POLYMER SOLUTIONS

PA 1101

Material Data Sheet

PA 1101

Product Description

PA 1101 is a PA 11 based powder for processing in laser sintering systems. The whitish, slightly translucent, additively manufactured parts are characterized by high impact resistance and elongation at break. They do not splinter even under high mechanical loads.

PA 1101 is a bio-based material made from castor oil with a lower CO_{2e} footprint compared to petroleum-based polymers. PA 1101 is therefore also available as a climate-neutral version, the EOS Responsible Product PA 1101 ClimateNeutral. PA 1101 ClimateNeutral combines climate neutrality with the well-known technical properties of PA 1101.

MAIN CHARACTERISTICS

- High ductility
- High impact resistance
- Balanced property profile
- Biobased material

TYPICAL APPLICATIONS

- Impact-resistant applications, which may not splinter when applied with a load, e.g. coverings or housings
- Functional parts that require a high elongation at break, e.g. hinges, clips, or buckles
- Eyewear in the consumer goods industry

MECHANICAL PROPERTIES	DRY / CONDITIONED	UNIT	TEST STANDARD
Tensile Modulus			ISO 527-1/-2
X Orientation	1650 / -	MPa	
Y Orientation	1650 / -	MPa	
Z Orientation	1650 / -	MPa	
Tensile Strength			ISO 527-1/-2
X Orientation	50 / -	MPa	
Y Orientation	50 / -	MPa	
Z Orientation	48 / -	MPa	
Nominal Strain at Break			ISO 527-1/-2
X Orientation	30 / -	%	
Y Orientation	30 / -	%	
Z Orientation	15 / -	%	
Nominal Strain at Break, FORMIGA P 110 Velocis			ISO 527-1/-2
Z Orientation	22 / -	%	
Nominal Strain at Break, EOS P 770			ISO527-1/-2
Z Orientation	12 / -	%	
Charpy Impact Strength (+23°C)			ISO 179/1eU
X Orientation	N / -	kJ/m²	
Y Orientation	N / -	kJ/m²	
Z Orientation	85 / -	kJ/m²	
Charpy Impact Strength (+23°C), FORMIGA P 110 Velocis			ISO 179/1eU
Z Orientation	N / -	kJ/m²	
Charpy Impact Strength (-30°C)			ISO 179/1eU
X Orientation	N / -	kJ/m²	
Y Orientation	N / -	kJ/m²	
Z Orientation	70 / -	kJ/m²	
Charpy Impact Strength (-30°C), FORMIGA P 110 Velocis			ISO 179/1eU
Z Orientation	N / -	%	
Charpy Notched Impact Strength (+23°C)			ISO 179/1eA
X Orientation	6.9 / -	kJ/m²	
Y Orientation	7.3 / -	kJ/m²	
Z Orientation	5.5 / -	kJ/m²	
Charpy Notched Impact Strength (-30°C)			ISO 179/1eA
X Orientation	6.3 / -	kJ/m²	
Y Orientation	5.8 / -	kJ/m²	
Z Orientation	5.1 / -	kJ/m²	
Shore D Hardness			ISO 7619-1
X Orientation	75 / -	-	

THERMAL PROPERTIES	DRY / CONDITIONED	UNIT	TEST STANDARD
Melting Temperature	201	°C	ISO 11357-1/-3
Temperature of Deflection under Load 1.80 MPa			ISO 75-1/-2
X Orientation	46	°C	
Y Orientation	46	°C	
Z Orientation	47	°C	
Temperature of Deflection under Load 0.45 MPa			ISO 75-1/-2
X Orientation	180	°C	
Y Orientation	180	°C	
Z Orientation	181	°C	

ELECTRICAL PROPERTIES	DRY / CONDITIONED	UNIT	TEST STANDARD
Comparative Tracking Index CTI			IEC 60112
X Orientation	≥600 / -		
Y Orientation	≥600 / -		
Z Orientation	≥600 / -		

OTHER PROPERTIES	VALUE	UNIT	TEST STANDARD
Density	1.03	g/cm³	ISO 1183-1
Powder Color	white	-	-
Components Color	natural	-	-

HEADQUARTERS

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