



Technical Data – KEPSTAN® 8000 Series

PRODUCT DESCRIPTION

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.

The 8000 Series offers the highest glass transition temperature and the highest degree of crystallinity, leading to the best tensile and compression strengths among both KEPSTAN® copolymers family and PAEK resins.

KEPSTAN® 8000 Series includes a very low flow grade, KEPSTAN® 8001, a medium flow grade, KEPSTAN® 8002, and a high flow grade KEPSTAN® 8003, all unfilled pure PEKK resins designed to meet the requirements of a broad range of melt processing technologies, including among others extrusion of stock shapes, tubes, films, extrusion compression, compression molding, compounding, injection molding of thick or complex and thin-walled parts.

KEPSTAN® is available in pellet form and as well as in flake.
Standard packaging includes 20 kg boxes for pellets and 40 kg drums for flakes.

MATERIAL PROPERTIES

	Condition	Test method	Unit	Typical Value		
				8001	8002	8003
Grades				8001	8002	8003
Flow level				Very Low	Medium	High
General						
Density	23°C	ISO 1183	g/cm ³	1.29	1.29	1.29
Color	-	-	-	Grey Beige	Grey Beige	Grey Beige
Water absorption	23°C, RH50%, equilibrium	ISO 62	%	0.4	0.4	0.4
	23°C, RH50%, 24 h, 2 mm		%	0.05	0.05	0.05
	23°C, immersion, equilibrium		%	0.7	0.7	0.7
	23°C, immersion, 24 h, 2 mm		%	0.11	0.11	0.11
Melt volume flow rate	380°C / 5 kg	ISO 1133	cm ³ /10min	7	-	-
	380°C / 1 kg	ISO 1133	cm ³ /10min	-	6	12
Thermal						
Melting point	20°C/min, 2 nd heating	DSC	°C	355	360	360
Glass transition	20°C/min		°C	165	165	165
Specific heat capacity	23°C		J/g/K	1.02	1.02	1.02
Heat deflection temperature	1.8 MPa	ISO 75f	°C	162	164	164
	0.45 MPa		°C	242	260	282
Coefficient of thermal expansion	Average, -100°C to Tg	DMA, tension	µm/m/K	23	23	23
	Average, Tg to 300°C		µm/m/K	225	225	225
Mechanical						
Tensile modulus	23°C, 1mm/min	ISO 527-1BA	GPa	3.6	3.8	4.1
Tensile strength (max strength)			MPa	110	116	100 to 120
Elongation at yield	23°C, 25mm/min	ISO 527-1BA	%	5.5	5.2	n/a
Elongation at break			%	>30	20	3 – 10
Tensile strength (yield point) at HT	125°C, 25mm/min	ISO 527-1BA	MPa	59	63	Tbd
	175°C, 25mm/min		MPa	22	24	Tbd
	230°C, 25mm/min		MPa	11	12	Tbd
Elongation at break at HT	125°C and above, 25 mm/min	ISO 527-1BA	%	> 50	> 100	Tbd

Compression modulus	23°C, 1mm/min	ISO 604	GPa	Tbd	3.8	Tbd				
Compression strength	23°C, 5mm/min	ISO 604	MPa	Tbd	152	Tbd				
Flexural modulus	23°C	ISO 178-93	GPa	3.5	3.9	4.1				
Flexural strength (max)	23°C,						MPa	167	180	187
	125°C							99	106	108
Charpy impact strength - Unnotched	175°C			20	25	27				
	23°C	ISO 179/1eU	kJ/m ²	NB	10% B @ 87	51				
Charpy impact strength - Notched	- 30°C		kJ/m ²	NB	30% B @ 86	51				
	23°C	ISO 179/1eA	kJ/m ²	7.5	6	5				
Charpy impact strength - Notched	- 30°C		kJ/m ²	6	5.5	5				

NB = No Break - 50% B @ 50 = 50% specimens broken, fracture energy 50 kJ/m²

All data are typical values measured on injection molded specimens, without further annealing or tempering.

Fire

Flammability rating		UL 94	-	V-0 @ 0.8 mm	V-0 @ 0.8 mm	V-0 @ 0.8 mm
Limiting Oxygen Index	3.2mm	ISO 4589-2	%O ₂	38	38	38

Electrical

Dielectric strength	100 µm thickness	IEC 60243-1	kV/mm	84	84	84
Relative permittivity	23°C - 1 MHz	IEC 60250	-	3.0	3.0	3.0
Loss tangent	23°C - 1 kHz	IEC 60250	-	0.002	0.002	0.002
Volume resistivity	23°C	ASTM D257	Ohm.cm	10 ¹⁶	10 ¹⁶	10 ¹⁶
Surface resistivity	23°C	ASTM D257	Ohm	10 ¹⁶	10 ¹⁶	10 ¹⁶

Recommended processing conditions

Drying temperature and time	150°C during 3 to 4 hours, or 120°C during 6 to 8 hours
Processing temperature	375 - 385°C
Temperature settings - Injection	Rear 350°C / Centre 375°C / Front 375°C / Nozzle 385°C
Mold temperature	220 to 240°C, to facilitate skin and core crystallization
Temperature settings - Extrusion	Zones 1/2/3/4 : 340°C/ 360°C/ 380°C / 380°C/ Die : 370°C

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