to a point where decomposition begins.

Caution: *Dow Corning* FS-1265 Fluid may ignite when used in contact with strong oxidizing agents. Appropriate precautions must be taken.

Table I: Typical Solvent Solubility

Solvent	Solubility		
	300 cs	1000 cs	10,000 cs
Isopropyl alcohol	I	I	I
Ethylene glycol	I	I	I
Propylene glycol	I	I	I
Methyl ethyl ketone	S	S	S
Acetone	S	S	S
Methyl isobutyl ketone	S	S	S
Benzene	D	sl.D	sl.D
Xylene	sl.D	sl.D	sl.D
Styrene	D	sl.D	sl.D
Iso-octane	I	I	I
VM&P naphtha	I	I	I
JP-4 jet fuel	I	I	I
Chlorothene® ¹	S	sl.S	D
Perchloroethylene	sl.D	sl.D	sl.D
Methylene chloride	S	S	sl.D
Freon 11	S	sl.S	I
Freon 12	S	I	I
Freon 114	S	I	I
Water	I	I	I

¹Chlorothene is a registered trademark of The Dow Chemical Company.

I – insoluble sl.D – insoluble but slightly dispersible
sl.S – slightly soluble D – insoluble but dispersible
S – soluble

Table II: Typical Shell Four-Ball Lubricity Test

Temperature, °C (°F)	Test Load, kg (600 rpm)	Scar Diameter	
		Dow Corning FS-1265 Fluid, 300 cs	Dow Corning FS-1265 Fluid, 1000 cs
25 (77)	50	0.45	–
75 (167)	4	0.19	0.19
75 (167)	10	0.35	0.26
75 (167)	40	0.97	0.47
135 (275)	4	0.20	0.20
135 (275)	10	0.51	0.25
135 (275)	40	1.40	0.53
204 (400)	4	0.58	0.21
204 (400)	10	0.65	0.51
204 (400)	40	1.60	1.12

HANDLING PRECAUTIONS

PRODUCT SAFETY INFORMATION
REQUIRED FOR SAFE USE IS NOT
INCLUDED IN THIS DOCUMENT.
BEFORE HANDLING, READ
PRODUCT AND MATERIAL
SAFETY DATA SHEETS AND
CONTAINER LABELS FOR SAFE

USE, PHYSICAL AND HEALTH
HAZARD INFORMATION. THE
MATERIAL SAFETY DATA SHEET
IS AVAILABLE FROM YOUR
DOW CORNING REPRESENTATIVE,
OR DISTRIBUTOR, OR
BY CALLING YOUR GLOBAL
DOW CORNING CONNECTION.

USABLE LIFE AND STORAGE

When stored in original, unopened containers at room temperature, *Dow Corning* FS-1265 Fluid has a shelf life of 48 months from date of manufacture. Refer to product packaging for “Use By” date.

Occasionally an odor of ammonia will be noticed in a newly opened container. It rapidly dissipates and does not affect the properties or the function of the oil.

PACKAGING

Dow Corning FS-1265 Fluid is supplied in 4.5-kg (10-lb) and 22.7-kg (50-lb) pails, net weight.

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

SHIPPING LIMITATIONS

None.

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, *Dow Corning* has an extensive Product Stewardship organization and a team of Health, Environment and Regulatory Affairs specialists available in each area. For further information, please consult your local *Dow Corning* representative.

WARRANTY INFORMATION

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer’s tests to ensure that *Dow Corning*’s products are safe, effective, and fully satisfactory for the

Table III: Compatibility With Plastics, Silicone Rubber and Organic Rubber

Plastic immersed in *Dow Corning* FS-1265 Fluid for 2 weeks at 100°C (212°F), 3 weeks at 25°C (77°F):

	Type <u>Sample</u>	Weight Change, <u>percent</u>	Appearance <u>Change</u>
<i>Viton</i> ^{®1}	Gasket	+0.07	None
<i>Teflon</i> ^{®1}	1/8" Strip	+0.05	None
<i>Delrin</i> ^{®1} (acetal resin)	Flat plate	+0.85	None
Polypropylene	Flat plate	-0.81	None
<i>Zytel</i> ^{®1} 31 (nylon)	Strip	-0.35	None
Phenolic laminate	Laminate	+4.02	Darker color

Silicone rubber immersed in *Dow Corning* FS-1265 Fluid for 70 hours at 149°C (300°F):

	Property Change		
	Hardness, Shore A, <u>points</u>	Tensile Strength, <u>percent</u>	Elongation, <u>percent</u>
<i>Silastic</i> [®] 50 Rubber (dimethyl silicone stock)	+1	+12	-3
<i>Silastic</i> [®] LS-53 Rubber (fluorosilicone stock)	-10	-54	-47
<i>Silastic</i> [®] 651 Rubber (extreme low-temperature stock)	-2	+13	-8

Organic rubber immersed in *Dow Corning* FS-1265 Fluid for 7 days at 70°C (158°F):

	Property Change				
	Hardness Shore A, <u>points</u>	Tensile Strength, <u>percent</u>	Elongation, <u>percent</u>	Volume, <u>percent</u>	Weight, <u>percent</u>
<i>Viton</i>	-1	Nil	-4	0.5	Nil
Neoprene	+10	+6	-3	-4.0	-3.0
EPR	-4	-1	Nil	-0.6	Nil
GRS	Nil	-18	-33	-1.2	-1.1
Butyl	-1	+12	+4	Nil	Nil

¹*Viton, Teflon, Delrin* and *Zytel* are registered trademarks of E.I. du Pont de Nemours & Company.

intended end use. Dow Corning's sole warranty is that the product will meet the Dow Corning sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. Dow Corning specifically disclaims any other express or implied warranty of fitness for a particular purpose or merchantability, unless Dow Corning provides you with a specific, duly signed endorsement of fitness for use. Dow Corning disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.