

# Edgetek™ PK-30CF/000 EM BK

Polyetheretherketone

PolyOne Corporation

## Message:

Edgetek®The engineering thermoplastic polymer product portfolio includes a series of standard and customizable high-performance materials. The combination includes high-temperature resistant materials for high-temperature working environments, and high-modulus/structural materials for load-bearing, high-strength applications and flame-retardant products. These polymers are made by mixing engineering thermoplastic resins with different reinforcing additives, such as carbon fiber, glass fiber and glass beads.

| General Information                     |                                                        |                   |             |
|-----------------------------------------|--------------------------------------------------------|-------------------|-------------|
| Filler / Reinforcement                  | Carbon fiber reinforced material, 30% filler by weight |                   |             |
| Features                                | Heat resistance, high                                  |                   |             |
|                                         | General                                                |                   |             |
| Uses                                    | Industrial application                                 |                   |             |
|                                         | Application in Automobile Field                        |                   |             |
|                                         | General                                                |                   |             |
|                                         | Consumer goods application field                       |                   |             |
| Appearance                              | Black                                                  |                   |             |
| Forms                                   | Particle                                               |                   |             |
| Processing Method                       | Injection molding                                      |                   |             |
| Physical                                | Nominal Value                                          | Unit              | Test Method |
| Specific Gravity                        | 1.40                                                   | g/cm <sup>3</sup> | ASTM D792   |
| Molding Shrinkage                       |                                                        |                   | ASTM D955   |
| Flow                                    | 0.050 - 0.20                                           | %                 | ASTM D955   |
| Transverse flow                         | 1.4 - 1.6                                              | %                 | ASTM D955   |
| Water Absorption                        |                                                        |                   | ASTM D570   |
| 24 hr, 3.18 mm                          | 0.050                                                  | %                 | ASTM D570   |
| Saturation                              | 0.13                                                   | %                 | ASTM D570   |
| Hardness                                | Nominal Value                                          | Unit              | Test Method |
| Durometer Hardness (Shore D, 23°C)      | 89                                                     |                   | ISO 868     |
| Mechanical                              | Nominal Value                                          | Unit              | Test Method |
| Tensile Modulus <sup>1</sup> (23°C)     | 25000                                                  | MPa               | ASTM D638   |
| Tensile Strength <sup>2</sup>           |                                                        |                   | ASTM D638   |
| Fracture, 23°C                          | 240                                                    | MPa               | ASTM D638   |
| Fracture, 120°C                         | 155                                                    | MPa               | ASTM D638   |
| Tensile Elongation <sup>3</sup> (Break) | 1.0 - 2.0                                              | %                 | ASTM D638   |
| Flexural Modulus                        |                                                        |                   | ASTM D790   |
| 23°C                                    | 22000                                                  | MPa               | ASTM D790   |
| 120°C                                   | 19000                                                  | MPa               | ASTM D790   |

|                                                                                            |                    |          |                 |
|--------------------------------------------------------------------------------------------|--------------------|----------|-----------------|
| Flexural Strength                                                                          |                    |          | ASTM D790       |
| 23°C                                                                                       | 370                | MPa      | ASTM D790       |
| 120°C                                                                                      | 260                | MPa      | ASTM D790       |
| Impact                                                                                     | Nominal Value      | Unit     | Test Method     |
| Notched Izod Impact (23°C, 3.18 mm, Injection Molded)                                      | 90                 | J/m      | ASTM D256A      |
| Thermal                                                                                    | Nominal Value      | Unit     | Test Method     |
| Deflection Temperature Under Load (1.8 MPa, Unannealed, 3.18 mm)                           | 325                | °C       | ASTM D648       |
| Glass Transition Temperature                                                               | 145                | °C       | DSC             |
| Melting Temperature (DSC)                                                                  | 343                | °C       | ISO 3146        |
| Linear thermal expansion coefficient                                                       |                    |          | ISO 11359-2     |
| Flow: < 146°C                                                                              | 6.0E-6             | cm/cm/°C | ISO 11359-2     |
| Flow: > 146°C                                                                              | 8.0E-6             | cm/cm/°C | ISO 11359-2     |
| Lateral: < 146°C                                                                           | 5.0E-5             | cm/cm/°C | ISO 11359-2     |
| Lateral: > 146°C                                                                           | 1.0E-4             | cm/cm/°C | ISO 11359-2     |
| Thermal Conductivity                                                                       |                    |          | ASTM E1461      |
| 60°C <sup>4</sup>                                                                          | 0.48               | W/m/K    | ASTM E1461      |
| 60°C <sup>5</sup>                                                                          | 1.7                | W/m/K    | ASTM E1461      |
| Electrical                                                                                 | Nominal Value      | Unit     | Test Method     |
| Surface Resistivity                                                                        | 1.0E+4 - 1.0E+5    | ohms     | ASTM D257       |
| Flammability                                                                               | Nominal Value      | Unit     | Test Method     |
| Flame Rating (0.800 mm)                                                                    | V-0                |          | Internal method |
| Injection                                                                                  | Nominal Value      | Unit     |                 |
| Drying Temperature                                                                         | 150                | °C       |                 |
| Drying Time                                                                                | 4.0 - 6.0          | hr       |                 |
| Processing (Melt) Temp                                                                     | 350 - 390          | °C       |                 |
| Mold Temperature                                                                           | 170 - 190          | °C       |                 |
| Injection instructions                                                                     |                    |          |                 |
| Injection Pressure: MED-HIGHHold Pressure: MED-HIGHScrew Speed: MODERATEBack Pressure: LOW |                    |          |                 |
| NOTE                                                                                       |                    |          |                 |
| 1.                                                                                         | Type 1, 5.1 mm/min |          |                 |
| 2.                                                                                         | 5.0 mm/min         |          |                 |
| 3.                                                                                         | Type 1, 5.1 mm/min |          |                 |
| 4.                                                                                         | through-plane      |          |                 |
| 5.                                                                                         | in-plane           |          |                 |

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