

KIMYA TPC-ESD 3D FILAMENT

Flexible filament for FFF 3D Printers

DESCRIPTION

Kimya TPC-ESD is a 3D printing filament made from thermoplastic copolyester (TPC), a type of elastomer. It combines rigid ester segments and flexible ether segments through copolymerization to deliver flexibility and strength. The "ESD" version adds protection against electrostatic discharge, making it especially useful in sensitive electronic applications. TPC-ESD offers chemical and impact resistance, with a Shore hardness of 91A, allowing for the printing of flexible, elastic parts. It's commonly used in industry for components like connectors, sensors, and measuring devices. Kimya TPC-ESD provides a blend of durability, flexibility, and electrostatic safety for industrial uses.

BENEFITS

- Flexibility & Elasticity.
- Great Electrostatic Discharge Protection.
- Impact Resistant.

TECHNICAL DATA

| Properties | Values | Test Methods |
|---|--|-------------------------------------|
| Diameter | 1.75 ± 0.1 mm | INS-6712 |
| Density | 1.2 g/cm ³ | ISO 1183-1 |
| Moisture rate | < 1 % | INS-6711 |
| Melt flow index (MFI) | 21 - 25 g/10min | ISO 1133-1 (@210°C-2.16kg) |
| Melting Temperature (Tm) | 159°C (381.2°F) | ISO 11357-1 DSC (10°C/min-20-220°C) |
| Properties | Values | Test Methods |
| Surface Resistivity | 10 ⁷ - 10 ⁹ Ω/sq | ASTM D257 |
| Tensile Modulus | 46 MPa (6.7 ksi) | ISO 527-2/5A/50 |
| Tensile Strength | 13.1 MPa (1.9 ksi) | ISO 527-2/5A/50 |
| Tensile Stress at Break | 12.8 MPa (1.9 ksi) | ISO 37/2/500 |
| Tensile Strain at Break (type A) | > 400 % | ISO 37/2/500 |
| Flexural Modulus | 54 MPa (7.8ksi) | ISO 178 |
| Flexural Stress at Conventional Deflection (3.5% Strain)* | 2 MPa (0.29 ksi) | ISO 178 |
| Charpy Impact Resistance | No Break | ISO 179-1/1eA |
| Shore Hardness | 91 A | ISO 868 |

PROCESSING

| Printing Direction | XY |
|--------------------|---|
| Printing Speed | Initial layers: 10-20 mm/s, further layers 30-60 mm/s |
| Nozzle Temperature | 245°C - 270°C (473°F - 518°F) |
| Bed Temperature | 55°C - 65°C (131°F - 149°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.