

Product Information

VESTAKEEP® M4P

Medical grade; high-viscosity, unreinforced polyether ether ketone powder

VESTAKEEP® M4P is a high-viscosity polyether ether ketone (PEEK) powder that is designed for medical applications with limited time body contact (up to 180 days).

The semi-crystalline polymer features superior thermal and chemical resistance. VESTAKEEP M4P is self-extinguishing.

VESTAKEEP M4P is supplied as powder in boxes with moisture-proof polyethylene liners.

For information about processing of VESTAKEEP M4P, please follow the general recommendations in our brochure "VESTAKEEP Polyether Ether Ketone Powder".

VESTAKEEP M4P fulfils the following requirements to meet the demands for medical applications:

Biocompatibility testing:

- United States Pharmacopoeia Testing : <87> "Biological Reactivity Testing In Vitro"
- Cytotoxicity test: L929 MEM elution, according to ISO 10993-5 (37°C/24h)

Granules made of VESTAKEEP M4P fulfil the following requirements:

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

- Acute Systemic Toxicity Test: 4 different extraction media (70°C/24h)
- Irritation Test – Intracutaneous Injection test: 4 different extraction media (70°C/24h)
- Implantation Test: In Vivo-Implantation test: intramuscular, 7 days

For further information, please contact us at evonik-hp@evonik.com.

Powder Information

Property	Test method		Unit	VESTAKEEP M4P
	international	national		
App. bulk density	ISO 60	DIN 53 468	g/dm ³	220
Average particle size	d50	Malvern Mastersizer	µm	approx. 550

Application technology properties

Property	Test method		Unit	VESTAKEEP M4P	
	international	national			
Density	23 °C	ISO 1183	DIN EN ISO 1183	g/cm ³	1.30
Tensile test		ISO 527-1	DIN EN ISO 527-1		
Stress at yield		ISO 527-2	DIN EN ISO 527-2	MPa	96
Strain at yield				%	5
Strain at break				%	30
Tensile modulus		ISO 527-1/2	DIN EN ISO 527-1/2	MPa	3500
CHARPY impact strength		ISO 179/1eU	DIN EN ISO 179/1eU		
	23 °C			kJ/m ²	N ¹⁾
	-30 °C			kJ/m ²	N ¹⁾
CHARPY notched impact strength		ISO 179/1eA	DIN EN ISO 179/1eA		
	23 °C			kJ/m ²	7 C ¹⁾
	-30 °C			kJ/m ²	6 C ¹⁾
Temperature of deflection under load		ISO 75-1	DIN EN ISO 75-1		
		ISO 75-2	DIN EN ISO 75-2		
Method A	1.8 MPa			°C	150
Method B	0.45 MPa			°C	205
Vicat softening temperature		ISO 306	DIN EN ISO 306		
Method A	10 N			°C	335
Method B	50 N			°C	305
Melting range		ISO 11357			
DSC	2 nd heating			°C	approx. 340
Melt volume-flow rate (MVR)		ISO 1133	DIN EN ISO 1133		
	380 °C / 5 kg			cm ³ /10 min	11
	380 °C / 10 kg			cm ³ /10 min	35
Flammability acc. UL94	3.2 mm	IEC60695	UL94		V-0

Pigmentation may affect values.

¹⁾ C = Complete break, incl. hinge break
N = No break

® = registered trademark

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