

LumaSint PK 5000

PRODUCT DESCRIPTION

Lumas' PolyKetone is formulated to reduce carbon footprint significantly as compared to similar highly engineered polymers.

Produced using carbon monoxide and olefins, PK 5000 achieves an ideal balance among essential mechanical characteristics, yielding a polymer renowned for its strength, toughness, and flexibility.

PolyKetone is a resilient polymer that performs well in applications where low friction and wear resistance are paramount. With very good elongation and excellent impact strength, mechanical performance remains stable through a variety of environmental conditions with little to no laser window occlusion in full-stroke builds.



ADVANTAGES

In addition to a wide processing window, other advantages include:

- | | |
|--|-------------------------------|
| Low temperature impact strength | Low carbon footprint |
| Excellent chemical resistance and barrier properties | Best ductility available |
| Improved wear and friction over polyamides | Strength at high temperatures |
| Low toxicity | |

STORAGE AND USE

- PK 5000 must be processed in an inert environment.
- Recommend storing material in a closed container in a dry environment.

MECHANICAL PROPERTIES

	TEST CONDITION	TYPICAL VALUE	METHOD
Tensile Modulus (MPa)	XY coupons	1305	ASTM D638*
	Z coupons	1349	
Ultimate Tensile Strength (MPa)	XY coupons	53	
	Z coupons	51	
Ultimate Tensile Strength (psi)	-65F	1183	
	180F	4327	
Elongation at Break (%)	XY coupons	41	ASTM D790*
	Z coupons	21	
Flexural Modulus (MPa)	XY coupons	1028	
	Z coupons	1068	
Flexural Strength (MPa)	XY coupons	41	
	Z coupons	42	
Izod Impact Energy, notched (J/m)	XY coupons	83	ASTM D256*
	Z coupons	70	
Izod Impact Energy, un-notched (J/m)	XY coupons	1241	
	Z coupons	776	
Izod Impact Strength, notched (kJ/m2)	XY coupons	8	ASTM D256*
	Z coupons	7	
Izod Impact Strength, un-notched (kJ/m2)	XY coupons	95	
	Z coupons	59	

OTHER PHYSICAL PROPERTIES

	TEST CONDITION	TYPICAL VALUE	METHOD
Part Color / Appearance	Ambient	Dark Grey	Visual
	Vapor Smoothed	Black	
Part Density (g/cm ³)	Ambient	1.23	ASTM D792
Bulk Density (g/cm ³)	Ambient	0.51	ASTM D1895
Melt Temperature (°C)	Ambient	197	DSC
Particle Size Distribution (µm)	D10	35	Laser Diffraction
	D50	50	
	D90	76	
Heat Deflection Temperature (°C)	0.455 MPa	157	ASTM D648*
	1.8 MPa	126	

*Tested dry, as printed

DISCLAIMER

The information in this technical data sheet, including material properties, are obtained from testing representative samples under carefully controlled conditions and are provided for reference only. Material properties may be impacted by storage, handling, processing equipment/parameters, and product design, among other factors. The information is not a substitute for user testing to determine fitness for any specific use and the user is responsible for ensuring safe and lawful use of the product.

No express or implied warranties are provided and the implied warranties of merchantability or fitness for a particular purpose are expressly disclaimed. No representations are made, and no liability is assumed arising from or relating to the product.

For additional information, visit
lumaspolymers.com

About Lumas

Lumas Polymers is a flexible, high-velocity partner that provides scalable solutions to complex materials problems with our broad polymer technologies. From ideation to industrialization, we enable our customers to elevate their material properties, accelerate time-to-market and create differentiated products through illuminating polymer technologies.