

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.

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® 2000 FC30, please follow the general recommendations in our brochure "VESTAKEEP® PEEK Processing Guidelines".

Key Features

Industrial Sector

Automotive and Mobility, Industry and Engineering

Resistance to

Heat (thermal stability)

Processing

Injection molding

Additives

Carbon fibers

Delivery form

Pellets, Granules

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, B	2	%	ISO 527
Charpy impact strength, +23°C	40	kJ/m ²	ISO 179/1eU
Type of failure	C	-	-
Charpy impact strength, -30°C	40	kJ/m ²	ISO 179/1eU
Type of failure	C	-	-
Charpy notched impact strength, +23°C	6	kJ/m ²	ISO 179/1eA
Type of failure	C	-	-
Charpy notched impact strength, -30°C	5	kJ/m ²	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
Melting Temperature	340	°C	ASTM D 3418

Physical properties	dry	Unit	Test Standard
Density	1450	kg/m ³	ISO 1183
Water absorption	0.4	%	Sim. to ISO 62
Density	1450	kg/m ³	ASTM D 792

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
Limiting Oxygen Index	44	%	ASTM D 2863

Electrical properties	dry	Unit	Test Standard
Volume resistivity, V	100000	Ohm*m	IEC 62631-3-1
Surface resistivity, E	1000000	Ohm	IEC 62631-3-2
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

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

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	380	°C	ISO 294
Injection Molding, mold temperature	180	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294
Injection Molding, pressure at hold	120	MPa	ISO 294

Characteristics

Applications

Electrical and Electronical

Special Characteristics

Medium viscosity

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)

Rheological calculation properties

	dry	Unit	Test Standard
Min. mold temperature	160	°C	-
Max. mold temperature	200	°C	-
Min. melt temperature	380	°C	-
Max. melt temperature	400	°C	-