

## PA 2201

PA12

EOS GmbH - Electro Optical Systems

### Product Texts

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PA 2201, a whitish, a bit more translucent polyamide 12 powder, is in compliance with FDA, 21 CFR, §177.1500 9(b) except for alcoholic foodstuff. Apart from that PA 2201 and PA 2200 have identical material properties. Laser-sintered parts made from PA 2201 possess excellent material properties:

- high strength and stiffness
- good chemical resistance
- excellent long-term constant behaviour
- high selectivity and detail resolution
- various finishing possibilities (e.g. metallisation, stove enamelling, vibratory grinding, tub colouring, bonding, powder coating, flocking)

Typical applications of the material are fully functional plastic parts of highest quality. Due to the excellent mechanical properties the material is often used to substitute typical injection moulding plastics. The biocompatibility allows its use e.g. for prostheses, the high abrasion resistance allows e.g. the realisation of movable part connections.

Mechanical properties	Value	Unit	Test Standard
Izod Impact notched (23°C)	<b>4.4</b>	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact unnotched (23°C)	<b>33</b>	kJ/m <sup>2</sup>	ISO 180/1U
Shore D hardness (15s)	<b>75</b>	-	ISO 868
Ball indentation hardness	<b>78</b>	MPa	ISO 2039-1

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	<b>1700</b>	MPa	
Y Direction	<b>1700</b>	MPa	
Tensile Strength			ISO 527-1/-2
X Direction	<b>48</b>	MPa	
Y Direction	<b>48</b>	MPa	
Strain at break (X Direction)	<b>15</b>	%	ISO 527-1/-2
Charpy impact strength (+23°C, X Direction)	<b>53</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength (+23°C, X Direction)	<b>4.8</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Flexural Modulus (23°C, X Direction)	<b>1500</b>	MPa	ISO 178
Flexural Strength (X Direction)	<b>58</b>	MPa	ISO 178

Thermal properties	Value	Unit	Test Standard
Melting temperature (20°C/min)	<b>176</b>	°C	ISO 11357-1/-3
Vicat softening temperature			ISO 306
50°C/h 10N	<b>181</b>	°C	
50°C/h 50N	<b>163</b>	°C	

Other properties	Value	Unit	Test Standard
Density (lasersintered)	<b>930</b>	kg/m <sup>3</sup>	EOS Method
Powder colour (ac. to safety data sheet)	<b>White</b>	-	-

### Characteristics

#### Processing

Laser Sintering, Rapid Prototyping

#### Ecological valuation

Food approval FDA 21 CFR

**Chemical Resistance**

## General Chemical Resistance