



## Technical Data – KEPSTAN® 6000 Series

### PRODUCT DESCRIPTION

KEPSTAN® is a high-performance thermoplastic material, based on *PolyEtherKetoneKetone* (PEKK) highly stable chemical backbone. KEPSTAN® is a unique member of the PAEK family, with distinctive structural features allowing for unrivalled possibilities in the control of crystallinity. These features include a high Ketone content and a co-polymer structure, incorporating *Terephthalic* and *Isophthalic* moieties.

The 6000 Series corresponds to the pseudo-amorphous products of the KEPSTAN® family, offering the lowest melting point and the slowest crystallization behavior, while keeping Tg close to 160°C. These properties allow for lower processing temperatures (as low as 320-330°C), and lead to amorphous or semi crystalline structures, depending on processing technologies and cooling conditions. The properties reported in this data sheet correspond to the amorphous state of the PEKK polymer.

KEPSTAN® 6000 Series includes a low flow grade, KEPSTAN® 6001, a medium flow grade, KEPSTAN® 6002, and a high flow grade, KEPSTAN® 6003, all unfilled PEKK resins designed to meet the requirements of a broad range of melt processing technologies, including among others extrusion, calendaring, thermoforming, injection molding, fiber impregnation, rotomolding, powder coating, bonding, welding, and additive manufacturing.

KEPSTAN® is available in pellet form as well as in flake and powder form with different particle sizes. Standard packaging includes 20 kg boxes, 40Kg drums for flakes for pellets and 10 kg boxes for powders.

### MATERIALS PROPERTIES

	Conditions	Test method	Unit	Typical Value		
				6001	6002	6003
<b>Grades</b>				<b>6001</b>	<b>6002</b>	<b>6003</b>
<b>Flow level</b>				<b>Low</b>	<b>Medium</b>	<b>High</b>
<b>General</b>						
Density	23°C	ISO 1183	g/cm <sup>3</sup>	1.27	1.27	1.27
Color	-	-	-	Grey Beige	Grey Beige	Grey Beige
Water absorption	23°C, RH50%, equilibrium	ISO 62	%	0.44	0.44	0.44
	23°C, RH50%, 24 h, 2 mm		%	0.07	0.07	0.07
	23°C, immersion, equilibrium		%	1.07	1.07	1.07
	23°C, immersion, 24 h, 2 mm		%	0.2	0.2	0.2
Melt volume flow rate	380°C / 5 kg	ISO 1133	cm <sup>3</sup> /10min	15	-	-
	380°C / 1 kg		cm <sup>3</sup> /10min	-	6	12
<b>Thermal</b>						
Melting point	20°C/min, 2 <sup>nd</sup> heating	DSC	°C	n/a	n/a	n/a
Glass transition	20°C/min		°C	158	158	158
Specific heat capacity	23°C		J/g/K	1.0	1.0	1.0
Heat deflection temperature	1.8 MPa	ISO 75f	°C	139	139	139
	0.45 MPa		°C	n/a	n/a	n/a
Coefficient of thermal expansion	Average, -100°C to Tg	DMA, tension	µm/m/K	26.5	26.5	26.5
<b>Mechanical</b>						
Tensile modulus	23°C, 1 mm/min	ISO 527-1BA	GPa	3.1	2.9	2.9
Tensile strength (yield point)			MPa	89	88	88
Elongation at yield	23°C, 25 mm/min	ISO 527-1BA	%	5.6	5.4	5.4
Elongation at break			%	>70	>80	>50
Tensile strength (yield point) at HT	125°C, 25 mm/min	ISO 527-1BA	MPa	Tbd	53	53
Elongation at break at HT	125°C, 25 mm/min	ISO 527-1BA	%	Tbd	>100	>100
Compression modulus	23°C, 1 mm/min	ISO 604	GPa	Tbd	3.0	3.0
Compression strength	23°C, 5 mm/min	ISO 604	MPa	Tbd	108	108

Flexural modulus	23°C	ISO 178-93	GPa	Tbd	3.0	3.0
Flexural strength (max)	23°C		MPa	Tbd	128	128
Charpy impact strength – Unnotched	23°C	ISO 179/1eU	kJ/m <sup>2</sup>	NB	NB	NB
	- 30°C		kJ/m <sup>2</sup>	NB	NB	NB
Charpy impact strength – Notched	23°C	ISO 179/1eA	kJ/m <sup>2</sup>	5.1	5.5	5.0
	- 30°C		kJ/m <sup>2</sup>	Tbd	5.0	4.5

NB = No Break

All data measured on amorphous 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	3.2 mm	ISO 4589-2	%O <sub>2</sub>	43	43	43

## 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 <sup>16</sup>	10 <sup>16</sup>	10 <sup>16</sup>
Surface resistivity	23°C	ASTM D257	Ohm	10 <sup>16</sup>	10 <sup>16</sup>	10 <sup>16</sup>

## Recommended processing conditions

Drying temperature and time	120°C during 6 to 8 hours
Processing temperature	320 – 360°C
Temperature settings - Injection	Rear 300°C / Centre 315°C / Front 320°C / Nozzle 330°C
Mold temperature	80 to 120°C, below Tg in any case
Temperature settings - Extrusion	Zones 1/2/3/4 : 290°C/ 320°C/ 330°C / 320°C/ Die : 320°C

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