

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

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

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

OTHER PROPERTIES	VALUE	UNIT	TEST STANDARD
<b>Density</b>	1.03	g/cm <sup>3</sup>	ISO 1183-1
<b>Powder Color</b>	white	-	-
<b>Components Color</b>	natural	-	-

## HEADQUARTERS

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