Kimya PEKK-A 3D Filament (KEPSTAN®)

The Kimya **PEKK-A** 3D filament belongs to the polyaryletherketone family. Polyetherketoneketone (**PEKK**) is a thermoplastic polymer. PEKK-A is the amorphous form of PEKK, providing ease of printing. This is a material that boasts good mechanical properties and is resistant to high temperatures (<150°C). Produced using KEPSTAN® Arkema, the Kimya PEKK-A 3D filament has been designed for technical applications. It can come into contact with hydrocarbons and fluids, enabling it to be used in multiple business sectors: aerospace, automotive, railways, etc. It has the following properties:

- Temperature resistance
- Flame retardant – eligible to **UL94 V0**
- Complies with the **RoHS** and **REACH standard**

2-year ARMOR warranty.

FILAMENT PROPERTIES

PROPERTIES	TEST METHODS	VALUES
Diameter	INS-6712	1,75 ± 0,1 mm
Density	ISO 1183-1	1,261 g/cm3
Melt flow index (MFI)	ISO 1133-1 (@380°C – 5 kg)	37 - 47 g/10min
Glass transition temperature (Tg)	ISO 11357-1	159 °C
Melting Temperature (Tm)	ISO 11357-1	308 °C

PRINT PARAMETERS AND SPECIMENS DIMENSIONS

PRINTING DIRECTION	XY	ZX
Printing Speed	25 mm/s	20 mm/s
Infill	100% - rectilinear	100% - rectilinear
Infill Angle	0°/0°	45°/-45°
Nozzle Temperature	400°C	385°C
Bed T°	155°C	155°C
Chamber T°	155°C	155°C

PRINTED SPECIMENS PROPERTIES

	PROPERTIES	TEST METHODS	XY	ZX
THERMAL PROPERTIES	Maximum use T°	-	150 °C	150 °C
	Thermal conductivity	ASTM E1530-11	0,21 W/mK	
	Heat distortion temperature (HDT) (0,15Mpa)	ISO 75f	154 °C	
	Heat distortion temperature (HDT) (1,8Mpa)	ISO 75f	150 °C	
	Coefficient of thermal expansion	ISO 11359-2/ASTM E228 (-30°C to 100°C)	53 µm/m/K	50 µm/m/K
ELECTRICAL PROPERTIES	Dielectric strength	IEC 60243-1 (100µm)	84 KV/mm	
	Relative permittivity	IEC 60250 (1 MHz)	2,5	
	Loss tangent	IEC 60250 (1 kHz)	0,007	
	Surface resistivity	ASTM D257	10^{16} Ohms/m²	
	Volume resistivity	ASTM D257	10^{16} Ohms/cm	
	CTI (Comparative Tracking Index)	IEC 60112:2009	150 V	200 V
OUTGASSING	Total Mass Loss (TML)	ASTM E595	0,27 %	0,27 %
	Collected Volatile Condensable Material (CVCM)	ASTM E 595	< 0.01 %	< 0.01 %
	Water Vapor Recovered (WVR)	ASTM E 595	0,29 %	0,29 %
MECHANICAL PROPERTIES	Tensile modulus	ISO 527-2/5A/50	2 972 MPa	2 700 MPa
	Tensile Strength	ISO 527-2/5A/50	92,1 MPa	76,9 MPa
	Tensile strain at strength	ISO 527-2/5A/50	5,8 %	4 %
	Tensile Stress at Break	ISO 527-2/5A/50	70,7 MPa	76,9 MPa
	Tensile strain at break (type A)	ISO 527-2/5A/50	5,6 %	4 %
	Tensile strain at break (type B et C)	ISO 527-2/5A/50	6,6 %	
	Flexural modulus	ISO 178	2 638,3 MPa	2 228 MPa
	Flexural stress at conventional deflection (3,5% strain)*	ISO 178	88,2 MPa	79,5 MPa
	Deformation at Flexural Strength	ISO 178	0 %	
	Compressive Modulus	ISO 604	3 000 MPa	
	Compressive Yield strength	ISO 604	150 MPa	
	Strain at yield	ISO 604	7 %	
	Charpy impact resistance	ISO 179-1/1eA	15,529 kJ/m²	3,972 kJ/m²
	Shore Hardness	ISO 868	79.9	

Note 1	*Fin de l'essai à 5% d'allongement d'après la norme ISO 178 même si l'éprouvette ne rompt pas.
Note 2	Les données doivent être considérées comme des valeurs indicatives - Les propriétés peuvent être influencées par les conditions de production.

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