

PA 2200 Performance 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.

100 µm layer thickness

Performance is the parameter set of choice for parts with high demands on mechanical properties and fracture behaviour, especially when the part is going to be subjected to multiaxial loading in all three directions. Performance parts are characterized by the highest degree of isotropic strength and rigidity. The choice of 100 µm layer thickness results in fine resolution and also very high surface quality and detail resolution.

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)	1700	MPa	ISO 527-1/-2
Tensile Modulus (Y Direction)	1700	MPa	ISO 527-1/-2
Tensile Modulus (Z Direction)	1700	MPa	ISO 527-1/-2
Tensile Strength (X Direction)	50	MPa	ISO 527-1/-2
Tensile Strength (Y Direction)	50	MPa	ISO 527-1/-2
Tensile Strength (Z Direction)	50	MPa	ISO 527-1/-2
Strain at break (X Direction)	20	%	ISO 527-1/-2
Strain at break (Y Direction)	20	%	ISO 527-1/-2
Strain at break (Z Direction)	10	%	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 (laser-sintered)	930	kg/m ³	EOS Method
Powder colour (ac. to safety data sheet)	White	-	-

Characteristics

Processing

Laser Sintering, Rapid Prototyping

Chemical Resistance

General Chemical Resistance

Ecological valuation

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