



## PA 2200 Balance 1.0

### PA12 EOS GmbH - Electro Optical Systems

Source: [www.materialdatacenter.com](http://www.materialdatacenter.com)

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.

<u>Mechanical properties</u>	<u>Value</u>	<u>Unit</u>	<u>Test Standard</u>
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

<u>3D Data</u>	<u>Value</u>	<u>Unit</u>	<u>Test Standard</u>
<b>Tensile Modulus</b>			<b>ISO 527-1/-2</b>
X Direction	<b>1650</b>	MPa	
Y Direction	<b>1650</b>	MPa	
Z Direction	<b>1650</b>	MPa	
<b>Tensile Strength</b>			<b>ISO 527-1/-2</b>
X Direction	<b>48</b>	MPa	
Y Direction	<b>48</b>	MPa	
Z Direction	<b>42</b>	MPa	
<b>Strain at break</b>			<b>ISO 527-1/-2</b>
X Direction	<b>18</b>	%	
Y Direction	<b>18</b>	%	
Z Direction	<b>4</b>	%	

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.

<u>3D Data</u>	<u>Value</u>	<u>Unit</u>	<u>Test Standard</u>
(+23°C, X Direction)			
<b>Charpy impact strength</b>	<b>53</b>	kJ/m <sup>2</sup>	ISO 179/1eU
<b>Charpy notched impact strength</b>	<b>4.8</b>	kJ/m <sup>2</sup>	ISO 179/1Ea
<b>Flexural Modulus</b>	<b>1500</b>	MPa	ISO 178



**ADDITIVE 3D**  
3D PRINTING

Impression 3D - Modélisation 3D - Numérisation 3D



<b>Thermal properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
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)

Last change: 2016-03-30 Source: [www.materialdatacenter.com](http://www.materialdatacenter.com)

The data correspond to our knowledge and experience at the time of publication. They do not on their own represent a sufficient basis for any part design, neither do they provide any agreement about or guarantee the specific properties of a product or part or the suitability of a product or part for a specific application. It is the responsibility of the producer or customer of a part to check its properties as well as its suitability for a particular purpose. This also applies regarding the consideration of possible intellectual property rights as well as laws and regulations. The data are subject to change without notice as part of EOS' continuous development and improvement processes.