Addigy® F2045

Fused Filament Fabrication

covestro

Addigy® F2045

Addigy® F2045 is a thermoplastic copolyester (TPC) suitable for a broad range of soft, highly flexible applications. This bio-based filament offers a lighter, smarter, greener alternative to conventional rubbers.

Addigy® F2045 is a TPC with unique properties such as resistance against high temperatures due to long term thermo-oxidative stability, as well as good UV resistance. The material is highly elastic with Shore D of 34 and does not show cracking or loss in gloss under UV exposure. Half of **Addigy® F2045** material originates from bio-based feedstock.

Ideal for soft, flexible applications, this material prints twice as fast when compared to thermoplastic polyurethane (TPU). It combines easy and fast printing with high performance characteristics enabled by excellent inter-layer adhesion due to its slower crystallization behavior. **Addigy® F2045** has excellent energy return – 20–30% higher when compared to TPU and EVA.

The natural colored filament passes ISO 10993-10 Irritation/Intracutaneous reactivity testing, ISO 10993-5 Cytotoxicity testing and USP class IV tests for medical implants.

Addigy® F2045 is available in natural, black and gray and comes in 2.85 and 1.75 diameters.

Key Benefits

- Highly elastic material for soft, flexible applications
- High UV and chemical resistance
- Excellent energy return
- Fast print speed
- 50% of the material originates from bio-based feedstock
- Passes USP class IV for medical implants and ISO qualifications for irritation and cytotoxicity
- Tested on multiple open platform FFF machines

Ideal Applications

- Shoe in-soles, midsoles
- Protective sport equipment such as mouthguards and glasses
- Wearables such as earbuds and smartwatch bands
- Flexible tools and electronics
- Prosthetics, splints
- Gaskets, tubes, wipers

Technical Data

Thermal Properties	Value	Unit	Test Method
Melting temperature (10°C/min)	158	°C	ISO 11357-1/-3
Glass transition temperature (10°C/min)	-35	°C	ISO 11357-1/-2
Vicat softening temperature (50°C/h 10N)	90	°C	ISO 306

Electrical Properties	Value	Unit	Test Method
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	>1E15	Ohm	IEC 60093
Electric strength	20	kV/mm	IEC 60243-1

Other Properties	Value	Unit	Test Method
Humidity absorption	0.04	%	Sim. to ISO 62
Density	1,100	kg/m³	ISO 1183

Material Specific Properties	Value	Unit	Test Method
Maximum tensile stress (3D printed tensile bars) 0°–90°	8	MPa	ISO 527-1/-2
Maximum tensile stress (3D printed tensile bars) 45°–45°	7.6	MPa	ISO 527-1/-2
Tensile modulus (3D printed tensile bars) 0°–90°	29	MPa	ISO 527-1/-2
Tensile modulus (3D printed tensile bars) 45°–45°	29	MPa	ISO 527-1/-2

These values may vary and depend on individual machine processing and post-curing practices.

More information at am.covestro.com

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