

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

Biocompatibility was tested following ISO10993-1 recommendations for a surface medical device with up to 30 days body contact.

The material fulfills the requirements of USP<88> class VI.

Tests were performed by independent, certified laboratories.

Biocompatibility tests available for VESTAKEEP® Care M40 3DF:

STANDARD	DESCRIPTION
ASTM F756-08	Hemolysis
ISO 10993-5	Cytotoxicity
ISO 10993-10	Sensitization: Maximization test according to Magnusson und Kligman
ISO 10993-10	Irritation: Intracutaneous Reactivity
ISO 10993-11	Acute Systemic Toxicity
USP CLASS VI	Acute Systemic Toxicity (mice), Intracutaneous Reactivity (rabbit), Muscle Implantation (rabbit)

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.

Key Features

Industrial Sector

Medical Devices, 3D Printing

Processing

3D Printing

Delivery form

(Mono)filament

Optics

Opaque

Resistance to

Heat (thermal stability), Hydrolysis / hot water, Wear / abrasion

Conformity

Biocompatibility, Medical application

Additives

Unfilled

Mechanical properties ISO

	dry	Unit	Test Standard
Tensile modulus	508000	psi	ISO 527
Tensile strength	13600	psi	ISO 527
Yield stress	13600	psi	ISO 527
Yield strain	5	%	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	3.33	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	-	-

Thermal properties

	dry	Unit	Test Standard
Melting temperature	635	°F	ISO 11357-1/-3
Glass transition temperature, DSC	306	°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	581	°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	635	°F	ASTM D 3418
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Physical properties	dry	Unit	Test Standard
Density	1.3	g/cm ³	ISO 1183
Water absorption	0.4	%	Sim. to ISO 62
Filament Diameter	0.0689	in	-
Density	1.3	g/cm ³	ASTM D 792

Burning Behav.	dry	Unit	Test Standard
Burnin behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	0.1260	in	-

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

Characteristics

Applications

Monofilament

Processing

Fused deposition molding, Additive manufacturing

Special Characteristics

Semi-crystalline, High viscosity, Sterilizable

Features

Resistance to steam

Regulatory

US Pharmacopeia Class VI conformity

Color

Natural color

Chemical Resistance

Acid resistance, Alkali resistance, Solvent resistance, Grease resistance, Hydrolytically stable, Oil resistance, Oxidation resistance, General chemical resistance

Other extrusion

Drying recommendations

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

- Filament on spool: minimum 12 hours at 80°C to 100°C. 100°C must not be exceeded to avoid distortion of the spool.
- 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).

