

PA 2241 FR

PA12

EOS GmbH - Electro Optical Systems

Product Texts
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Product information

PA 2241 FR is a flame retardant polyamide 12 for processing in laser sintering systems. It contains a halogen-based flame retardant. Mainly due to its recyclability the material is economical, enabling low-cost part production.

Properties

- flame retardant
- economic
- high strain at tensile strength

Acceptance criteria

- JAR 25 (aviation)

Typical applications

- aviation (interior, e.g. air ducts and air outlet valves)

[Product Information](#)

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)	1900 / 1600	MPa	ISO 527-1/-2
Tensile Modulus (Y Direction)	1900 / 1600	MPa	ISO 527-1/-2
Tensile Modulus (Z Direction)	1900 / 1600	MPa	ISO 527-1/-2
Tensile Strength (X Direction)	49 / 44	MPa	ISO 527-1/-2
Tensile Strength (Y Direction)	49 / 44	MPa	ISO 527-1/-2
Tensile Strength (Z Direction)	46 / 41	MPa	ISO 527-1/-2
Strain at Tensile Strength (X Direction)	7 / 11	%	ISO 527-1/-2
Strain at Tensile Strength (Y Direction)	7 / 11	%	ISO 527-1/-2
Strain at Tensile Strength (Z Direction)	6 / 8	%	ISO 527-1/-2
Strain at break (X Direction)	15 / 22	%	ISO 527-1/-2
Strain at break (Y Direction)	15 / 22	%	ISO 527-1/-2
Strain at break (Z Direction)	6 / 9	%	ISO 527-1/-2
Temp. of deflection under load (1.80 MPa, X Direction)	84 / *	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa, X Direction)	154 / *	°C	ISO 75-1/-2

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature (20°C/min)	185 / *	°C	ISO 11357-1/-3
Flammability test passed	1.0	mm	CS 25 / JAR25 / FAR 25 § 25-853 12s Ignition Time
Flammability test passed	1.5	mm	CS 25 / JAR25 / FAR 25 § 25-853 12s Ignition Time
Flammability test passed	2.0	mm	CS 25 / JAR25 / FAR 25 § 25-853 12s Ignition Time
Flammability test passed	1.0	mm	CS 25 / JAR25 / FAR 25 § 25-853 60s Ignition Time
Flammability test passed	1.5	mm	CS 25 / JAR25 / FAR 25 § 25-853 60s Ignition Time

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The data correspond to our knowledge and experience at the time of publication. They do not on their own represent a sufficient basis for any part design, neither do they provide any agreement about or guarantee the specific properties of a product or part or the suitability of a product or part for a specific application. It is the responsibility of the producer or customer of a part to check its properties as well as its suitability for a particular purpose. This also applies regarding the consideration of possible intellectual property rights as well as laws and regulations. The data are subject to change without notice as part of EOS' continuous development and improvement processes.

Flammability test passed	2.0	mm	CS 25 / JAR25 / FAR 25 § 25-853 60s Ignition Time
Smoke Density test passed	1.0	mm	ABD 0031 (Issue:F), method: AITM 2.0007
Smoke Density test passed	1.5	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	1.0	mm	ABD 0031 (Issue:F), method: AITM 3.0005
Toxicity test passed	1.5	mm	ABD 0031 (Issue:F), method: AITM 3.0005
Toxicity test passed	2.0	mm	ABD 0031 (Issue:F), method: AITM 3.0005

Other properties	dry / cond	Unit	Test Standard
Density (lasersintered)	1000 / -	kg/m ³	EOS Method
Bulk density	0.45	g/cm ³	EN ISO 60
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