

Product Information

VESTAKEEP® M4G

Medical grade; high-viscosity, unreinforced polyether ether ketone

VESTAKEEP M4G is a high-viscosity, unreinforced polyether ether ketone for injection molding and extrusion. The semi-crystalline polymer features superior thermal and chemical resistance. Parts made from VESTAKEEP M4G are self-extinguishing.

VESTAKEEP M4G can be processed by common machines for thermoplastics. We recommend a melt temperature between 698°F and 716°F during the injection molding process. The mold temperature should be within a range of 320°F to 392°F, preferably 356°F.

VESTAKEEP M4G is supplied as granules in 25 kg boxes with moisture-proof polyethylene liners.

For information about processing of VESTAKEEP M4G, please follow the general recommendations in our brochure "VESTAKEEP Polyether Ether Ketone Compounds".

VESTAKEEP M4G fulfils the following requirements to meet the demands for medical applications:

United States Pharmacopoeia Testing: <88>
"Biological Reactivity Testing In Vivo" Class VI:

- Acute Systemic Toxicity test: 4 different extraction media (158°F/24h)
- Irritation Test – Intracutaneous Injection test: 4 different extraction media (158°F/24h)
- Implantation Test: In Vivo–Implantation test: intramuscular, 7 days

Biocompatibility testing:

- United States Pharmacopoeia Testing : <87> "Biological Reactivity Testing In Vitro"
- Cytotoxicity Test: L929 MEM elution, according to ISO 10993-5 (99°F/24h)

For further information, please contact our experts in the department Market Development of the High Performance Polymers Business Line.

Property	Test method		Unit	VESTAKEEP	Unit	VESTAKEEP
			SI	M4G	US	M4G
Density	73°F	ISO 1183	g/cm ³	1.30	g/cm ³	1.30
Tensile test		ASTM D638				
Stress at yield			MPa	94	kpsi	13.6
Strain at yield			%	5	%	5
Strain at break			%	> 50	%	> 50
Tensile modulus		ASTM D638	MPa	3600	kpsi	520
Flexural test		ASTM D790				
Flexural strength			MPa	140	kpsi	20.3
Flexural modulus		ASTM D790	MPa	3300	kpsi	480
CHARPY impact strength		ISO 179/1eU				
	73°F		kJ/m ²	N ¹⁾	kJ/m ²	N ¹⁾
	-22°F		kJ/m ²	N ¹⁾	kJ/m ²	N ¹⁾
IZOD notched impact strength		ASTM D256 A				
	73°F		J/m	68	ft-lb/in	1.3
	-22°F		J/m	60	ft-lb/in	1.1
Vicat softening temperature		ISO 306				
Method A	10 N		°C	335	°F	635
Method B	50 N		°C	305	°F	581
Linear thermal expansion		ISO 11359				
longitudinal	73-131°F		10 ⁻⁴ K ⁻¹	0.6	ppm/°F	33
Relative permittivity		IEC 60250				
	50 Hz			2.8		2.8
	1 MHz			2.8		2.8
Electric strength	K20/P50	IEC 60243-1	kV/mm	16	V/mil	406
Volume resistivity		IEC 60093	Ohm · m	10 ¹⁵	Ohm · m	10 ¹⁵
Surface resistance		IEC 60093	Ohm	10 ¹⁴	Ohm	10 ¹⁴
Melting range		ISO 11357				
DSC	2 nd heating		°C	approx. 340	°F	approx. 644
Melt volume-flow rate (MVR)		ISO 1133				
	716°F/ 5kg		cm ³ / 10 min	12	cm ³ / 10 min	12
Flammability acc. UL94		IEC 60695				
	0.06 inch	UL94		V-0		V-0
Glow wire test		IEC 60695-2-				
GWIT	0.08 inch	12/13	°C	850	°F	1562
GWFI	0.08 inch		°C	960	°F	1760
Mold shrinkage		0.08 inch				
in flow direction		sheets, mold-	%	1.1	%	1.1
in transverse direction		temp. 356°F	%	1.8	%	1.8
		ISO 294-4				

® = registered trademark

¹⁾ N = No break

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