Product Information

VESTAKEEP® 2000 FC30

CARBON FIBER-REINFORCED, GRAPHITE AND PTFE-FILLED POLYETHER ETHER KETONE



VESTAKEEP® 2000 FC30 is a medium-viscosity, carbon fiber-reinforced, graphite and PTFE filled polyether ether ketone for injection molding.

The semi-crystalline polymer features superior mechanical, thermal, and chemical resistance. Parts made from VESTAKEEP® 2000 FC30 are of low flammability.

Parts made of this resin can be used for bearing bushing or gearbox parts, due to the self-lubricating effect.

VESTAKEEP® 2000 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. The mold temperature should be within a range of 160°C to 200°C, preferably 180°C. If temperatures exceed 380°C, toxic gases can be released. Adequate ventilation and protective equipment must be provided.

VESTAKEEP® 2000 FC30 is supplied as cylindrical pellets in 25 kg boxes with moisture-proof polyethylene liners.

Pigmentation may affect values.

For information about processing of VESTAKEEP® 2000 FC30, please follow the general recommendations in our brochure "VESTAKEEP® PEEK Processing Guidelines".

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

Mechanical properties ISO	dry	Unit	Test Standard
Tensile Modulus	**12600**	MPa	ISO 527
Tensile Strength	**145**	MPa	ISO 527
Stress at break	**150**	MPa	ISO 527
Strain at break, εB	**2**	%	ISO 527
Charpy impact strength, +23°C	**40**	kJ/m²	ISO 179/1eU
Type of failure	**C**	-	-
Charpy impact strength, -30°C	**40**	kJ/m²	ISO 179/1eU
Type of failure	**C**	-	-

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Charpy notched impact strength, +23°C	**6**	kJ/m²	ISO 179/1eA
Type of failure	**C**	-	-
Charpy notched impact strength, -30°C	**5**	kJ/m²	ISO 179/1eA
Type of failure	**C**	-	-

Thermal properties	**dry**	**Unit**	**Test Standard**
Melting temperature	**340**	°C	ISO 11357-1/-3
Temp. of deflection under load A, 1.80 MPa	**320**	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**337**	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**340**	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**335**	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**20**	E-6/K	ISO 11359-1/-2

Physical properties	**dry**	**Unit**	**Test Standard**
Water absorption	**0.4**	%	Sim. to ISO 62
Density	**1450**	kg/m³	ISO 1183

Burning Behav.	**dry**	**Unit**	**Test Standard**
Burning behav. at 1.5 mm nom. thickn.	**V-0**	class	IEC 60695-11-10
Thickness tested	**1.6**	mm	-
Oxygen index	**44**	%	ISO 4589-1/-2

Electrical properties	**dry**	**Unit**	**Test Standard**
Relative permittivity, 100Hz	**5.9**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**4.9**	-	IEC 62631-2-1
Dissipation factor, 100Hz	**700**	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	**200**	E-4	IEC 62631-2-1
Volume resistivity, ρV	**100000**	Ohm*m	IEC 62631-3-1
Surface resistivity, σE	**1000000**	Ohm	IEC 62631-3-2

Rheological properties	dry	Unit	Test Standard
Melt volume-flow rate, MVR	**20**	cm^3/10min	ISO 1133
Temperature	**380**	°C	-
Load	**5**	kg	-
Molding shrinkage, parallel	**0.1**	%	ISO 294-4, 2577
Molding shrinkage, normal	**0.4**	%	ISO 294-4, 2577

Characteristics

Key Feature, Industrial Sector
Automotive, Electrical and Electronical, Instustry and Building Construction

Key Feature, Processing
Injection Molding

Key Feature, Resistance to
Heat (Thermal Stability)

Special Characteristics
Medium viscosity

Delivery form
Pellets, Granules

Chemical Media Resistance

Acids

- ✔ Acetic Acid (5% by mass) (23°C)
- ✔ Citric Acid solution (10% by mass) (23°C)
- ✔ Hydrochloric Acid (36% by mass) (23°C)
- ✖ Nitric Acid (40% by mass) (23°C)
- ✔ Sulfuric Acid (5% by mass) (23°C)
- ✔ Chromic Acid solution (40% by mass) (23°C)

Bases

- ✔ Sodium Hydroxide solution (35% by mass) (23°C)
- ✔ Sodium Hydroxide solution (1% by mass) (23°C)
- ✔ Ammonium Hydroxide solution (10% by mass) (23°C)

Alcohols

- ✔ Isopropyl alcohol (23°C)
- ✔ Methanol (23°C)
- ✔ Ethanol (23°C)

Hydrocarbons

- ✔ n-Hexane (23°C)
- ✔ Toluene (23°C)
- ✔ iso-Octane (23°C)

Ketones

- ✔ Acetone (23°C)

Ethers

- ✔ Diethyl ether (23°C)

Mineral oils

- ✔ SAE 10W40 multigrade motor oil (23°C)
- ✔ Insulating Oil (23°C)

Standard Fuels

- ✔ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
- ✔ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)
- ✔ Diesel fuel (pref. ISO 1817 Liquid F) (23°C)

Salt solutions

- ✔ Sodium Chloride solution (10% by mass) (23°C)
- ✔ Sodium Hypochlorite solution (10% by mass) (23°C)
- ✔ Sodium Carbonate solution (20% by mass) (23°C)
- ✔ Sodium Carbonate solution (2% by mass) (23°C)
- ✔ Zinc Chloride solution (50% by mass) (23°C)

Other

- ✔ Ethyl Acetate (23°C)
- ✔ Hydrogen peroxide (23°C)
- ✔ Ethylene Glycol (50% by mass) in water (108°C)
- ✔ Water (23°C)
- ✔ Deionized water (90°C)

Injection molding

PREPROCESSING INFORMATION
Maximum Water Content: 0.25 %
When the water content is exceeded, the resin must be dried.The drying time is dependent on the

drying temperature. In practice a drying time of 2 - 3 hours at a temperature of 150 - 160 °C (depending on the water content of the resin) has been found to be satisfactory. With the exeption of fresh air dryers, all conventional dryers can be used.

PROCESSING INFORMATION

Melt Temperature:	380 - 400	°C
Mold Temperature:	160 - 200	°C

POSTPROCESSING INFORMATION

Tempering: Temperature: 200 °C
Tempering Time: 2 h

The level of internal strain in injection molded products can be reduced through tempering.

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