

## Material data sheet (provisional)

### PA 2241 FR

#### 1 General

Typical application of PA 2241 FR is the manufacture of flame resistant parts for the aircraft industry.

PA 2241 FR contains a chemical flame retardant.

#### 2 Technical data

##### General material properties

Bulk density	EN ISO 60	0.45	g/cm <sup>3</sup>
Density of laser-sintered part	EOS-method	1.00	g/cm <sup>3</sup>

##### Mechanical properties

<i>dry / cond</i>				
Tensile modulus	EN ISO 527	x-direction	1900 / 1600	MPa
		z-direction	1900 / 1600	MPa
	ASTM D638	x-direction	276 / 232	ksi
		z-direction	276 / 232	ksi
Tensile strength	EN ISO 527	x-direction	49 / 44	MPa
		z-direction	46 / 41	MPa
	ASTM D638	x-direction	7107 / 6382	psi
		z-direction	6672 / 5947	psi
Tensile strain at tensile strength	EN ISO 527	x-direction	7 / 11	%
		z-direction	6 / 8	%
	ASTM D638	x-direction	7 / 11	%
		z-direction	6 / 8	%

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Strain at break	EN ISO 527	x-direction	15 / 22	%
		z-direction	6 / 9	%
	ASTM D638	x-direction	15 / 22	%
		z-direction	6 / 9	%

### Thermal properties

Melting point	EN ISO 11357-1	172 - 180	°C
Heat distortion temperature			
- HDT A	EN ISO 75	84	°C
- HDT B	EN ISO 75	154	°C

### Burning behaviour

Flammability properties	JAR/FAR 25, App. F, part 1 & AITM 2.0002 B Vertical Bunsen Burner Test		
	12s Ignition Time	1.0 / 1.5 / 2.0	mm
	JAR/FAR 25, App. F, part 1 & BSS 7230 F2 Vertical Bunsen Burner Test		
	12s Ignition Time	0.04 / 0.06 / 0.08	inches
Smoke generation	JAR/FAR 25, App. F - Part V & AITM 2.0007	1.0 / 1.5 / 2.0	mm
	JAR/FAR 25, App. F - Part V & BSS 7238	0.04 / 0.06 / 0.08	inches
Toxic gas generation	AITM 3.0005	1.0 / 1.5 / 2.0	mm
	BSS 7239	0.04 / 0.06 / 0.08	inches

Conversion of units: 1.0 mm is equivalent to 0.03937 inches

Tests of burning behaviours have been conducted by:

- Ø DGA Delegation Generale de l'armement, Techniques aéronautiques
- Ø Fire Test Laboratory, Airbus Operations GmbH
- Ø DLR Deutsches Zentrum für Luft- und Raumfahrt



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Ask for the test reports at EOS GmbH, feel free to contact us for further information. The burning behaviours have been tested with specimens manufactured in accordance with the instruction.

All specimens were built with refreshed powder, refreshment factor 50%.

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