

Alumide

PA12-MD(Al)

EOS GmbH - Electro Optical Systems

Product Texts

Product Texts

Alumide is a metallic grey, aluminium-filled polyamide 12 powder, which is characterised by its high stiffness, metallic appearance and good postprocessing possibilities.

Laser-sintered parts made from Alumide possess excellent material properties:

- excellent dimensional accuracy
- well-balanced ratio of density and stiffness
- increased thermal conductivity
- good machinability

The surfaces of Alumide parts can be refined very easily by grinding, polishing or coating. The machining of Alumide laser-sintered parts is simplified through the cut breaking effect of the aluminium filling.

A typical application for Alumide is the manufacture of stiff parts of metallic appearance for applications in automotive manufacture (e.g. wind tunnel tests or parts that are not safety-relevant), for tool inserts for injecting and moulding small production runs, for illustrative models (metallic appearance), for education and jig manufacture et al.

Mechanical properties	Value	Unit	Test Standard
Shore D hardness (15s)	76	-	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	3800	MPa	
Y Direction	3800	MPa	
Tensile Strength			ISO 527-1/-2
X Direction	48	MPa	
Y Direction	48	MPa	
Strain at break (X Direction)	4	%	ISO 527-1/-2
Charpy impact strength (+23°C, X Direction)	29	kJ/m ²	ISO 179/1eU
Charpy notched impact strength (+23°C, X Direction)	4.6	kJ/m ²	ISO 179/1eA
Flexural Modulus (23°C, X Direction)	3600	MPa	ISO 178
Flexural Strength (X Direction)	72	MPa	ISO 178
Temp. of deflection under load			ISO 75-1/-2
1.80 MPa, X Direction	144	°C	
0.45 MPa, X Direction	175	°C	
Volume resistivity (X Direction)	3E12	Ohm*m	IEC 60093

Thermal properties	Value	Unit	Test Standard
Melting temperature (20°C/min)	176	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
1.80 MPa	144	°C	
0.45 MPa	175	°C	
Vicat softening temperature (50°C/h 50N)	169	°C	ISO 306

Electrical properties	Value	Unit	Test Standard
Relative permittivity			IEC 60250
100Hz	13	-	
1MHz	10	-	
Dissipation factor (1MHz)	180	E-4	IEC 60250
Surface resistivity	5E14	Ohm	IEC 60093
Electric strength	0.1	kV/mm	IEC 60243-1

Alumide

PA12-MD(AI)

EOS GmbH - Electro Optical Systems

Other properties	Value	Unit	Test Standard
Density (lasersintered)	1360	kg/m ³	EOS Method

Characteristics

Processing

Laser Sintering, Rapid Prototyping