

Product Information

VESTAKEEP® 2000 G

MEDIUM VISCOSITY, UNREINFORCED POLYETHER ETHER KETONE



VESTAKEEP® 2000 G is a medium viscosity, unreinforced polyether ether ketone for injection molding.

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

VESTAKEEP® 2000 G can be processed on common injection molding machines for thermoplastics.

We recommend a melt temperature between 360°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.

VESTAKEEP® 2000 G 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 affect values.

For information about processing VESTAKEEP® 2000 G, 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, Energy, Oil and Gas, Optics, Sports and Lifestyle

Processing

Injection molding, Extrusion

Optics

X-ray transparent

Resistance to

Heat (thermal stability), Fire / burn, Fatigue resistance

Conformity

Food contact

Additives

Unfilled

Mechanical properties ISO

Tensile modulus

dry

537000

Unit

psi

Test Standard

ISO 527

Tensile strength	14500	psi	ISO 527
Yield stress	14500	psi	ISO 527
Yield strain	5	%	ISO 527
Stress at break	10200	psi	ISO 527
Nominal strain at break, tB	20	%	ISO 527
Poisson's ratio, 23°C	0.40	-	ISO 527
Charpy impact strength, +23°C	N	ftlb/in ²	ISO 179/1eU
Charpy impact strength, -30°C	N	ftlb/in ²	ISO 179/1eU
Charpy notched impact strength, +23°C	2.85	ftlb/in ²	ISO 179/1eA
Type of failure	C	-	-
Charpy notched impact strength, -30°C	2.85	ftlb/in ²	ISO 179/1eA
Type of failure	C	-	-
Flexural modulus, 23°C	522000	psi	ISO 178
Flexural stress at conv. deflection, 23°C	17000	psi	ISO 178

Thermal properties	dry	Unit	Test Standard
Melting temperature	644	°F	ISO 11357-1/-3
Glass transition temperature, DSC	302	°F	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	311	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	401	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	635	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	590	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	3.33E-5	in/in/°F	ISO 11359-1/-2
Melting Temperature	644	°F	ASTM D 3418

Physical properties	dry	Unit	Test Standard
Density	1.3	g/cm ³	ISO 1183
Water absorption	0.5	%	Sim. to ISO 62

Humidity absorption	0.12	%	Sim. to ISO 62
Density	1.3	g/cm ³	ASTM D 792

Burning Behav.	dry	Unit	Test Standard
UL Yellow Card available	yes	-	-
Burnin behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	0.1260	in	-
Oxygen index	38	%	ISO 4589-1/-2
Limiting Oxygen Index	38	%	ASTM D 2863
Glow Wire Flammability Index (GWFI)	1760	°F	IEC 60695-2-12
GWFI - thickness tested	0.0787	in	-
Glow Wire Ignition Temperature (GWIT)	1470	°F	IEC 60695-2-13
GWIT - thickness tested	0.0787	in	-
Hot Wire Ignition (HWI)	1	PLC	IEC 60695-2-20
HWI - thickness tested	0.1260	in	-

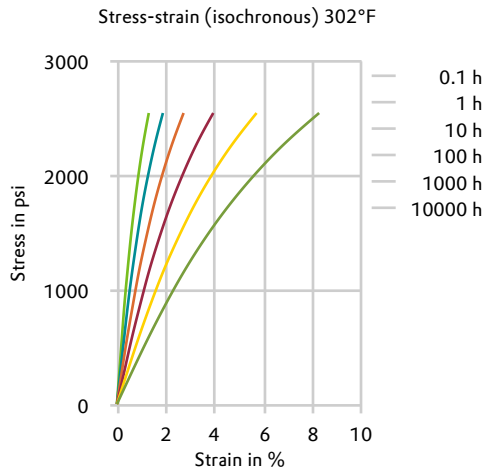
Electrical properties	dry	Unit	Test Standard
Volume resistivity, V	>1E13	Ohm*m	IEC 62631-3-1
Surface resistivity, E	1E15	Ohm	IEC 62631-3-2
Surface resistivity, C, circular electrodes	9E14	Ohm/sq	IEC 62631-3-2
Relative permittivity, 100Hz	2.8	-	IEC 62631-2-1
Relative permittivity, 1MHz	2.8	-	IEC 62631-2-1
Dissipation factor, 1MHz	50	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	828	kV/in	IEC 60243-1
Dielectric strength, AC, S20/P50	406	V/mil	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
CTI, Performance Level Categories, PLC	3	class	ASTM D 3638

Rheological properties	dry	Unit	Test Standard
Melt volume-flow rate, MVR	70	cm ³ /10min	ISO 1133
Temperature	380	°C	-
Load	5	kg	-
Molding shrinkage, parallel	1.1	%	ISO 294-4, 2577
Molding shrinkage, normal	1.1	%	ISO 294-4, 2577
Mold temperature	356	°F	-
Melt temperature	680	°F	-

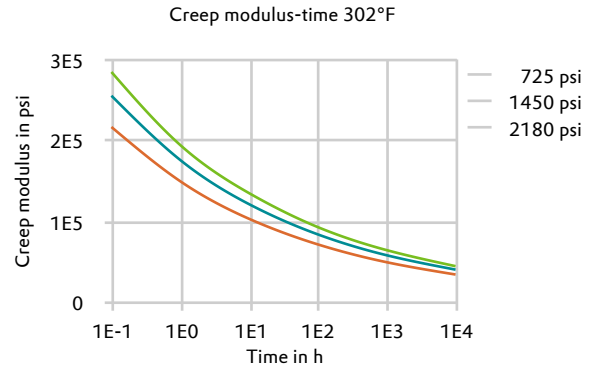
Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	716	°F	ISO 294
Injection Molding, mold temperature	356	°F	ISO 294
Injection Molding, injection velocity	7.87	in/s	ISO 294
Injection Molding, pressure at hold	17400	psi	ISO 294

Diagrams

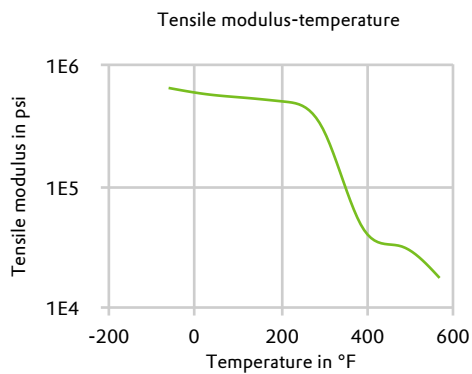
Stress-strain (isochronous) 302°F



Creep modulus-time 302°F



Tensile modulus-temperature



Characteristics

Applications

Electrical and Electronical, Encapsulation, (Sun-) glasses, Monofilament

Special Characteristics

Halogen-free, Phosphorus-free, PTFE-free, High impact strength, High crystallinity, Environmental stress crack resistance, High heat resistant, Low viscosity, Self-extinguishing

Features

Creep resistance, Foamable, Low coefficient of friction, Good adhesion, Weldable, Low smoke, Non-corrosive, Dishwasher detergents resistant, Non-migrating ingredients

Regulatory

Water contact KTW-BWGL, Water contact DIN EN 16421

Color

Natural color

Delivery form

Cylindrical pellets

Chemical Resistance

Acid resistance, Alkali resistance, Solvent resistance, Grease resistance, Hydrolytically stable, Oil resistance, Oxidation resistance, Radiation resistance, Stain 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 (38% 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	320	°F	-
Max. mold temperature	392	°F	-
Min. melt temperature	680	°F	-
Max. melt temperature	716	°F	-