

## PA 1102 black

PA11

EOS GmbH - Electro Optical Systems

### Product Texts

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PA 1102 black is a mass-colored black polyamide 11 powder, which is optimized for the use as a laser sintering material. PA 1102 black is made out of renewable raw materials (castor oil). The material is characterised by elasticity and high impact resistance.

#### Properties

- mass-colored black, light-stabilized
- high elongation at break
- high impact resistance
- elasticity
- 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. film hinges)
- in the automotive industry, it is mainly used for interior components for crash relevant parts (PA 1102 black components do not splinter)
- well suited for abrasively stressed and manually manipulated visible parts
- especially suited for small to medium sized parts, thin walls and lattice structures

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	<b>1560</b>	MPa	
Y Direction	<b>1560</b>	MPa	
Z Direction	<b>1610</b>	MPa	
Tensile Strength			ISO 527-1/-2
X Direction	<b>48</b>	MPa	
Y Direction	<b>48</b>	MPa	
Z Direction	<b>48</b>	MPa	
Strain at break			ISO 527-1/-2
X Direction	<b>45</b>	%	
Y Direction	<b>45</b>	%	
Z Direction	<b>28</b>	%	
Z Direction P760	<b>18</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>	

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

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>Black</b>	-	-

**Characteristics****Processing**

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

**Delivery form**

Powder

**Special Characteristics**

High impact or impact modified, Light stabilized or stable to light, U.V. stabilized or stable to weather

**Features**

Color Stability, Homopolymer

**Chemical Resistance**

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

**Ecological valuation**

Biocompatibility acc. to ISO 10993, Contains renewable resources

**Applications**

Automotive, Electrical and Electronical, IT / Business Machine, Medical, Sports Equipment