

**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.						
	to be considered when des	igiling the part at	<del>-</del>			
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	2.0007
Test passed	2.0	mm	
Toxicity			ABD 0031 (Issue:F), method: AITM 3.0005
Test passed	1.7	mm	
Test passed	2.0	mm	

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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