

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

Ç free of halogens

Ç higher stiffness compared to unfilled PA 12

Acceptance criteria

Ç JAR 25 (aviation)

Ç UL 94 (Electrical & Electronics)

Typical applications

Ç aviation (e.g. air ducts)

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

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

Toxicity test passed	1.7	mm	ABD 0031 (Issue:F), method: AITM 3.0005
Toxicity test passed	2.0	mm	ABD 0031 (Issue:F), method: AITM 3.0005
Burning behavior test passed	1.1	mm	UL 94 HB
Burning behavior test passed	1.2	mm	UL 94 HB
Burning behavior test passed	1.3	mm	UL 94 HB
Burning behavior test passed	1.4	mm	UL 94 HB
Burning behavior test passed	3.0	mm	UL 94 HB
Burning behavior test passed	2.0	mm	UL 94 V-0
Burning behavior test passed	2.4	mm	UL 94 V-0
Burning behavior test passed	3.2	mm	UL 94 V-0
Burning behavior test passed	4.0	mm	UL 94 V-0

Other properties	dry / cond	Unit	Test Standard
Density (lasersintered)	1060 / -	kg/m ³	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

Additives

Flame retarding agent

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