

# AvaSpire® AV-750 GF40

Polyaryletherketone  
Solvay Specialty Polymers

Message:

AvaSpire AV -750 GF40 is a 40% glass fiber reinforced polyaryletherketone (PAEK) designed to meet the market demand for lower-priced PEEK (polyetheretherketone). The resin has the typical chemical resistance characteristics of PEEK (polyetheretherketone) while maintaining excellent high temperature resistance. Its price and performance help expand market opportunities for PEEK resins, especially in the field of metal substitutes for corrosion control. -natural color: AvaSpire AV-750 GF40 NT

| General Information                                    |                                                       |                   |             |
|--------------------------------------------------------|-------------------------------------------------------|-------------------|-------------|
| UL YellowCard                                          | E140728-100211995                                     |                   |             |
| Filler / Reinforcement                                 | Glass fiber reinforced material, 40% filler by weight |                   |             |
| Features                                               | Good dimensional stability                            |                   |             |
|                                                        | Rigidity, high                                        |                   |             |
|                                                        | High strength                                         |                   |             |
|                                                        | Good chemical resistance                              |                   |             |
|                                                        | Heat resistance, high                                 |                   |             |
|                                                        | Flame retardancy                                      |                   |             |
| Uses                                                   | Electrical/Electronic Applications                    |                   |             |
|                                                        | Aircraft applications                                 |                   |             |
|                                                        | Metal substitution                                    |                   |             |
|                                                        | Seals                                                 |                   |             |
| RoHS Compliance                                        | RoHS compliance                                       |                   |             |
| Appearance                                             | Natural color                                         |                   |             |
| Forms                                                  | Particle                                              |                   |             |
| Processing Method                                      | Machining                                             |                   |             |
|                                                        | Profile extrusion molding                             |                   |             |
|                                                        | Injection molding                                     |                   |             |
| Physical                                               | Nominal Value                                         | Unit              | Test Method |
| Specific Gravity                                       | 1.65                                                  | g/cm <sup>3</sup> | ASTM D792   |
| Melt Mass-Flow Rate (MFR) <sup>1</sup> (380°C/2.16 kg) | 7.0                                                   | g/10 min          | ASTM D1238  |
| Molding Shrinkage <sup>2</sup>                         |                                                       |                   | ASTM D955   |
| Flow: 3.18mm                                           | 0.10 - 0.30                                           | %                 | ASTM D955   |
| Transverse flow: 3.18mm                                | 1.2 - 1.4                                             | %                 | ASTM D955   |
| Water Absorption (24 hr)                               | 0.10                                                  | %                 | ASTM D570   |
| Hardness                                               | Nominal Value                                         | Unit              | Test Method |
| Rockwell Hardness (M-Scale)                            | 105                                                   |                   | ASTM D785   |

| Mechanical                                            | Nominal Value | Unit              | Test Method    |
|-------------------------------------------------------|---------------|-------------------|----------------|
| Tensile Modulus                                       |               |                   |                |
| -- <sup>3</sup>                                       | 15100         | MPa               | ASTM D638      |
| --                                                    | 16700         | MPa               | ISO 527-2/1A/1 |
| Tensile Stress                                        |               |                   |                |
| Yield, 5.00mm                                         | 188           | MPa               | ISO 527-2/1A/5 |
| -- <sup>4</sup>                                       | 191           | MPa               | ASTM D638      |
| Tensile Elongation                                    |               |                   |                |
| Fracture <sup>5</sup>                                 | 1.8           | %                 | ASTM D638      |
| Fracture                                              | 1.8           | %                 | ISO 527-2/1A/5 |
| Flexural Modulus                                      |               |                   |                |
| --                                                    | 14800         | MPa               | ASTM D790      |
| --                                                    | 15400         | MPa               | ISO 178        |
| Flexural Strength                                     |               |                   |                |
| 23°C                                                  | 253           | MPa               | ASTM D790      |
| 250°C                                                 | 54.0          | MPa               | ASTM D790      |
| --                                                    | 250           | MPa               | ISO 178        |
| Compressive Strength                                  | 182           | MPa               | ASTM D695      |
| Shear Strength                                        | 89.0          | MPa               | ASTM D732      |
| Impact                                                | Nominal Value | Unit              | Test Method    |
| Notched Izod Impact                                   |               |                   |                |
| --                                                    | 53            | J/m               | ASTM D256      |
| --                                                    | 8.5           | kJ/m <sup>2</sup> | ISO 180        |
| Unnotched Izod Impact                                 |               |                   |                |
| --                                                    | 590           | J/m               | ASTM D4812     |
| --                                                    | 41            | kJ/m <sup>2</sup> | ISO 180        |
| Thermal                                               | Nominal Value | Unit              | Test Method    |
| Deflection Temperature Under Load (1.8 MPa, Annealed) | 285           | °C                | ASTM D648      |
| Glass Transition Temperature                          | 150           | °C                | ASTM D3418     |
| Peak Melting Temperature                              | 345           | °C                | ASTM D3418     |
| CLTE - Flow (-50 to 50°C)                             | 1.5E-5        | cm/cm/°C          | ASTM E831      |
| Specific Heat                                         |               |                   | DSC            |
| 50°C                                                  | 1260          | J/kg/°C           | DSC            |
| 200°C                                                 | 1620          | J/kg/°C           | DSC            |
| Thermal Conductivity                                  | 0.31          | W/m/K             | ASTM E1530     |
| Electrical                                            | Nominal Value | Unit              | Test Method    |
| Surface Resistivity                                   | > 1.9E+17     | ohms              | ASTM D257      |
| Volume Resistivity                                    | 1.8E+17       | ohms · cm         | ASTM D257      |
| Dielectric Strength                                   | 19            | kV/mm             | ASTM D149      |
| Dielectric Constant                                   |               |                   | ASTM D150      |
| 60 Hz                                                 | 3.68          |                   | ASTM D150      |

| 1 kHz                                           | 3.69          |      | ASTM D150   |
|-------------------------------------------------|---------------|------|-------------|
| 1 MHz                                           | 3.66          |      | ASTM D150   |
| Dissipation Factor                              |               |      | ASTM D150   |
| 60 Hz                                           | 2.0E-3        |      | ASTM D150   |
| 1 kHz                                           | 1.0E-3        |      | ASTM D150   |
| 1 MHz                                           | 3.0E-3        |      | ASTM D150   |
| Flammability                                    | Nominal Value | Unit | Test Method |
| Flame Rating                                    |               |      | UL 94       |
| 0.800 mm                                        | V-1           |      | UL 94       |
| 1.60 mm                                         | V-0           |      | UL 94       |
| Fill Analysis                                   | Nominal Value | Unit | Test Method |
| Melt Viscosity (400°C, 1000 sec <sup>-1</sup> ) | 450           | Pa·s | ASTM D3835  |
| Injection                                       | Nominal Value | Unit |             |
| Drying Temperature                              | 150 - 175     | °C   |             |
| Drying Time                                     | 2.5 - 4.0     | hr   |             |
| Processing (Melt) Temp                          | 370 - 395     | °C   |             |
| Mold Temperature                                | 175 - 210     | °C   |             |
| Back Pressure                                   | 0.138 - 0.345 | MPa  |             |
| Screw Speed                                     | 75            | rpm  |             |
| Screw Compression Ratio                         | 2.0:1.0       |      |             |
| NOTE                                            |               |      |             |

- |    |                                                                                                                        |
|----|------------------------------------------------------------------------------------------------------------------------|
| 1. | Under conventional molding conditions, AvaSpire AV-750 GF40 has lower viscosity and higher flow rate than AV-650 GF30. |
| 2. | 5" x 0.5" x 0.125" bars                                                                                                |
| 3. | 5.0 mm/min                                                                                                             |
| 4. | 50 mm/min                                                                                                              |
| 5. | 5.0 mm/min                                                                                                             |

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