

## Solvay Specialty Polymers Solef® 1008 PVDF Homopolymer (discontinued \*\*)

Categories: [Polymer](#); [Thermoplastic](#); [Fluoropolymer](#); [PVDF](#); [Polyvinylidene fluoride \(PVDF\)](#); [Molded/Extruded](#)

**Material Notes:** Key features of this grade: Low Viscosity, All Purpose, Injection, Virgin. Recommended processing is injection. 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.

**Key Words:** Polyvinylidene Fluoride

**Vendors:** [Click here to view all available suppliers for this material.](#)

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| 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               | 8.0 g/10 min<br>@Load 2.16 kg,<br>Temperature 230 °C     | 8.0 g/10 min<br>@Load 4.76 lb,<br>Temperature 446 °F         | ASTM D1238                                                           |
|                                                                                                          | 24 g/10 min<br>@Load 5.00 kg,<br>Temperature 230 °C      | 24 g/10 min<br>@Load 11.0 lb,<br>Temperature 446 °F          | ASTM D1238                                                           |
| Mechanical Properties                                                                                    | Metric                                                   | English                                                      | Comments                                                             |
| Hardness, Shore D                                                                                        | 78<br>@Thickness 2.00 mm                                 | 78<br>@Thickness 0.0787 in                                   | ASTM D2240                                                           |
| 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                                                                                    | 2.60 GPa                                                 | 377 ksi                                                      | 1 mm/min; ASTM D638                                                  |
| Flexural Yield Strength                                                                                  | 78.0 MPa                                                 | 11300 psi                                                    | 2 mm/min; ASTM D790                                                  |
| Flexural Modulus                                                                                         | 2.20 GPa                                                 | 319 ksi                                                      | 2 mm/min; ASTM D790                                                  |
| Izod Impact, Notched                                                                                     | 0.550 J/cm<br>@Thickness 4.00 mm,<br>Temperature 23.0 °C | 1.03 ft-lb/in<br>@Thickness 0.157 in,<br>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                                                          |
| Electrical Properties                                                                                    | Metric                                                   | English                                                      | Comments                                                             |
| Electrical Resistivity                                                                                   | >= 1.00e+14 ohm-cm                                       | >= 1.00e+14 ohm-cm                                           | Intensity = 10 mA after 2 min @ 23°C; ASTM D 257; DIN 53483          |
| Surface Resistance                                                                                       | >= 1.00e+14 ohm                                          | >= 1.00e+14 ohm                                              | Voltage < 1 V after 2 min - 500 V; ASTM D 257/DIN 53483              |
| Thermal Properties                                                                                       | Metric                                                   | English                                                      | Comments                                                             |
| Heat of Fusion                                                                                           | 59.0 J/g                                                 | 25.4 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<br>@Temperature 20.0 °C                | 66.7 - 77.8 µin/in-°F<br>@Temperature 68.0 °F                | ASTM D696                                                            |
| Specific Heat Capacity  | 1.20 J/g-°C                                              | 0.287 BTU/lb-°F                                              |                                                                      |
|                                                                                                          | 1.60 J/g-°C<br>@Temperature 100 °C                       | 0.382 BTU/lb-°F<br>@Temperature 212 °F                       |                                                                      |
| Thermal Conductivity                                                                                     | 0.200 W/m-K                                              | 1.39 BTU-in/hr-ft²-°F                                        | ASTM C177                                                            |
| Melting Point                                                                                            | 174 °C                                                   | 345 °F                                                       | Crystallinity by DSC; ASTM D 3418                                    |
| Crystallization Temperature                                                                              | 140 °C                                                   | 284 °F                                                       |                                                                      |
| Maximum Service Temperature, Air                                                                         | 375 - 400 °C                                             | 707 - 752 °F                                                 | Thermal Stability via TGA : beginning - and at 1% weight loss in air |
| Deflection Temperature at 0.46 MPa (66 psi)                                                              | 148 °C<br>@Thickness 4.00 mm                             | 298 °F<br>@Thickness 0.157 in                                | after annealing 150°C 16 hr; ASTM D648                               |
| Deflection Temperature at 1.8 MPa (264 psi)                                                              | 115 °C<br>@Thickness 4.00 mm                             | 239 °F<br>@Thickness 0.157 in                                | after annealing 150°C 16 hr; ASTM D648                               |
| Vicat Softening Point                                                                                    | 171 °C<br>@Load 1.00 kg,<br>Thickness 4.00 mm            | 340 °F<br>@Load 2.20 lb,<br>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              |
| Flammability, UL94        | V-0                        | V-0                         |                   |
| Oxygen Index              | 44 %<br>@Thickness 3.00 mm | 44 %<br>@Thickness 0.118 in | sheet; ASTM D2863 |

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