

## 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
<b>X Orientation</b>	1650 / -	MPa	
<b>Y Orientation</b>	1650 / -	MPa	
<b>Z Orientation</b>	1650 / -	MPa	
<b>Tensile Strength</b>			ISO 527-1/-2
<b>X Orientation</b>	50 / -	MPa	
<b>Y Orientation</b>	50 / -	MPa	
<b>Z Orientation</b>	48 / -	MPa	
<b>Nominal Strain at Break</b>			ISO 527-1/-2
<b>X Orientation</b>	30 / -	%	
<b>Y Orientation</b>	30 / -	%	
<b>Z Orientation</b>	15 / -	%	
<b>Nominal Strain at Break, FORMIGA P 110 Velocis</b>			ISO 527-1/-2
<b>Z Orientation</b>	22 / -	%	
<b>Nominal Strain at Break, EOS P 770</b>			ISO527-1/-2
<b>Z Orientation</b>	12 / -	%	
<b>Charpy Impact Strength (+23°C)</b>			ISO 179/1eU
<b>X Orientation</b>	N / -	kJ/m <sup>2</sup>	
<b>Y Orientation</b>	N / -	kJ/m <sup>2</sup>	
<b>Z Orientation</b>	85 / -	kJ/m <sup>2</sup>	
<b>Charpy Impact Strength (+23°C), FORMIGA P 110 Velocis</b>			ISO 179/1eU
<b>Z Orientation</b>	N / -	kJ/m <sup>2</sup>	
<b>Charpy Impact Strength (-30°C)</b>			ISO 179/1eU
<b>X Orientation</b>	N / -	kJ/m <sup>2</sup>	
<b>Y Orientation</b>	N / -	kJ/m <sup>2</sup>	
<b>Z Orientation</b>	70 / -	kJ/m <sup>2</sup>	
<b>Charpy Impact Strength (-30°C), FORMIGA P 110 Velocis</b>			ISO 179/1eU
<b>Z Orientation</b>	N / -	%	
<b>Charpy Notched Impact Strength (+23°C)</b>			ISO 179/1eA
<b>X Orientation</b>	6.9 / -	kJ/m <sup>2</sup>	
<b>Y Orientation</b>	7.3 / -	kJ/m <sup>2</sup>	
<b>Z Orientation</b>	5.5 / -	kJ/m <sup>2</sup>	
<b>Charpy Notched Impact Strength (-30°C)</b>			ISO 179/1eA
<b>X Orientation</b>	6.3 / -	kJ/m <sup>2</sup>	
<b>Y Orientation</b>	5.8 / -	kJ/m <sup>2</sup>	
<b>Z Orientation</b>	5.1 / -	kJ/m <sup>2</sup>	
<b>Shore D Hardness</b>			ISO 7619-1
<b>X Orientation</b>	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/cm <sup>3</sup>	ISO 1183-1
Powder Color	white	-	-
Components Color	natural	-	-

## HEADQUARTERS

**EOS GmbH**  
**Electro Optical Systems**

Robert-Stirling-Ring 1  
82152 Krailling / Munich  
Germany

Tel.: +49 89 893 36-0  
Email: [info@eos.info](mailto:info@eos.info)  
URL: [www.eos.info](http://www.eos.info)

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