

Product Texts

Carbon fiber-reinforced, graphite and PTFE-filled polyether ether ketone

VESTAKEEP® 4000 FC30 is a carbon fiber reinforced, graphite and PTFE-filled polyether ether ketone for injection molding. Parts made of this resin can be used for bearing bushing or gearbox parts due to the selflubricating effect.

The semi-crystalline polymer features superior mechanical, thermal, and chemical resistance. Parts made from VESTAKEEP® 4000 FC30 are of low flammability.

VESTAKEEP® 4000 FC30 can be processed by common injection molding machines for thermoplastics.

We recommend a melt temperature between 370°C and 380°C during the injection molding process. If temperatures exceed 380°C, toxic gases can be released. Adequate ventilation and protective equipment must be provided. The mold temperature should be within a range of 160°C to 200°C, preferably 180°C.

VESTAKEEP® 4000 FC30 is supplied as cylindrical pellets in 25 kg boxes with moisture-proof polyethylene liners.

Inside the original and undamaged packaging, the product has a shelf life of at least 2 years when stored in dry rooms at temperatures not exceeding 30°C.

Pigmentation may affect values.

For information about processing of VESTAKEEP® 4000 FC30, please follow the general recommendations in our brochure "VESTAKEEP® PEEK Processing Guidelines".

The values presented are typical or average values, they do not constitute a specification.

FOR FURTHER INFORMATION PLEASE CONTACT US AT EVONIK-HP@EVONIK.COM OR VISIT OUR PRODUCT AT WWW.INDUSTRIAL.VESTAKEEP.COM

| Processing/Physical Characteristics | Value | Unit | Test Standard |
|--|-------------|------------------------|-----------------|
| ISO Data | | | |
| ^[C] Melt volume-flow rate, MVR | 38 | cm ³ /10min | ISO 1133 |
| Temperature | 400 | °C | - |
| Load | 21.6 | kg | - |
| ^[C] Molding shrinkage, parallel | 0.2 | % | ISO 294-4, 2577 |
| ^[C] Molding shrinkage, normal | 0.4 | % | ISO 294-4, 2577 |

[C]: CAMPUS

| Mechanical properties | Value | Unit | Test Standard |
|--|--------------|-------------------|---------------|
| ISO Data | | | |
| ^[C] Tensile Modulus | 12500 | MPa | ISO 527 |
| ^[C] Stress at break | 160 | MPa | ISO 527 |
| ^[C] Strain at break | 2 | % | ISO 527 |
| ^[C] Charpy impact strength, +23°C | 45 | kJ/m ² | ISO 179/1eU |
| ^[C] Type of failure | C | - | - |
| ^[C] Charpy impact strength, -30°C | 45 | kJ/m ² | ISO 179/1eU |
| ^[C] Type of failure | C | - | - |
| ^[C] Charpy notched impact strength, +23°C | 8 | kJ/m ² | ISO 179/1eA |
| ^[C] Type of failure | C | - | - |
| ^[C] Charpy notched impact strength, -30°C | 7 | kJ/m ² | ISO 179/1eA |
| ^[C] Type of failure | C | - | - |

[C]: CAMPUS

| Thermal properties | Value | Unit | Test Standard |
|---|------------|------|----------------|
| ISO Data | | | |
| ^[C] Melting temperature, 10°C/min | 340 | °C | ISO 11357-1/-3 |
| ^[C] Temp. of deflection under load, 1.80 MPa | 310 | °C | ISO 75-1/-2 |
| ^[C] Temp. of deflection under load, 0.45 MPa | 330 | °C | ISO 75-1/-2 |

VESTAKEEP® 4000 FC30
(PEEK+PTFE)-(CF+CD)30

Evonik Operations GmbH

| | | | |
|---|------------|-------|-----------------|
| [C] Vicat softening temperature, B | 335 | °C | ISO 306 |
| [C] Coeff. of linear therm. expansion, parallel | 20 | E-6/K | ISO 11359-1/-2 |
| [C] Burning Behav. at 1.5 mm nom. thickn. | V-0 | class | IEC 60695-11-10 |
| Thickness tested | 1.5 | mm | - |
| Yellow Card available | yes | - | - |
| [C] Burning Behav. at thickness h | V-0 | class | IEC 60695-11-10 |
| Thickness tested | 0.8 | mm | - |
| Yellow Card available | yes | - | - |
| [C] Oxygen index | 44 | % | ISO 4589-1/-2 |

[C]: CAMPUS

| Electrical properties | Value | Unit | Test Standard |
|----------------------------------|----------------|-------|---------------|
| ISO Data | | | |
| [C] Relative permittivity, 100Hz | 5.9 | - | IEC 62631-2-1 |
| [C] Relative permittivity, 1MHz | 4.9 | - | IEC 62631-2-1 |
| [C] Dissipation factor, 100Hz | 600 | E-4 | IEC 62631-2-1 |
| [C] Dissipation factor, 1MHz | 200 | E-4 | IEC 62631-2-1 |
| [C] Volume resistivity | 100000 | Ohm*m | IEC 62631-3-1 |
| [C] Surface resistivity | 1000000 | Ohm | IEC 62631-3-2 |

[C]: CAMPUS

| Other properties | Value | Unit | Test Standard |
|----------------------|-------------|-------------------|----------------|
| [C] Water absorption | 0.4 | % | Sim. to ISO 62 |
| [C] Density | 1450 | kg/m ³ | ISO 1183 |

[C]: CAMPUS

| Test specimen production | Value | Unit | Test Standard |
|---|------------|------|---------------|
| ISO Data | | | |
| [C] Injection Molding, melt temperature | 410 | °C | ISO 294 |
| Injection Molding, mold temperature | 200 | °C | ISO 294 |
| Injection Molding, injection velocity | 200 | mm/s | ISO 294 |
| Injection Molding, pressure at hold | 120 | MPa | ISO 294 |

[C]: CAMPUS

Characteristics

Processing

Injection Molding, Other Extrusion

Delivery form

Pellets

Regional Availability

North America, Europe, Asia Pacific, South and Central America, Near East/Africa