

## Solvay Specialty Polymers Solef® 6012 Polyvinylidene Fluoride (PVDF)

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

### Material Notes:

Solef® 6012 PVDF homopolymer is a high-viscosity PVDF resin and is typically processed by extrusion or compression molding. Features:

High Viscosity; Homopolymer Additional Properties: Crystallization Heat - ASTM D3417 50.0 to 60.0 J/g; Heat of Fusion - ASTM D3417

55.0 to 65.0 J/g Information provided by Solvay Specialty Polymers.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Solvay-Specialty-Polymers-Solef-6012-Polyvinylidene-Fluoride-PVDF.php](http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-Solef-6012-Polyvinylidene-Fluoride-PVDF.php)

| Physical Properties         | Metric                                                     | English                                                    | Comments   |
|-----------------------------|------------------------------------------------------------|------------------------------------------------------------|------------|
| Density                     | 1.75 - 1.80 g/cc                                           | 0.0632 - 0.0650 lb/in <sup>3</sup>                         | ASTM D792  |
| Water Absorption            | <= 0.040 %<br>@Time 86400 sec                              | <= 0.040 %<br>@Time 24.0 hour                              | ISO 62     |
| Linear Mold Shrinkage, Flow | 0.020 - 0.030 cm/cm                                        | 0.020 - 0.030 in/in                                        |            |
| Melt Flow                   | 4.0 - 6.0 g/10 min<br>@Load 10.0 kg,<br>Temperature 230 °C | 4.0 - 6.0 g/10 min<br>@Load 22.0 lb,<br>Temperature 446 °F | ASTM D1238 |

| Mechanical Properties            | Metric                                 | English                                     | Comments                        |
|----------------------------------|----------------------------------------|---------------------------------------------|---------------------------------|
| Hardness, Shore D                | 72 - 78                                | 72 - 78                                     | 1 sec; ASTM D2240               |
| Tensile Strength at Break        | 30.0 - 50.0 MPa<br>@Thickness 2.00 mm  | 4350 - 7250 psi<br>@Thickness 0.0787 in     | 50 mm/min; ASTM D638            |
| Tensile Strength, Yield          | 50.0 - 60.0 MPa<br>@Thickness 2.00 mm  | 7250 - 8700 psi<br>@Thickness 0.0787 in     | 50 mm/min; ASTM D638            |
| Elongation at Break              | 20 - 300 %                             | 20 - 300 %                                  | 50 mm/min; ASTM D638            |
| Elongation at Yield              | 5.0 - 10 %                             | 5.0 - 10 %                                  | 50 mm/min; ASTM D638            |
| Tensile Modulus                  | 1.70 - 2.50 GPa<br>@Thickness 2.00 mm  | 247 - 363 ksi<br>@Thickness 0.0787 in       | 1.0 mm/min; ASTM D638           |
| Izod Impact, Notched             | 1.50 - 2.50 J/cm<br>@Thickness 4.00 mm | 2.81 - 4.68 ft-lb/in<br>@Thickness 0.157 in | ASTM D256                       |
| Coefficient of Friction, Dynamic | 0.15 - 0.35                            | 0.15 - 0.35                                 | vs. Itself; ASTM D1894          |
| Coefficient of Friction, Static  | 0.20 - 0.40                            | 0.20 - 0.40                                 | vs. Itself; ASTM D1894          |
| Taber Abrasion, mg/1000 Cycles   | 5.0 - 10                               | 5.0 - 10                                    | CS-10 Wheel, 1000 g; ASTM D1044 |

| Mechanical Properties         | Metric                                                                                               | English                                                                                                 | Comments                                                  |
|-------------------------------|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| Thermal Properties            | Metric                                                                                               | English                                                                                                 | Comments                                                  |
| CTE, linear, Parallel to Flow | 140 $\mu\text{m/m}\cdot\text{Å}^\circ\text{C}$<br>@Temperature 0.000 - 40.0 $\text{Å}^\circ\text{C}$ | 77.8 $\mu\text{in/in}\cdot\text{Å}^\circ\text{F}$<br>@Temperature 32.0 - 104 $\text{Å}^\circ\text{F}$   | 1                                                         |
| Specific Heat Capacity        | 1.20 J/g- $\text{Å}^\circ\text{C}$<br>@Temperature 23.0 $\text{Å}^\circ\text{C}$                     | 0.287 BTU/lb- $\text{Å}^\circ\text{F}$<br>@Temperature 73.4 $\text{Å}^\circ\text{F}$                    | ASTM C351                                                 |
|                               | 1.60 J/g- $\text{Å}^\circ\text{C}$<br>@Temperature 100 $\text{Å}^\circ\text{C}$                      | 0.382 BTU/lb- $\text{Å}^\circ\text{F}$<br>@Temperature 212 $\text{Å}^\circ\text{F}$                     | ASTM C351                                                 |
| Thermal Conductivity          | 0.200 W/m-K<br>@Temperature 23.0 $\text{Å}^\circ\text{C}$                                            | 1.39 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$<br>@Temperature 73.4 $\text{Å}^\circ\text{F}$ | ASTM C177                                                 |
| Melting Point                 | 170 - 174 $\text{Å}^\circ\text{C}$                                                                   | 338 - 345 $\text{Å}^\circ\text{F}$                                                                      | DSC                                                       |
| Crystallization Temperature   | 137 - 145 $\text{Å}^\circ\text{C}$                                                                   | 279 - 293 $\text{Å}^\circ\text{F}$                                                                      | Peak; ASTM D3418                                          |
| Vicat Softening Point         | 135 - 145 $\text{Å}^\circ\text{C}$                                                                   | 275 - 293 $\text{Å}^\circ\text{F}$                                                                      | Rate A (50 $\text{Å}^\circ\text{C/h}$ ), Loading 2 (50 N) |
| Glass Transition Temp, Tg     | -40.0 $\text{Å}^\circ\text{C}$                                                                       | -40.0 $\text{Å}^\circ\text{F}$                                                                          | ASTM E1356                                                |
| Flammability, UL94            | V-0<br>@Thickness 0.100 mm                                                                           | V-0<br>@Thickness 0.00394 in                                                                            |                                                           |
| Oxygen Index                  | 44 %<br>@Thickness 3.00 mm                                                                           | 44 %<br>@Thickness 0.118 in                                                                             | ASTM D2863                                                |

| Electrical Properties | Metric                                  | English                                 | Comments  |
|-----------------------|-----------------------------------------|-----------------------------------------|-----------|
| Volume Resistivity    | $\geq 1.00\text{e}+14$ ohm-cm           | $\geq 1.00\text{e}+14$ ohm-cm           | ASTM D257 |
| Surface Resistance    | $\geq 1.00\text{e}+14$ ohm              | $\geq 1.00\text{e}+14$ ohm              | ASTM D257 |
| Dielectric Constant   | 7.0 - 10<br>@Frequency 1000 Hz          | 7.0 - 10<br>@Frequency 1000 Hz          | ASTM D150 |
| Dielectric Strength   | 20.0 - 25.0 kV/mm<br>@Thickness 1.00 mm | 508 - 635 kV/in<br>@Thickness 0.0394 in | ASTM D149 |

| Descriptive Properties | Value                | Comments |
|------------------------|----------------------|----------|
| Availability           | Africa & Middle East |          |
|                        | Asia Pacific         |          |

| Descriptive Properties | Value                          | Comments |
|------------------------|--------------------------------|----------|
|                        | Latin America                  |          |
|                        | North America                  |          |
| Processing Technique   | Compression Molding; Extrusion |          |

## Contact Songhan Plastic Technology Co.,Ltd.

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