EVONIK Leading Beyond Chemistry

ALBIS

VESTAKEEP® 2000 FC30

(PEEK+PTFE)-(CF+CD)20

Evonik Operations GmbH

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“.

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

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	20	cm³/10min	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

Mechanical Properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	12600	MPa	ISO 527
Stress at Break	150	MPa	ISO 527
Strain at Break	2	%	ISO 527
Impact Strength (Charpy), +23°C	40	kJ/m²	ISO 179/1eU
Type of failure	C	-	-
Impact Strength (Charpy), -30°C	40	kJ/m²	ISO 179/1eU
Type of failure	C	-	-
Notched Impact Strength (Charpy), +23°C	6	kJ/m²	ISO 179/1eA
Type of failure	C	-	-
Notched Impact Strength (Charpy), -30°C	5	kJ/m²	ISO 179/1eA
Type of failure	C	-	-

Thermal Properties	Value	Unit	Test Standard
ISO Data			
Melting Temperature (10°C/min)	340	°C	ISO 11357-1/-3
Temp. of deflection under load (1.80 MPa)	320	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	337	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	335	°C	ISO 306
Coeff. of Linear Therm. Expansion, parallel	20	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm Nom. Thickn.	V-0	class	UL 94
Thickness tested	1.6	mm	-

VESTAKEEP® 2000 FC30

(PEEK+PTFE)-(CF+CD)20 — Evonik Operations GmbH

Oxygen index	44	%	ISO 4589-1/-2

Electrical Properties	Value	Unit	Test Standard
ISO Data			
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	100000	Ohm*m	IEC 62631-3-1
Surface Resistivity	1000000	Ohm	IEC 62631-3-2

Other Properties	Value	Unit	Test Standard
ISO Data			
Water Absorption	0.4	%	Sim. to ISO 62
Density	1450	kg/m³	ISO 1183

Test specimen production	Value	Unit	Test Standard
ISO Data			
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

Processing
Injection Molding

Chemical Resistance
General Chemical Resistance

Delivery form
Pellets

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)

VESTAKEEP® 2000 FC30

(PEEK+PTFE)-(CF+CD)20 — Evonik Operations GmbH

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)