

## Solvay Specialty Polymers AvaSpire® AV-742 SL30 Polyaryletherketone (PAEK) (Unverified Data\*\*)

Category : Polymer , Thermoplastic , Polyketone , Polyaryletherketone (PAEK), Carbon Fiber Filled

### Material Notes:

AV-742 SL30 is a wear resistant grade of AvaSpire polyaryletherketone (PAEK) designed to provide low wear rates in both non-lubricated and lubricated environments. In addition to outstanding wear resistance, the resin also offers the outstanding combination of ultra-performance attributes commonly known for PEEK. These include: chemical resistance, mechanical strength and stiffness, even at elevated temperatures, as well as long-term and high-temperature thermal-oxidative stability. AV-742 SL30 is formulated with the ternary anti-friction/anti-wear additive system comprised of carbon fiber, graphite, and polytetrafluoroethylene (PTFE). It offers wear resistance performance comparable to PEEK grades with this modifier system while being more cost-effective. This high flowing (low viscosity) grade is designed for use in the injection molding of thin, intricate or complex shapes, or parts in otherwise challenging molding configurations. If the part geometry is such that low viscosity is not a processing necessity, it is recommended that the companion grade AV-722 SL30 be considered first to take advantage of the higher molecular weight of that grade, which results in greater wear resistance as well as better overall mechanical performance in terms of toughness-related properties. The resin can be melt processed using conventional equipment and techniques. Potential applications for AV-742 SL30 include bushings, bearings, wear strips, wear rings, rollers, and other parts used in sliding friction components. The resin is black in color in its natural state. Information provided by Solvay Specialty Polymers.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Solvay-Specialty-Polymers-AvaSpire-AV-742-SL30-Polyaryletherketone-PAEK-nbspUnverified-Data.php](http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-AvaSpire-AV-742-SL30-Polyaryletherketone-PAEK-nbspUnverified-Data.php)

| Physical Properties               | Metric   | English  | Comments                           |
|-----------------------------------|--|--|------------------------------------|
| Specific Gravity                  | 1.47 g/cc  | 1.47 g/cc  | ASTM D792                          |
| Water Absorption                  | 0.030 %<br>@Time 86400 sec                               | 0.030 %<br>@Time 24.0 hour                               | ASTM D570                          |
| Viscosity                         | 270000 cP<br>@Shear Rate 1000 1/s,<br>Temperature 400 °C | 270000 cP<br>@Shear Rate 1000 1/s,<br>Temperature 752 °F | Melt                               |
| Linear Mold Shrinkage, Flow       | 0.0010 - 0.0030 cm/cm<br>@Thickness 3.18 mm              | 0.0010 - 0.0030 in/in<br>@Thickness 0.125 in             | 5" x 0.5" x 0.125" bars; ASTM D955 |
| Linear Mold Shrinkage, Transverse | 0.016 - 0.018 cm/cm<br>@Thickness 3.18 mm                | 0.016 - 0.018 in/in<br>@Thickness 0.125 in               | 5" x 0.5" x 0.125" bars; ASTM D955 |
| Melt Flow                         | 2.5 g/10 min<br>@Load 2.16 kg,<br>Temperature 400 °C     | 2.5 g/10 min<br>@Load 4.76 lb,<br>Temperature 752 °F     | ASTM D1238                         |

| Mechanical Properties | Metric | English | Comments           |
|-----------------------|--------|---------|--------------------|
| Hardness, Rockwell M  | 87     | 87      | M-Scale; ASTM D785 |

| Mechanical Properties        | Metric                 | English                    | Comments              |
|------------------------------|------------------------|----------------------------|-----------------------|
| Tensile Strength             | 143 MPa                | 20600 psi                  | 5.0 mm/min; ASTM D638 |
| Tensile Strength, Yield      | 156 MPa                | 22600 psi                  | ISO 527-2/1A/5        |
| Elongation at Break          | 1.8 %                  | 1.8 %                      | 5.0 mm/min; ASTM D638 |
|                              | 1.8 %                  | 1.8 %                      | ISO 527-2/1A/5        |
| Tensile Modulus              | 13.0 GPa               | 1890 ksi                   | 5.0 mm/min; ASTM D638 |
|                              | 15.5 GPa               | 2250 ksi                   | ISO 527-2/1A/1        |
| Flexural Strength            | 203 MPa                | 29400 psi                  | ISO 178               |
|                              | 211 MPa                | 30600 psi                  | ASTM D790             |
| Flexural Modulus             | 10.4 GPa               | 1510 ksi                   | ASTM D790             |
|                              | 13.2 GPa               | 1910 ksi                   | ISO 178               |
| Compressive Strength         | 121 MPa                | 17500 psi                  | ASTM D695             |
| Shear Strength               | 70.0 MPa               | 10200 psi                  | ASTM D732             |
| Izod Impact, Notched         | 0.530 J/cm             | 0.993 ft-lb/in             | ASTM D256             |
|                              | 4.10 J/cm              | 7.68 ft-lb/in              | ASTM D4812            |
| Izod Impact, Notched (ISO)   | 5.80 kJ/m <sup>2</sup> | 2.76 ft-lb/in <sup>2</sup> | ISO 180               |
| Izod Impact, Unnotched (ISO) | 28.0 kJ/m <sup>2</sup> | 13.3 ft-lb/in <sup>2</sup> | ISO 180               |

| Thermal Properties                          | Metric   | English   | Comments            |
|---|--|---|---------------------|
| CTE, linear, Parallel to Flow               | 10.0 $\mu\text{m}/\text{m}\cdot\text{°C}$<br>@Temperature -50.0 - 50.0 $\text{°C}$ | 5.56 $\mu\text{in}/\text{in}\cdot\text{°F}$<br>@Temperature -58.0 - 122 $\text{°F}$ | TMA; ASTM E831      |
| Specific Heat Capacity                      | 1.25 J/g- $\text{°C}$<br>@Temperature 50.0 $\text{°C}$                             | 0.299 BTU/lb- $\text{°F}$<br>@Temperature 122 $\text{°F}$                           | DSC                 |
|   | 1.71 J/g- $\text{°C}$<br>@Temperature 200 $\text{°C}$                              | 0.409 BTU/lb- $\text{°F}$<br>@Temperature 392 $\text{°F}$                           | DSC                 |
| Thermal Conductivity                        | 0.340 W/m-K  | 2.36 BTU-in/hr-ft <sup>2</sup> - $\text{°F}$  | ASTM E1530          |
| Melting Point                               | 343 $\text{°C}$  | 649 $\text{°F}$   | Peak; ASTM D3418    |
| Deflection Temperature at 1.8 MPa (264 psi) | 276 $\text{°C}$  | 529 $\text{°F}$   | Annealed; ASTM D648 |
| Glass Transition Temp, Tg                   | 152 $\text{°C}$  | 306 $\text{°F}$   | ASTM D3418          |

| Processing Properties     | Metric       | English      | Comments |
|---------------------------|--------------|--------------|----------|
| Rear Barrel Temperature   | 354 °C       | 669 °F       |          |
| Middle Barrel Temperature | 366 °C       | 691 °F       |          |
| Front Barrel Temperature  | 371 °C       | 700 °F       |          |
| Nozzle Temperature        | 374 °C       | 705 °F       |          |
| Melt Temperature          | 366 - 388 °C | 691 - 730 °F |          |
| Mold Temperature          | 149 - 177 °C | 300 - 351 °F |          |
| Drying Temperature        | 149 °C       | 300 °F       |          |
| Dry Time                  | 4.00 hour    | 4.00 hour    |          |

| Descriptive Properties | Value                                    | Comments |
|------------------------|--|----------|
| Additive               | Carbon Fiber + Graphite + PTFE Lubricant |          |
| Appearance             | Black                                    |          |
| Availability           | Africa & Middle East                     |          |
|                        | Asia Pacific                             |          |
|                        | Europe                                   |          |
|                        | North America                            |          |
|                        | South America                            |          |
| Features               | Flame Retardant                          |          |
|                        | Good Chemical Resistance                 |          |
|                        | Good Dimensional Stability               |          |
|                        | Good Wear Resistance                     |          |
|                        | High Heat Resistance                     |          |
| Forms                  | Pellets                                  |          |
| Generic                | PAEK                                     |          |
| Injection Rate         | Fast                                     |          |
| Processing Method      | Injection Molding                        |          |
|                        | Machining                                |          |

| Descriptive Properties  | Profile Extrusion Value | Comments |
|-------------------------|-------------------------|----------|
| Screw Compression Ratio | 2.0:1.0 to 3.0:1.0      |          |
| Uses                    | Automotive Applications |          |
|                         | Bushings                |          |
|                         | Thin-walled Parts       |          |
|                         | Wear Strip              |          |

## Contact Songhan Plastic Technology Co.,Ltd.

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