

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) | 4.4 | kJ/m ² | ISO 180/1A |
| Shore D hardness (15s) | 75 | - | 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 (X Direction) | 1650 | MPa | ISO 527-1/-2 |
| Tensile Modulus (Y Direction) | 1650 | MPa | ISO 527-1/-2 |
| Tensile Modulus (Z Direction) | 1650 | 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) | 42 | MPa | ISO 527-1/-2 |
| Strain at break (X Direction) | 18 | % | ISO 527-1/-2 |
| Strain at break (Y Direction) | 18 | % | ISO 527-1/-2 |
| Strain at break (Z Direction) | 4 | % | ISO 527-1/-2 |
| Charpy impact strength (+23°C, X Direction) | 53 | kJ/m ² | ISO 179/1eU |
| Charpy notched impact strength (+23°C, X Direction) | 4.8 | kJ/m ² | ISO 179/1eA |
| Flexural Modulus (23°C, X Direction) | 1500 | MPa | ISO 178 |

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

| Other properties | Value | Unit | Test Standard |
|-------------------------|------------|-------------------|---------------|
| Density (lasersintered) | 930 | kg/m ³ | EOS Method |

Powder colour (ac. to safety data sheet)

White

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Characteristics

Processing

Laser Sintering, Rapid Prototyping

Ecological valuation

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

Chemical Resistance

General Chemical Resistance