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Fiche Technique

KIMYA TOUGH PLA-HI 3D FILAMENT

High Impact filament for FDM 3D Printers

DESCRIPTION

The Kimya Tough PLA-HI 3D filament is a biosourced polymer obtained from corn starch. Polylactic Acid-HI (PLA-HI) is a "High Impact" filament offering increased impact resistance: it was formulated to be five times more resistant to impact than standard PLA. PLA is easy to print and is odorless. It can be used to create functional prototypes, spare parts, architectural models and in other forms of modeling. The Kimya Tough PLA-HI 3D filament has the following properties.

BENEFITS

- Impact resistance.
- Biosourced material.

TECHNICAL DATA

Properties	Test Methods	Values
Diameter	INS-6712	1.75 ± 0.1 mm 2.85 ± 0.1 mm
Density	ISO 1183-1	1.21 g/cm^3
Moisture rate	INS-6711	< 0.5 %
Melt flow index (MFI)	ISO 1133-1 (@210°C-2.16kg)	5.7 g/10min
Glass transition temperature (Tg)	ISO 11357-1 DSC (10°C/min-20-220°C)	60°C (140°F)
Melting Temperature (Tm)	ISO 11357-1 DSC (10°C/min-20-220°C)	156°C (312.8°F)
Properties	**Test Methods**	**Values**
Tensile Modulus	ISO 527-2/5A/50	2,491 MPa (361.3 ksi)
Tensile Strength	ISO 527-2/5A/50	43 MPa (6.2 ksi)
Tensile Strain at Strength	ISO 527-2/5A/50	2 %
Tensile Stress at Break	ISO 527-2/5A/50	22.9 MPa (3.3 ksi)
Tensile Strain at Break (type A)	ISO 527-2/5A/50	4.2 %
Flexural Modulus	ISO 178	2,097 MPa (304 ksi)
Flexural Stress at Break	ISO 178	82.3 MPa (11.94 ksi)
Deformation at Flexural Strain	ISO 178	> 5 %
Flexural Stress at Conventional Deflection (3.5% Strain)*	ISO 178	62.8 MPa (9.1 ksi)
Charpy Impact Resistance	ISO 179-1/1eA	16.5 kJ/m^2 (7.9 ft-lbs/in^2)
Shore Hardness	ISO 868	76.8 D

PROCESSING

Printing Direction	XY
Printing Speed	Initial layers: 10-20 mm/s, further layers 30-60 mm/s
Nozzle Temperature	190°C - 210°C (374°F - 410°F)
Bed Temperature	20°C - 60°C (68°F - 140°F)

NOTES

- *According to ISO 178, end of the test at 5% deformation even if there is no specimen break.
- The data should be considered as indicative values - Properties can be influenced by production conditions.