

Product Information

VESTAKEEP® Care M40 3DF

FILAMENT BASED ON HIGH VISCOSITY, UNREINFORCED POLYETHER ETHER KETONE (PEEK) FOR 3D PRINTED MEDICAL DEVICES



VESTAKEEP® Care M40 3DF is extruded from naturally colored, high viscosity VESTAKEEP® Care M40 G PEEK resin. The material is designed for 3d printing of medical devices with up to 30 days body contact.

Biocompatibility

The biocompatibility of the base resin VESTAKEEP® Care M40 G has been tested following ISO 10993-1 recommendations for medical devices with up to 30 days of body contact and USP Class VI. A summary of biocompatibility test results is available upon request.

Biocompatibility tests available for VESTAKEEP® Care M40 G:

Delivery and packaging

VESTAKEEP® Care M40 3DF filament has a diameter of 1.75 mm (+/- 0.04 mm*). It is supplied on TROGAMID®-spools with 500g. The spools are packaged in double bags to facilitate transfer into clean areas.

The properties listed are for information only and only apply to the VESTAKEEP® Care M40 G resin used in the manufacture of VESTAKEEP® Care M40 3DF. The performance and the purity of any parts manufactured from VESTAKEEP® Care M40 3DF are highly dependent on any 3D- or additive-printing processes, or any other processing, to which the filament is subjected. Only density and filament diameter apply to VESTAKEEP® Care M40 3DF directly.

*Diameters are tested by a multi-axis laser gauge. The diameter is the average of these axis.

FOR FURTHER INFORMATION PLEASE CONTACT US AT EVONIK-HP@EVONIK.COM OR VISIT OUR PRODUCT AT WWW.EVONIK.COM/MEDICAL-TECHNOLOGY

Mechanical properties ISO	dry	Unit	Test Standard
Tensile Modulus	3500	MPa	ISO 527
Tensile Strength	94	MPa	ISO 527
Yield stress	94	MPa	ISO 527
Yield strain	5	%	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	-	-

Charpy notched impact strength, -30°C	6	kJ/m ²	ISO 179/1eA
Type of failure	C	-	-

Thermal properties	dry	Unit	Test Standard
Melting temperature	335	°C	ISO 11357-1/-3
Glass transition temperature	152	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	155	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	205	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	335	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	305	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	60	E-6/K	ISO 11359-1/-2

Physical properties	dry	Unit	Test Standard
Density	1300	kg/m ³	ISO 1183
Filament Diameter	1.75	mm	-

Burning Behav.	dry	Unit	Test Standard
Burnin behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	3.2	mm	-

Rheological properties	dry	Unit	Test Standard
Melt volume-flow rate, MVR	11	cm ³ /10min	ISO 1133
Temperature	380	°C	-
Load	5	kg	-

Characteristics

Key Feature, Industrial Sector
Medical

Special Characteristics
Semi-crystalline, High viscosity

Key Feature, Processing

3D printing

Key Feature, Resistance to

Heat (Thermal Stability), Hydrolysis / Hot water, Wear / Abrasion

Key Feature, Certificate / Licence

Medical Application

Key Feature, Additives

Unfilled

Applications

Monofilament

Processing

Fused Deposition Molding

Features

General Chemical Resistance

Ecological valuation

US Pharmacopeia Class VI Biocompatibility

Color

Natural Color, Opaque

Delivery form

Monofilament

Chemical Resistance

Acid Resistance, Alkali Resistance, Solvent Resistance, Grease Resistance, Hydrolytically Stable, Oil Resistance, Oxidation Resistance

Other extrusion

Drying recommendations

We recommend to dry the filament prior to usage to avoid stringing, bubbles, or other defects.

- a) Filament on spool: minimum 12 hours at 80°C to 100°C. 100°C must not be exceeded to avoid distortion of the spool.
- b) Filament removed from spool: minimum 4 hours at 130°C to 140°C.

The maximum drying temperature of the filament is 140°C. Please also pay attention to the instructions of your drying device.

Spool dimensions

For dimensions of the spool, please see drawing below. All dimensions are given in millimeter (mm).

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