

PA 1101

PA11

EOS GmbH - Electro Optical Systems

Product Texts
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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 (15s)	75	-	ISO 7619-1

3D Data	Value	Unit	Test Standard
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.			
Tensile Modulus			ISO 527-1/-2
X Direction	1600	MPa	
Y Direction	1600	MPa	
Z Direction	1600	MPa	
Tensile Strength			ISO 527-1/-2
X Direction	48	MPa	
Y Direction	48	MPa	
Z Direction	48	MPa	
Strain at break			ISO 527-1/-2
X Direction	45	%	
Y Direction	45	%	
Z Direction	30	%	
Charpy impact strength			ISO 179/1eU
+23°C, X Direction	N	kJ/m ²	
+23°C, Y Direction	N	kJ/m ²	
Charpy notched impact strength			ISO 179/1eA
+23°C, X Direction	7.8	kJ/m ²	
+23°C, Y Direction	7.8	kJ/m ²	
+23°C, Z Direction	6.5	kJ/m ²	

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

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

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

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