

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

Mechanical properties	Value	Unit	Test Standard
Shore D hardness (15s)	75	-	ISO 868

3D Data	Value	Unit	Test Standard
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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 (X Direction)	1600	MPa	ISO 527-1/-2
Tensile Modulus (Y Direction)	1600	MPa	ISO 527-1/-2
Tensile Modulus (Z Direction)	1600	MPa	ISO 527-1/-2
Tensile Strength (X Direction)	48	MPa	ISO 527-1/-2
Tensile Strength (Y Direction)	48	MPa	ISO 527-1/-2
Tensile Strength (Z Direction)	48	MPa	ISO 527-1/-2
Strain at break (X Direction)	45	%	ISO 527-1/-2
Strain at break (Y Direction)	45	%	ISO 527-1/-2
Strain at break (Z Direction)	30	%	ISO 527-1/-2
Charpy impact strength (+23°C, X Direction)	N	kJ/m ²	ISO 179/1eU
Charpy impact strength (+23°C, Y Direction)	N	kJ/m ²	ISO 179/1eU
Charpy notched impact strength (+23°C, X Direction)	7.8	kJ/m ²	ISO 179/1eA
Charpy notched impact strength (+23°C, Y Direction)	7.8	kJ/m ²	ISO 179/1eA
Charpy notched impact strength (+23°C, Z Direction)	6.5	kJ/m ²	ISO 179/1eA
Temp. of deflection under load (1.80 MPa, X Direction)	46	°C	ISO 75-1/-2
Temp. of deflection under load (1.80 MPa, Y Direction)	46	°C	ISO 75-1/-2
Temp. of deflection under load (1.80 MPa, Z Direction)	47	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa, X Direction)	180	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa, Y Direction)	180	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa, Z Direction)	181	°C	ISO 75-1/-2

Thermal properties	Value	Unit	Test Standard
Melting temperature (20°C/min)	201	°C	ISO 11357-1/-3

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

Ductile, Homopolymer

Chemical Resistance

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

Ecological valuation

Contains renewable resources

Applications

Automotive, Sports Equipment