

Product Information

VESTAKEEP® 2000 GF30

GLASS FIBER-REINFORCED (30%), MEDIUM VISCOSITY POLYETHER ETHER KETONE



VESTAKEEP® 2000 GF30 is a medium-viscosity, glass 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 GF30 are of low flammability.

VESTAKEEP® 2000 GF30 can be processed by common injection-molding 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 GF30 is supplied as cylindrical pellets in 25kg boxes with moisture-proof polyethylene liners.

Pigmentation may affect values.

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.

For information about processing of VESTAKEEP 2000 GF30, please follow the general recommendations in our brochure "VESTAKEEP® PEEK Processing Guidelines".

Key Features

Industrial Sector

Automotive and Mobility, Aircraft and Aerospace, Industry and Engineering

Resistance to

Fire / burn

Processing

Injection molding

Additives

Glass fibers

Delivery form

Pellets, Granules

Mechanical properties ISO

Tensile modulus

dry

11000

Unit

MPa

Test Standard

ISO 527

Tensile strength	180	MPa	ISO 527
Stress at break	180	MPa	ISO 527
Strain at break, B	2.6	%	ISO 527
Charpy impact strength, +23°C	55	kJ/m ²	ISO 179/1eU
Type of failure	C	-	-
Charpy impact strength, -30°C	65	kJ/m ²	ISO 179/1eU
Type of failure	C	-	-
Charpy notched impact strength, +23°C	10	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	10200	MPa	ISO 178
Flexural strength, 23°C	260	MPa	ISO 178
Flexural strain at flexural strength, 23°C	3	%	ISO 178
Flexural stress at break, 23°C	260	MPa	ISO 178
Flexural strain at break, 23°C	3	%	ISO 178

Thermal properties	dry	Unit	Test Standard
Melting temperature	340	°C	ISO 11357-1/-3
Temp. of deflection under load A, 1.80 MPa	323	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	338	°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	30	E-6/K	ISO 11359-1/-2
Coefficient of Thermal Expansion, MD	5.4E7	E-6/K	ASTM D 696
Melting Temperature	340	°C	ASTM D 3418

Physical properties	dry	Unit	Test Standard
Density	1500	kg/m ³	ISO 1183
Water absorption	0.4	%	Sim. to ISO 62
Density	1500	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	-
Burnin behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	3.2	mm	-
Oxygen index	45	%	ISO 4589-1/-2
Limiting Oxygen Index	45	%	ASTM D 2863
Glow Wire Flammability Index (GWFI)	960	°C	IEC 60695-2-12
GWFI - thickness tested	2	mm	-
Glow Wire Ignition Temperature (GWIT)	825	°C	IEC 60695-2-13
GWIT - thickness tested	2	mm	-

Electrical properties	dry	Unit	Test Standard
Volume resistivity, V	>1E13	Ohm*m	IEC 62631-3-1
Surface resistivity, E	1E15	Ohm	IEC 62631-3-2
Surface resistivity, C, circular electrodes	9.6E14	Ohm per square	IEC 62631-3-2
Relative permittivity, 100Hz	3.3	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.3	-	IEC 62631-2-1
Dissipation factor, 100Hz	20	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	40	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	37	kV/mm	IEC 60243-1
Dielectric strength, AC, S20/P50	16	kV/mm	Sim. to IEC 60243-1
CTI, test solution A, 50 drops value	200	-	IEC 60112

Assessment of the insulation group	III a	-	DIN EN 60664-1
------------------------------------	-------	---	----------------

Rheological properties	dry	Unit	Test Standard
Melt volume-flow rate, MVR	24	cm ³ /10min	ISO 1133
Temperature	400	°C	-
Load	5	kg	-
Melt volume-flow rate, MVR	17	cm ³ /10min	ISO 1133
Temperature	380	°C	-
Load	5	kg	-
Molding shrinkage, parallel	0.2	%	ISO 294-4, 2577
Molding shrinkage, normal	0.7	%	ISO 294-4, 2577
Mold temperature	180	°C	-
Melt temperature	370	°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

Characteristics

Applications

Electrical and Electronical, Encapsulation, IT and telecommunication

Regulatory

Water contact KTW-BWGL, Water contact DIN EN 16421

Color

Natural color

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	-