

Data Sheet

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

Diameter
Density
Moisture rate
Melt flow index (MFI)
Glass transition temperature (Tg)
Melting Temperature (Tm)

Test Methods

INS-6712
ISO 1183-1
INS-6711
ISO 1133-1 (@210°C-2.16kg)
ISO 11357-1 DSC (10°C/min-20-220°C)
ISO 11357-1 DSC (10°C/min-20-220°C)

Values

1.75 ± 0.1 mm
2.85 ± 0.1 mm
1.21 g/cm ³
< 0.5 %
5.7 g/10min
60°C (140°F)
156°C (312.8°F)

Properties

Tensile Modulus
Tensile Strength
Tensile Strain at Strength
Tensile Stress at Break
Tensile Strain at Break (type A)
Flexural Modulus
Flexural Stress at Break
Deformation at Flexural Strain
Flexural Stress at Conventional Deflection (3.5% Strain)*
Charpy Impact Resistance
Shore Hardness

Test Methods

ISO 527-2/5A/50
ISO 527-2/5A/50
ISO 527-2/5A/50
ISO 527-2/5A/50
ISO 527-2/5A/50
ISO 178
ISO 178
ISO 178
ISO 178
ISO 178
ISO 179-1/1eA
ISO 868

Values

2,491 MPa (361.3 ksi)
43 MPa (6.2 ksi)
2 %
22.9 MPa (3.3 ksi)
4.2 %
2,097 MPa (304 ksi)
82.3 MPa (11.94 ksi)
> 5 %
62.8 MPa (9.1 ksi)
16.5 kJ/m ² (7.9 ft-lbs/in ²)
76.8 D

PROCESSING

Printing Direction

Printing Speed
Nozzle Temperature
Bed Temperature

XY

Initial layers: 10-20 mm/s, further layers 30-60 mm/s
190°C - 210°C (374°F - 410°F)
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.