

Product Information

VESTAKEEP® 4500 G

HIGH VISCOSITY, UNREINFORCED POLYETHER ETHER KETONE



VESTAKEEP® 4500 G is a high viscosity, fast crystallization, unreinforced polyether ether ketone for injection molding and extrusion.

The semi-crystalline polymer features superior, thermal and chemical resistance. Parts made from VESTAKEEP® 4500 G are of low flammability.

VESTAKEEP® 4500 G can be processed by common 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.

VESTAKEEP® 4500 G is supplied as granules in 25kg 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® 4500 G, 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.

FOR FURTHER INFORMATION PLEASE CONTACT US AT EVONIK-HP@EVONIK.COM OR VISIT OUR PRODUCT AT WWW.INDUSTRIAL.VESTAKEEP.COM

Key Features

Industrial Sector

Automotive and Mobility, Industry and Engineering, Energy, Oil and Gas

Processing

Injection molding, Extrusion

Delivery form

Pellets, Granules

Optics

Opaque

Resistance to

Heat (thermal stability), Fire / burn

Electrical

Insulating

Conformity

Food contact

Additives

Unfilled

Mechanical properties ISO	dry	Unit	Test Standard
Tensile modulus	3800	MPa	ISO 527
Tensile strength	96	MPa	ISO 527
Yield stress	96	MPa	ISO 527
Yield strain	5	%	ISO 527
Strain at break, B	30	%	ISO 527
Nominal strain at break, tB	30	%	ISO 527
Poisson's ratio, 23°C	0.41	-	ISO 527
Charpy impact strength, +23°C	N	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	N	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, +23°C	7	kJ/m ²	ISO 179/1eA
Type of failure	C	-	-

Thermal properties	dry	Unit	Test Standard
Melting temperature	340	°C	ISO 11357-1/-3
Glass transition temperature, 2 nd heating, midpoint	153	°C	ISO 11357
Temp. of deflection under load A, 1.80 MPa	156	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	232	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	69	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	64	E-6/K	ISO 11359-1/-2

Physical properties	dry	Unit	Test Standard
Density	1300	kg/m ³	ISO 1183
Shore D hardness	86	-	ISO 7619-1

Burning Behav.	dry	Unit	Test Standard
Burnin behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	3.2	mm	-
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	>1E13	Ohm*m	IEC 62631-3-1
Relative permittivity, 1MHz	3.3^[g]	-	IEC 62631-2-1
Dissipation factor, 1MHz	56^[g]	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	35.2	kV/mm	IEC 60243-1
Dielectric strength, AC, S20/P25	24.3^[f]	kV/mm	IEC 60243-1
Dielectric strength, AC, P25/P25	29.2^[f]	kV/mm	IEC 60243-1
Dielectric strength, Short Time	29.4^[f]	kV/mm	ASTM D 149
Thickness tested	0.99	mm	-

f: 1 mm thickness
g: 2 mm thickness

Rheological properties	dry	Unit	Test Standard
Melt volume-flow rate, MVR	9	cm ³ /10min	ISO 1133
Temperature	380	°C	-
Load	5	kg	-
Molding shrinkage, parallel	0.9	%	ISO 294-4, 2577
Molding shrinkage, normal	1.2	%	ISO 294-4, 2577
Mold temperature	180	°C	-
Melt temperature	380	°C	-
Melt viscosity, at 100 1/s	1120	Pa s	-
Temperature	380	°C	-

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	380	°C	ISO 294

Injection Molding, mold temperature

180

°C

ISO 294

Characteristics

Applications

General purpose

Color

Natural color

Processing

Profile extrusion, Sheet extrusion

Chemical Resistance

General chemical resistance

Special Characteristics

Semi-crystalline, High viscosity

Processing Recommendation Injection Molding

Pre-drying - Temperature

dry
Unit
Test Standard
<150

°C

-

Pre-drying - Time

4 - 6

h

-

Processing humidity

≤0.02

%

-

Melt temperature

380

°C

-

Mold temperature

180

°C

-

Feed temperature

60

°C

-

Processing Recommendation Extrusion

dry
Unit
Test Standard

Type of extrusion

Type of extrusion

profile

-

-

Pretreatment

Pre-drying - Temperature

170 - 180

°C

-

Pre-drying - Time

8 - 12

h

-

Processing humidity

≤0.02

%

-

Plastification

Feed temperature

60

°C

-

Heating zone 1

350 - 360

°C

-

Heating zone 2

350 - 360

°C

-

Heating zone 3	360 - 370	°C	-
Heating zone 4	360 - 370	°C	-
Heating zone 5	370 - 380	°C	-
Melt temperature	380 - 390	°C	-

This information and all technical and other advice are based on Evonik's present knowledge and experience. However, Evonik assumes no liability for such information or advice, including the extent to which such information or advice may relate to third party intellectual property rights. Evonik reserves the right to make any changes to information or advice at any time, without prior or subsequent notice. Evonik disclaims all representations and warranties, whether express or implied, and shall have no liability for, merchantability of the product or its fitness for a particular purpose (even if Evonik is aware of such purpose), or otherwise. EVONIK SHALL NOT BE RESPONSIBLE FOR CONSEQUENTIAL, INDIRECT OR INCIDENTAL DAMAGES (INCLUDING LOSS OF PROFITS) OF ANY KIND. It is the customer's sole responsibility to arrange for inspection and testing of all products by qualified experts. Reference to trade names used by other companies is neither a recommendation nor an endorsement of the corresponding product, and does not imply that similar products could not be used.

* is a registered trademark of Evonik Industries AG or one of its subsidiaries

Evonik Operations GmbH
Smart Materials
High Performance Polymers
 45772 Marl / Germany
 Tel: +49 2365 49-9878
evonik-hp@evonik.com
www.plastics-database.com