

Product Information

VESTAKEEP® 2000 CF30

CARBON FIBER-REINFORCED, MEDIUM VISCOSITY POLYETHER ETHER KETONE



VESTAKEEP® 2000 CF30 is a medium-viscosity, carbon fiber-reinforced (30%) polyether ether ketone for injection molding.

The semi-crystalline polymer features superior, mechanical, thermal and chemical resistance. Parts made from VESTAKEEP® 2000 CF30 are of low flammability.

VESTAKEEP® 2000 CF30 can be processed by common injection machines for thermoplastics.

We recommend a melt temperature between 380°C and 400°C during the injection molding process. The mold temperature should be within a range of 160°C to 200°C, preferably 180°C.

VESTAKEEP® 2000 CF30 is supplied as granules 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 effect values.

For information about processing of VESTAKEEP® 2000 CF30, please follow the general recommendations in our brochure "VESTAKEEP® PEEK-Processing Guidelines".

Key Features

Industrial Sector

Aircraft and Aerospace, Industry and Engineering

Resistance to

Fire / burn

Processing

Injection molding

Additives

Carbon fibers

Delivery form

Pellets, Granules

Mechanical properties ISO

Tensile modulus

dry

24000

Unit

MPa

Test Standard

ISO 527

Tensile strength	251	MPa	ISO 527
Stress at break	251	MPa	ISO 527
Strain at break, B	1.85	%	ISO 527
Poisson's ratio, 23°C	0.44	-	ISO 527
Anisotropy ratio, tensile modulus	0.52	-	-
Anisotropy ratio, tensile strength	0.63	-	-
Charpy impact strength, +23°C	51	kJ/m ²	ISO 179/1eU
Type of failure	C	-	-
Charpy impact strength, -30°C	45	kJ/m ²	ISO 179/1eU
Type of failure	C	-	-
Charpy notched impact strength, +23°C	8	kJ/m ²	ISO 179/1eA
Type of failure	C	-	-
Charpy notched impact strength, -30°C	8	kJ/m ²	ISO 179/1eA
Type of failure	C	-	-
Flexural modulus, 23°C	21500	MPa	ISO 178
Flexural stress at break, 23°C	390	MPa	ISO 178
Flexural strain at break, 23°C	2.1	%	ISO 178

Mechanical properties ASTM	dry	Unit	Test Standard
tensile modulus, annealed	22752.7	MPa	ASTM D 638
Stress at break, 23°C, annealed	2	%	ASTM D 638
Strain at break, 23°C, annealed	248000	Pa	ASTM D 638

Thermal properties	dry	Unit	Test Standard
Melting temperature	340	°C	ISO 11357-1/-3
Glass transition temperature, DSC	146	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	330	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	340	°C	ISO 75-1/-2

Vicat softening temperature A, 10 N, 50 K/h	343	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	340	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	10	E-6/K	ISO 11359-1/-2
Melting Temperature	340	°C	ASTM D 3418

Physical properties	dry	Unit	Test Standard
Density	1410	kg/m ³	ISO 1183
Water absorption	0.4	%	Sim. to ISO 62
Density	1410	kg/m ³	ASTM D 792

Burning Behav.	dry	Unit	Test Standard
UL Yellow Card available	yes	-	-
Burning behav. at 1.5 mm nom. thickn.	V-0	class	IEC 60695-11-10
Thickness tested	1.6	mm	-
Oxygen index	47	%	ISO 4589-1/-2
Limiting Oxygen Index	47	%	ASTM D 2863
Glow Wire Flammability Index (GWFI)	960	°C	IEC 60695-2-12
GWFI - thickness tested	2	mm	-
Glow Wire Ignition Temperature (GWIT)	875	°C	IEC 60695-2-13
GWIT - thickness tested	2	mm	-

Electrical properties	dry	Unit	Test Standard
Volume resistivity, V	10000	Ohm*m	IEC 62631-3-1
Relative permittivity, 1MHz	17	-	IEC 62631-2-1
Dissipation factor, 1MHz	2300	E-4	IEC 62631-2-1

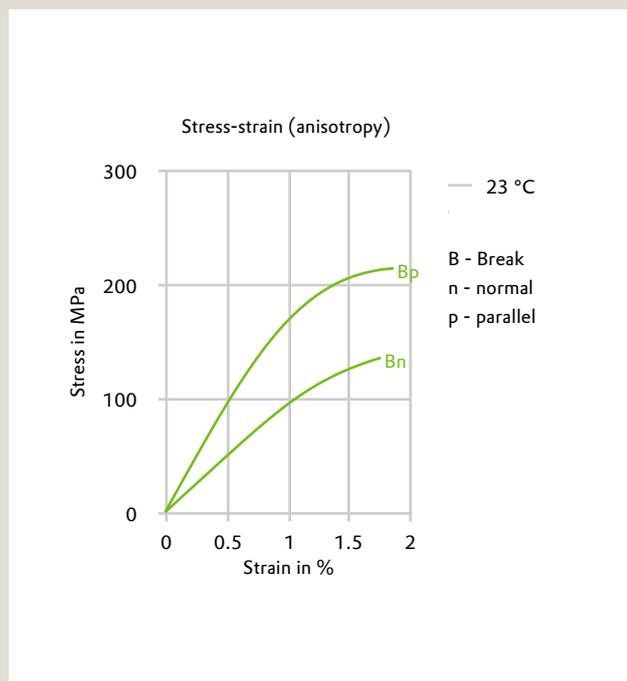
Rheological properties	dry	Unit	Test Standard
Melt volume-flow rate, MVR	19	cm ³ /10min	ISO 1133
Temperature	400	°C	-

Load	5	kg	-
Molding shrinkage, parallel	0	%	ISO 294-4, 2577
Molding shrinkage, normal	0.4	%	ISO 294-4, 2577
Mold temperature	180	°C	-
Melt temperature	390	°C	-

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

Diagrams

Stress-strain (anisotropy)



Characteristics

Applications

Electrical and Electronical

Special Characteristics

High heat resistant

Color

Natural color

Delivery form

Cylindrical pellets

Chemical Resistance

Aging resistance, General chemical resistance

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	-