

**PA 1101**

PA11

EOS GmbH - Electro Optical Systems

**Product Texts**
**Product Texts**

PA 1101 is a whitish polyamide 11 powder, which is optimised for the use as a laser sintering material. PA 1101 is made out of renewable raw materials (castor oil). The material is characterised by elasticity and high impact resistance.

**Properties**

- high elongation at break
- elasticity
- high impact resistance
- excellent resistance to chemicals, especially hydrocarbons, aldehydes, ketones, mineral bases and salts, alcohols, fuels, detergents, oils and fats

**Acceptance criteria**

- cytotoxicity according to DIN EN ISO 10993-5

**Typical applications**

- mechanically loaded functional prototypes and series parts with long-term moving elements (e.g. hinges)
- in the automotive industry, it is mainly used for interior components for crash relevant parts (PA 1101 components do not splinter)
- especially suited for small to medium sized parts, thin walls and lattice structures

When using this product in or for medical devices as defined in directive 2007/47/EC (Medical Device(s)), you should be aware that this product has not been developed or tested for such use and that it is your sole responsibility to determine the suitability of this product for such use at your sole risk. To our knowledge, no clinical medical studies concerning the use of this product in any particular Medical Device have been performed, and approval from the European Directorate for the Quality of Medicines ("EDQM") or other governmental authorities for use in Medical Devices has neither been sought nor received. Subject to your sole responsibility to determine suitability of the product for use in any Medical Product, the manufacturer of this product expressly advises not to consider its possible use for any Medical Product application other than body orthosis, orthopedic insole/arch-support, surgical guides and tools, therapy masks and dental models, and also expressly warns that, in any event, it should not be introduced into the human body for more than 30 days and should not replace any epithelial surface or the surface of the eye for more than 30 days. For more information, please contact your sales manager.

**Mechanical properties**

	Value	Unit	Test Standard
Shore D hardness	<b>75</b>	-	ISO 7619-1

**3D Data**

The properties of parts manufactured using additive manufacturing technology (e.g. laser sintering, stereolithography, Fused Deposition Modelling, 3D printing) are, due to their layer-by-layer production, to some extent direction dependent. This has to be considered when designing the part and defining the build orientation.

	Value	Unit	Test Standard
Tensile Modulus			ISO 527
X Direction	<b>1600</b>	MPa	
Y Direction	<b>1600</b>	MPa	
Z Direction	<b>1600</b>	MPa	
Tensile Strength			ISO 527
X Direction	<b>48</b>	MPa	
Y Direction	<b>48</b>	MPa	
Z Direction	<b>48</b>	MPa	
Strain at break			ISO 527
X Direction	<b>45</b>	%	
Y Direction	<b>45</b>	%	
Z Direction	<b>30</b>	%	
Charpy impact strength			ISO 179/1eU
+23°C, X Direction	<b>N</b>	kJ/m <sup>2</sup>	
+23°C, Y Direction	<b>N</b>	kJ/m <sup>2</sup>	
Charpy notched impact strength			ISO 179/1eA
+23°C, X Direction	<b>7.8</b>	kJ/m <sup>2</sup>	
+23°C, Y Direction	<b>7.8</b>	kJ/m <sup>2</sup>	
+23°C, Z Direction	<b>6.5</b>	kJ/m <sup>2</sup>	

Temp. of deflection under load			ISO 75-1/-2
1.80 MPa, X Direction	<b>46</b>	°C	
1.80 MPa, Y Direction	<b>46</b>	°C	
1.80 MPa, Z Direction	<b>47</b>	°C	
0.45 MPa, X Direction	<b>180</b>	°C	
0.45 MPa, Y Direction	<b>180</b>	°C	
0.45 MPa, Z Direction	<b>181</b>	°C	

Thermal properties	Value	Unit	Test Standard
Melting temperature (20°C/min)	<b>201</b>	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
1.80 MPa	<b>46</b>	°C	
0.45 MPa	<b>180</b>	°C	

Other properties	Value	Unit	Test Standard
Density (lasersintered)	<b>990</b>	kg/m <sup>3</sup>	EOS Method
Powder colour (ac. to safety data sheet)	<b>White</b>	-	-

## Characteristics

### Processing

3D Printing, Additive Manufacturing, Laser Sintering, Rapid Prototyping

### Delivery form

Powder

### Special Characteristics

High impact or impact modified

### Features

Homopolymer

### Chemical Resistance

General Chemical Resistance, Solvent Resistance, Grease Resistance, Oil Resistance

### Certifications

Contains renewable resources

### Applications

Automotive, Sports Equipment