

**PA 2200 Balance 1.0**

PA12

EOS GmbH - Electro Optical Systems

**Product Texts**
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This whitish fine powder PA 2200 on the basis of polyamide 12 serves with its very well-balanced property profile a wide variety of applications. Laser-sintered parts made from PA 2200 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)
- bio compatible according to EN ISO 10993-1 and USP/level VI/121 °C
- approved for food contact in compliance with the EU Plastics Directive 2002/72/EC (exception: high alcoholic foodstuff)

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.

120 µm layer thickness

The advantage of the Balance parameter set is equilibrium. The layer thickness of 120 µm offers a perfect balance between production costs, mechanical properties, surface quality and accuracy. It is therefore suitable for parts with varying geometries, dimensions and requirements.

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

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>1650</b>	MPa	
Y Direction	<b>1650</b>	MPa	
Z Direction	<b>1650</b>	MPa	
Tensile Strength			ISO 527-1/-2
X Direction	<b>48</b>	MPa	
Y Direction	<b>48</b>	MPa	
Z Direction	<b>42</b>	MPa	
Strain at break			ISO 527-1/-2
X Direction	<b>18</b>	%	
Y Direction	<b>18</b>	%	
Z Direction	<b>4</b>	%	
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

Thermal properties	Value	Unit	Test Standard
Melting temperature (20°C/min)	<b>176</b>	°C	ISO 11357-1/-3
Vicat softening temperature (50°C/h 50N)	<b>163</b>	°C	ISO 306
Burning behavior			UL 94
Test passed, HB	<b>0.5</b>	mm	
Test passed, HB	<b>1.6</b>	mm	
Test passed, HB	<b>3.2</b>	mm	

<b>Other properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
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

**Chemical Resistance**

General Chemical Resistance

**Ecological valuation**

FDA approval acc. to USP Biological test (classification VI/121°C)