

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**

Diameter

Density

Moisture rate

Melt flow index (MFI)

Glass transition temperature (T_g)Melting Temperature (T_m)**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/cm³

< 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 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/m² (7.9 ft-lbs/in²)

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.