e-Manufacturing Solutions

PA 2210 FR

PA12 FR — EOS GmbH - Electro Optical Systems

Product Texts

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Product information

PA 2210 FR is a polyamide 12 for processing in laser sintering systems with a halogen free, chemical flame retardant. In case of fire a carbonating coating arises on the surface of the part, isolating the plastic below.

Properties

- free of halogens
- higher stiffness compared to unfilled PA 12

Acceptance criteria

- JAR 25 (aviation)
- UL 94 (Electrical & Electronics)

Typical applications

- aviation (e.g. air ducts)
- plastic parts in devices and appliances (e.g. E&E housings)

3D Data	dry / cond	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	**2500 / 2400**	MPa	
Y Direction	**2500 / 2400**	MPa	
Z Direction	**2300 / 2200**	MPa	
Tensile Strength			ISO 527-1/-2
X Direction	**46 / 43**	MPa	
Y Direction	**46 / 43**	MPa	
Z Direction	**41 / 38**	MPa	
Strain at Tensile Strength			ISO 527-1/-2
X Direction	**4 / 6**	%	
Y Direction	**4 / 6**	%	
Z Direction	**3 / 4**	%	
Strain at break			ISO 527-1/-2
X Direction	**4 / 7**	%	
Y Direction	**4 / 7**	%	
Z Direction	**3 / 4**	%	
Flexural Modulus (23°C, X Direction)	**2300 / -**	MPa	ISO 178
Flexural Strength (X Direction)	**65 / -**	MPa	ISO 178

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature (20°C/min)	**185 / ***	°C	ISO 11357-1/-3
Flammability			CS 25 / JAR25 / FAR 25 § 25-853
Test passed, 12s Ignition Time	**1.7**	mm	
Test passed, 12s Ignition Time	**2.0**	mm	
Smoke Density			ABD 0031 (Issue:F), method: AITM 2.0007
Test passed	**1.7**	mm	
Test passed	**2.0**	mm	
Toxicity			ABD 0031 (Issue:F), method: AITM 3.0005
Test passed	**1.7**	mm	
Test passed	**2.0**	mm	

Burning behavior			UL 94
Test passed, HB	**1.1**	mm	
Test passed, HB	**1.2**	mm	
Test passed, HB	**1.3**	mm	
Test passed, HB	**1.4**	mm	
Test passed, HB	**3.0**	mm	
Test passed, V-0	**2.0**	mm	
Test passed, V-0	**2.4**	mm	
Test passed, V-0	**3.2**	mm	
Test passed, V-0	**4.0**	mm	

Other properties	dry / cond	Unit	Test Standard
Density (lasersintered)	**1060 / -**	kg/m³	EOS Method
Powder colour (ac. to safety data sheet)	**White**	-	-
Colour of the components	**White**	-	-

Characteristics

Processing
3D Printing, Additive Manufacturing, Laser Sintering, Rapid Prototyping

Delivery form
Powder

Special Characteristics
Flame retardant

Features
High Crystallinity, Thermal Stability, Homopolymer

Chemical Resistance
General Chemical Resistance, Grease Resistance, Oil Resistance

Applications
Aircraft and Aerospace, Electrical and Electronical