

# Araldite FST 40002 platform

FST composite systems for aerospace interior

Araldite<sup>®</sup> FST 40002 platform is based on a radically novel thermoset, aiming at providing innovative solutions for efficiently manufacturing interior composite parts with maximized weight savings



Araldite<sup>®</sup> FST 40002/40003 and Araldite<sup>®</sup> FST 40002/40006 are designed for direct liquid processes with a unique combination of mechanical performance and fire resistance properties.

#### Key features

- > Suitable for most of interior designs, from highly structural monolithic to sandwich parts
- > Meets flame, smoke and toxicity (FST) and heat release requirements according to FAR 25.853 / ABD 0031 for visible and non-visible parts
- > Low viscosity filler-free systems: < 50 mPas at 60°C</p>
- > Compatible to high quality, user-friendly processes: RTM (5-10 min cure at 150°C), infusion and pultrusion (injection box, 10 meters / hour)

#### **Benefits**

- > Enable production of highly complex shapes
- > Support function integration
- > Increase productivity with low mold occupation time
- > Improve process safety through very low exotherm

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#### Processing

	Large part	Small / medium part
In-mold cure		
Cure conditions	1h at 100℃ 1h at 120℃	5-10 min at 150°C or 20-30 min at 120°C
Free-stand post-cure <sup>(1)</sup>		
Cure conditions	2h at 180°C	2h at 180°C

#### Mechanical performance

		FST 40002 / 40003	FST 40002 / 40006
DMA Tg	ISO 6721	260°C dry	210°C dry
κ <sub>ic</sub>	ISO 13586	0.9 MPa.√m	0.6 MPa.√m
G <sub>1C</sub>		270 J/m <sup>2</sup>	100 J/m <sup>2</sup>
Flexural modulus	ISO 178	3 100 MPa	3 400 MPa
Flexural strength		135 MPa	135 MPa
Flexural elongation		5 %	4 %
ILSS GFRP (1)	ASTM D2344	45 MPa	42 MPa
ILSS GFRP <sup>(2)</sup>		58 MPa	56 MPa

<sup>(1)</sup> 8h Satin, 300 gsm, FVF 55% | <sup>(2)</sup> 2x2 Tweel, 6K, 285 gsm, FVF 55%

(1) Optional, depending on in-mold cure conditions

### **Typical FST performance**

		GFRP monolithic <sup>(1)</sup> 1 mm		GFRP sandwich <sup>(2)</sup>	Standard
		FST 40002 / 40003	FST 40002 / 40006	FST 40002 / 40006	requirements
Vertical burn 12 s Burn length After flame time Drip flame time	AITM 2.0002B	33 mm 15 s 0 s	21 mm 2 s 0 s	pass	< 203 mm < 15 s < 5 s
Vertical burn 60 s Burn length After flame time Drip flame time	AITM 2.0002A	49 mm 1 s 0 s	50 mm 2 s 0 s	pass	< 152 mm < 15 s < 3 s
Heat release HRR max HR	AITM 2.0006	44 kW/m² 45 kW.min/m²	38 kW/m² 40 kW.min/m²	48 kW/m² 43 kW.min/m²	< 65 kW/m² < 65 kW.min/m²
<b>Toxicity</b> (flaming mode) Components toxicity level	AITM 3.0005	pass	pass	pass	
Smoke after 4 min	AITM 2.0007A	71	75	pass	< 200

 $^{(1)}$  8h Satin, 300 gsm, FVF 55%  $\,$  I  $\,$   $^{(2)}$  Foam core, skin: 8h Satin, 300 gsm FVF 50%  $\,$ 

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