

POLYMER SOLUTIONS

# PA 2210 FR

Material Data Sheet

**PA 2210 FR**

## Product Description

PA 2210 FR is a composition on the basis of polyamide 12 and a halogen-free flame retardant. With its good mechanical properties and its outstanding fire properties it is mainly used in the electrical and electronics industry. PA 2210 FR is certified by Underwriters Laboratories (UL). Safety and quality are continuously tested by a third-party to ensure ongoing compliance, with an UL Recognized Component Mark on the product label. A growing market are railway applications, as PA 2210 FR fulfills several requirement sets according to EN 45545-2, the European railway standard for fire protection. The material is also used in aerospace industry, flammability compliance according to FAR 25.853 is tested for every material batch.

### MAIN CHARACTERISTICS

- Flame-retardant
- Halogen-free
- Fire classification UL 94/V-0
- UL certified - [View Blue Card](#)
- Fire classification FAR 25.853

### TYPICAL APPLICATIONS

- Electrical and electronic parts, e. g. housings
- Railway interiors, e. g. ventilation ducts
- Aircraft interiors, e. g. air valves

MECHANICAL PROPERTIES	DRY / CONDITIONED	UNIT	TEST STANDARD
<b>Tensile Modulus</b>			ISO 527-1/-2
X Orientation	2500 / 2400	MPa	
Y Orientation	2500 / 2400	MPa	
Z Orientation	2300 / 2200	MPa	
<b>Tensile Strength</b>			ISO 527-1/-2
X Orientation	46 / 43	MPa	
Y Orientation	46 / 43	MPa	
Z Orientation	41 / 38	MPa	
<b>Strain at Tensile Strength</b>			ISO 527-1/-2
X Orientation	4 / 6	%	
Y Orientation	4 / 6	%	
Z Orientation	3 / 4	%	
<b>Strain at Break</b>			ISO 527-1/-2
X Orientation	4 / 7	%	
Y Orientation	4 / 7	%	
Z Orientation	3 / 4	%	
<b>Flexural Modulus</b>			ISO 178
X Orientation	2300 / -	MPa	
<b>Flexural Strength</b>			ISO 178
X Orientation	65 / -	MPa	

THERMAL PROPERTIES	DRY / CONDITIONED	UNIT	TEST STANDARD
<b>Melting Temperature</b>	185	°C	ISO 11357-1/-3
<b>Temperature of Deflection under Load 1.80 MPa</b>			ISO 75-1/-2
X Orientation	95	°C	
Z Orientation	108	°C	
<b>Temperature of Deflection under Load 0.45 MPa</b>			ISO 75-1/-2
X Orientation	165	°C	
Z Orientation	170	°C	
<b>Flammability</b>			CS 25 / JAR25 / FAR 25 § 25-853
Test Passed, 12s ignition time	1.7	mm	
Test Passed, 12s ignition time	2.0	mm	
<b>Smoke Density</b>			ABD 0031 (Issue:F), method: AITM 2.0007
Test Passed	1.7	mm	
Test Passed	2.0	mm	
<b>Toxicity</b>			ABD 0031 (Issue:F), method: AITM 3.0005
Test Passed	1.7	mm	
Test Passed	2.0	mm	
<b>Burning Behavior, 0.75 mm nom. Thickness</b>	HB	class	ANSI/UL 94, IEC 60695-11-10, -20
Thickness Tested	0.75	mm	
Blue Card Available	Yes		
<b>Burning Behavior, 3.0 mm nom. Thickness</b>	V-0	class	ANSI/UL 94, IEC 60695-11-10, -20
Thickness Tested	3.0	mm	
Blue Card Available	Yes		

ELECTRICAL PROPERTIES	DRY / CONDITIONED	UNIT	TEST STANDARD
<b>Comparative Tracking Index CTI</b>			IEC 60112
X Orientation	- / 425		
Y Orientation	- / 425		
Z Orientation	- / 450		
<b>Electric Strength</b>			IEC 60243-1
X Orientation	- / 18.1	kV/mm	
Y Orientation	- / 18.1	kV/mm	
<b>Volume Resistivity</b>			IEC 62631-3-1
X Orientation	- / 1E15	Ohm·m	
Y Orientation	- / 1E15	Ohm·m	
<b>Surface Resistivity</b>			IEC 62631-3-12
X Orientation	- / 1E14	Ohm	
Y Orientation	- / 1E14	Ohm	
<b>Dissipation Factor 100 Hz</b>			IEC 62631-2-1
X Orientation	- / 1013	E-4	
Y Orientation	- / 1013	E-4	
<b>Dissipation Factor 1 MHz</b>			IEC 62631-2-1
X Orientation	- / 691	E-4	
Y Orientation	- / 691	E-4	
<b>Relative Permittivity 100 Hz</b>			IEC 62631-2-1
X Orientation	- / 3.39		
Y Orientation	- / 3.39		
<b>Relative Permittivity 1 MHz</b>			IEC 62631-2-1
X Orientation	- / 2.25		
Y Orientation	- / 2.25		

OTHER PROPERTIES	VALUE	UNIT	TEST STANDARD
<b>Density</b>	1.06	g/cm <sup>3</sup>	ISO 1183-1
<b>Powder Color</b>	white	-	-
<b>Components Color</b>	white	-	-

## HEADQUARTERS

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Status as of 19.08.2024. Subject to technical modifications. EOS is certified according to ISO 9001.

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