KEPSTAN®

TECHNICAL DATA SHEET

KEPSTAN® 7002

POLYETHERKETONEKETONE PELLET OR FLAKE

KEPSTAN® is a high performance thermoplastic material, based on PolyEtherKetoneKetone (PEKK) highly stable chemical backbone. Its semi crystalline structure in solid state offers an outstanding combination of mechanical and thermal strength together with chemical and fire resistance.

Among the KEPSTAN® family, the 7000 Series benefits uniquely from PEKK crystalline capabilities while reducing significantly processing temperatures compared to the more crystalline 8000 Series. With a lower melting temperature and a Tg still above 160°C, the KEPSTAN® 7000 Series resins are very valued in all processes where a delayed or slower crystallization is key to ease thermoforming, to improve interlayer adhesion and to reduce internal stresses. They are for instance highly enabling in the field of continuous fiber composites for structural applications, and in filament additive manufacturing technologies with or without continuous fibers.

KEPSTAN® 7000 Series includes a very low flow grade, KEPSTAN® 7001, a medium flow grade, KEPSTAN® 7002, and a high flow grade, KEPSTAN® 7003, all unfilled PEKK resins designed to meet the requirements of a broad range of melt processing technologies, including among others extrusion, thermoforming, injection molding, fiber impregnation, composite consolidation and forming technologies, filament additive manufacturing.

KEPSTAN® is available in pellet form as well as in flake and in powder form with different particle sizes.

Standard packaging includes 20 kg boxes for pellets, 40kg drums for flakes and 10 kg boxes for powders.

TYPE

PEKK

POTENTIAL APPLICATIONS

- Composites & advanced materials
- 3d printing & additive manufacturing• Extrusion 3d
- Thermoplastics

DELIVERY FORM

- Flakes
- Pellets

TRANSFORMATION PROCESSES

- 3D Printing
- Calendering
- Extrusion - General
- Filament extrusion
- Sheet Extrusion
- Thermoforming

RHEOLOGICAL PROPERTIES

PROPERTIES	TYPICAL VALUE	UNIT	TEST STANDARD
Melt volume flow rate (MVR), 380°C / 1 kg (716°F / 2.2 lb)	6	cm^3/10min	ISO 1133

MECHANICAL PROPERTIES

PROPERTIES	TYPICAL VALUE	UNIT	TEST STANDARD
Tensile modulus, 23°C (73°F) (1BA)	3900	MPa	ISO 527-1/-2
Yield stress, 23°C (73°F) (1BA)	114	MPa	ISO 527-1/-2
Yield strain, 23°C (73°F) (1BA)	5.5	%	ISO 527-1/-2
Nominal strain at break, 23°C (73°F) (1BA)	>15	%	ISO 527-1/-2
Compression modulus, 23°C (73°F), 1 mm/min	3800	MPa	ISO 604
Compression strength, 23°C (73°F) (5mm/min)	149	MPa	ISO 604
Flexural modulus, 23°C (73°F)	3900	MPa	ISO 178
Flexural strength, 23°C (73°F)	168	MPa	ISO 178

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PROPERTIES	TYPICAL VALUE	UNIT	TEST STANDARD
Charpy unnotched impact strength, 23°C (73°F)	62	kJ/m2	ISO 179 1eU
Charpy unnotched impact strength, -30°C (-22°F)	41	kJ/m2	ISO 179 1eU
Charpy notched impact strength, 23°C (73°F)	5	kJ/m2	ISO 179 1eA
Charpy notched impact strength, -30°C (-22°F)	5.5	kJ/m2	ISO 179 1eA

THERMAL PROPERTIES

PROPERTIES	TYPICAL VALUE	UNIT	TEST STANDARD
Melting temperature, 20°C/min (DSC, 2nd Heating)	336	°C	
Glass transition temperature, 20°C/min (DSC)	162	°C	
Specific heat temperature, 23°C (73°F) (DSC)	1.02	J/g/K	
Heat deflection temperature, 1.8 MPa	164	°C	ISO 75-1/-2
Coefficient of linear thermal expansion, from -100°C (-148°F) to Tg (DMA Tension)	24	10E-6 / °K	
Coefficient of linear thermal expansion, Tg to 300°C (572°F) (DMA Tension)	230	10E-6 / °K	
Limiting oxygen index (LOI), nominal thickness 3.2 mm	38	%	ISO 4589-1/-2
Burning behavior, nominal thickness 0.8 mm	V-0		IEC 60695-11-10

ELECTRICAL PROPERTIES

PROPERTIES	TYPICAL VALUE*	UNIT	TEST STANDARD
Dielectric strength (100µm Thickness)	84	kV/mm	IEC 60243-1
Relative permittivity, 23°C (73,4°F) (1MHz)	3		IEC 62631-2-1
Volumic (transversal) resistivity, 23°C (73,4°F)	1E+15	ohm*m	ASTM D257
Surface resistivity, 23°C (73,4°F)	1E+17	ohm/sq	ASTM D257

OTHER PROPERTIES

PROPERTIES	TYPICAL VALUE	UNIT	TEST STANDARD
Density, 23°C (73°F)	1.29	g/cm³	ISO 1183-1
Water absorption, at equilibrium at 23°C (73°F) / Immersion	0.7	%	ISO 62
Water absorption, at equilibrium at 23°C (73°F) / 50%RH	0.4	%	ISO 62
Water absorption, after 24h at 23°C (73°F) / 50%RH (2mm)	0.05	%	ISO 62
Water absorption, after 24h at 23°C (73°F) / Water	0.11	%	ISO 62

SHELF LIFE

Indefinite when stored properly (sealed bags, appropriate UV protection and temperature)

PROCESSING RECOMMANDATIONS

- Typical melt temperature (Min / Recommended / Max) - Injection Molding: Rear 320°C / Center 340°C / Front 350°C / Nozzle 360°C (610°F / 645°F / 660°F / 680°F)
- Typical mold temperature - Injection molding: 230-250°C (445-480°F), to facilitate skin & core cristallization
- Drying Conditions: 150°C (300°F) / 3-4 hours

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SPECIAL CHARACTERISTICS

- Halogen Free Flame Retardant (HFFR)

REGIONAL AVAILABILITY

World

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