

Fiche Technique

KIMYA PPSU-S 3D FILAMENT

High Temperature filament for FFF 3D Printers

DESCRIPTION

Kimya PPSU-S is a 3D printing filament made from polyphenylsulfone (PPSU), an amorphous thermoplastic in the polysulfone family. Known for its high glass transition temperature and low moisture absorption, PPSU-S offers excellent resistance to heat and chemicals. This makes it an ideal choice for technical applications across sectors such as automotive, oil and gas, chemical processing, and low-volume injection molding. Kimya PPSU-S delivers high-performance results where strength, thermal stability, and chemical durability are critical.

BENEFITS

- Flame retardant.
- Easy to print.
- Low Moisture Absorption.

TECHNICAL DATA

Properties

Diameter	1.75 ± 0.1 mm	INS-6712
Density	1.3 g/cm ³	ISO 1183-1
Melt flow index (MFI)	16 - 21 g/10min	ISO 1133-1 (@365°C-5kg)
Glass transition temperature (Tg)	224°C (435°F)	ISO 11357-1 DSC (10°C/min - 0-420°C)

Properties

Maximum use Temperature	176°C (348.8°F)	-
Heat Distortion Temperature (HDT) (1.8Mpa)	207°C (404.6°F)	ASTM D648
Volume Resistivity	9.0 × 10 ¹⁵ Ω/sq	ASTM D257
Tensile Modulus	1,752 MPa (254.1 ksi)	ISO 527-2/1A/50
Tensile Strength	53.8 MPa (7.8 ksi)	ISO 527-2/1A/50
Tensile Strain at Strength	6.4 %	ISO 527-2/1A/50
Tensile Stress at Break	53.8 MPa (7.8 ksi)	ISO 527-2/1A/50
Tensile Strain at Break (type A)	6.4 %	ISO 527-2/1A/50
Flexural Modulus	1,664 MPa (241.3 ksi)	ISO 178
Deformation at Flexural Strain	5 %	ISO 178
Flexural Stress at Conventional Deflection (3.5% Strain)*	54.1 MPa (7.9 ksi)	ISO 178
Charpy Impact Resistance	20.7 kJ/m ² (9.9 ft-lbs/in ²)	ISO 179-1/1eA
Shore Hardness	79.8 D	ISO 868

Values

Diameter	1.75 ± 0.1 mm
Density	1.3 g/cm ³
Melt flow index (MFI)	16 - 21 g/10min
Glass transition temperature (Tg)	224°C (435°F)

Values

Maximum use Temperature	176°C (348.8°F)
Heat Distortion Temperature (HDT) (1.8Mpa)	207°C (404.6°F)
Volume Resistivity	9.0 × 10 ¹⁵ Ω/sq
Tensile Modulus	1,752 MPa (254.1 ksi)
Tensile Strength	53.8 MPa (7.8 ksi)
Tensile Strain at Strength	6.4 %
Tensile Stress at Break	53.8 MPa (7.8 ksi)
Tensile Strain at Break (type A)	6.4 %
Flexural Modulus	1,664 MPa (241.3 ksi)
Deformation at Flexural Strain	5 %
Flexural Stress at Conventional Deflection (3.5% Strain)*	54.1 MPa (7.9 ksi)
Charpy Impact Resistance	20.7 kJ/m ² (9.9 ft-lbs/in ²)
Shore Hardness	79.8 D

Test Methods

INS-6712
ISO 1183-1
ISO 1133-1 (@365°C-5kg)
ISO 11357-1 DSC (10°C/min - 0-420°C)

Test Methods

-
ASTM D648
ASTM D257
ISO 527-2/1A/50
ISO 527-2/1A/50
ISO 527-2/1A/50
ISO 527-2/1A/50
ISO 527-2/1A/50
ISO 178
ISO 178
ISO 178
ISO 179-1/1eA
ISO 868

PROCESSING

Printing Direction

Printing Speed	Initial layers: 10-20 mm/s, further layers 30-60 mm/s
Nozzle Temperature	365°C - 390°C (689°F - 734°F)
Bed Temperature	210°C - 230°C (410°F - 446°F)
Chamber Temperature	210°C - 230°C (410°F - 446°F)

XY

Initial layers: 10-20 mm/s, further layers 30-60 mm/s
365°C - 390°C (689°F - 734°F)
210°C - 230°C (410°F - 446°F)
210°C - 230°C (410°F - 446°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.