

## Solvay Specialty Polymers Solef® 1009 PVDF Homopolymer (discontinued \*\*)

Category : Polymer , Thermoplastic , Fluoropolymer , PVDF , Polyvinylidene fluoride (PVDF), Molded/Extruded

### Material Notes:

Key features of this grade: Mean Viscosity, All Purpose, Injection/Extrusion, Virgin. Recommended processing is extrusion. Available as powder & granules. General information about SOLEF® PVDF: SOLEF® PVDF is a fluorinated semi-crystalline thermoplastic which is obtained by polymerizing vinylidene fluoride. Important properties include excellent chemical resistance to most aggressive substances and solvents, excellent mechanical strength and toughness, high abrasion resistance, high temperature capabilities, excellent aging resistance, high purity, resistance to UV and nuclear radiation, excellent intrinsic fire resistance, resistance to weathering, low permeability to most gases and liquids, and easily melt-processed by standard methods of molding and extrusion. Tensile properties are achieved with varying methods of sample fabrication. Information provided by Solvay Solexis, Inc.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Solvay-Specialty-Polymers-Solef-1009-PVDF-Homopolymer-nbspdiscontinued-.php](http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-Solef-1009-PVDF-Homopolymer-nbspdiscontinued-.php)

Physical Properties	Metric	English	Comments
Density	1.78 g/cc	0.0643 lb/in <sup>3</sup>	ISO 1183
Water Absorption	<= 0.040 %	<= 0.040 %	ISO 62 (method 1)
Linear Mold Shrinkage	0.020 - 0.030 cm/cm	0.020 - 0.030 in/in	
Melt Flow	3.5 g/10 min	3.5 g/10 min	ASTM D1238
	@Load 2.16 kg, Temperature 230 °C	@Load 4.76 lb, Temperature 446 °F	
	10 g/10 min	10 g/10 min	ASTM D1238
	@Load 5.00 kg, Temperature 230 °C	@Load 11.0 lb, Temperature 446 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	78	78	ASTM D2240
	@Thickness 2.00 mm	@Thickness 0.0787 in	
Tensile Strength, Ultimate	35.0 - 50.0 MPa	5080 - 7250 psi	50 mm/min; ASTM D638
Tensile Strength, Yield	53.0 - 57.0 MPa	7690 - 8270 psi	50 mm/min; ASTM D638
Elongation at Break	20 - 50 %	20 - 50 %	50 mm/min; ASTM D638
Elongation at Yield	5.0 - 10 %	5.0 - 10 %	50 mm/min; ASTM D638
Modulus of Elasticity	2.50 GPa	363 ksi	1 mm/min; ASTM D638
Flexural Yield Strength	77.0 MPa	11200 psi	2 mm/min; ASTM D790
Flexural Modulus	2.10 GPa	305 ksi	2 mm/min; ASTM D790

Mechanical Properties	Metric /cm	English lb/in	Comments
Izod Impact, Notched	@Thickness 4.00 mm, Temperature 23.0 °C	@Thickness 0.157 in, Temperature 73.4 °F	Notched V 10 mm; ASTM D256
Coefficient of Friction	0.20 - 0.30	0.20 - 0.30	ASTM D1894
Coefficient of Friction, Static	0.20 - 0.40	0.20 - 0.40	ASTM D1894
Taber Abrasion, mg/1000 Cycles	5.0 - 10	5.0 - 10	CS10 / 1 kg

Thermal Properties	Metric	English	Comments
Heat of Fusion	58.0 J/g	25.0 BTU/lb	Crystallization Heat
	67.0 J/g	28.8 BTU/lb	80°C to end of melting
CTE, linear	120 - 140 µm/m-°C @Temperature 20.0 °C	66.7 - 77.8 µin/in-°F @Temperature 68.0 °F	ASTM D696
Specific Heat Capacity	1.20 J/g-°C	0.287 BTU/lb-°F	
	1.60 J/g-°C @Temperature 100 °C	0.382 BTU/lb-°F @Temperature 212 °F	
Thermal Conductivity	0.200 W/m-K	1.39 BTU-in/hr-ft <sup>2</sup> -°F	ASTM C177
Melting Point	174 °C	345 °F	Crystallinity by DSC; ASTM D 3418
Crystallization Temperature	140 °C	284 °F	
Deflection Temperature at 0.46 MPa (66 psi)	147 °C @Thickness 4.00 mm	297 °F @Thickness 0.157 in	after annealing 150°C 16 hr; ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	113 °C @Thickness 4.00 mm	235 °F @Thickness 0.157 in	after annealing 150°C 16 hr; ASTM D648
Vicat Softening Point	171 °C @Load 1.00 kg, Thickness 4.00 mm	340 °F @Load 2.20 lb, Thickness 0.157 in	ISO 306
Brittleness Temperature	0.000 - 10.0 °C	32.0 - 50.0 °F	ASTM D746A
Glass Transition Temp, Tg	-30.0 °C	-22.0 °F	DMTA
Decomposition Temperature	375 - 400 °C	707 - 752 °F	Thermal Stability via TGA : beginning - and at 1% weight loss in air
Oxygen Index	44 % @Thickness 3.00 mm	44 % @Thickness 0.118 in	sheet; ASTM D2863

Electrical Properties	Metric	English	Comments
Electrical Resistivity	$\geq 1.00 \times 10^{14}$ ohm-cm	$\geq 1.00 \times 10^{14}$ ohm-cm	Intensity = 10 mA after 2 min @ 23°C; ASTM D 257; DIN 53483
Surface Resistance	$\geq 1.00 \times 10^{14}$ ohm	$\geq 1.00 \times 10^{14}$ ohm	Voltage < 1 V after 2 min - 500 V; ASTM D 257/DIN 53483

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