



AVIATION & TRANSPORTATION
PRODUCT BROCHURE

PREPREG SYSTEMS

Isovolta has developed a broad range of strong, light and fire-retardant aerospace materials, which are ideally suited for interior or structural components such as passenger and cargo floor panels, cabin linings, ceiling panels, air ducts, plenums, overhead compartments, lavatories, galleys, bars, wardrobes, partitions, seats, flap track and belly fairings, winglets and fins, landing gear doors, trailing edges and brackets.

Isovolta offers a variety of different thermoset resin chemistries:

⚡ **PREPREG SYSTEMS:**

Phenolic based chemistry is well established within the aerospace and rail industries where ultimate fire retardancy, low smoke emission and low smoke toxicity (FST) properties are required. Phenolic prepregs are, therefore, commonly used in interior aircraft components.

⚡ **EPOXY:**

Isovolta has a range of fire-retardant epoxy systems suitable for applications where increased mechanical properties are required. They generally exhibit good flame spread properties and can be used in more structural components compared to phenolics such as flooring panels. Where the optimum blend of FST and mechanical properties is required, Isovolta epoxy prepregs also can be co-cured with phenolic prepregs.

⚡ **CYANATE ESTER:**

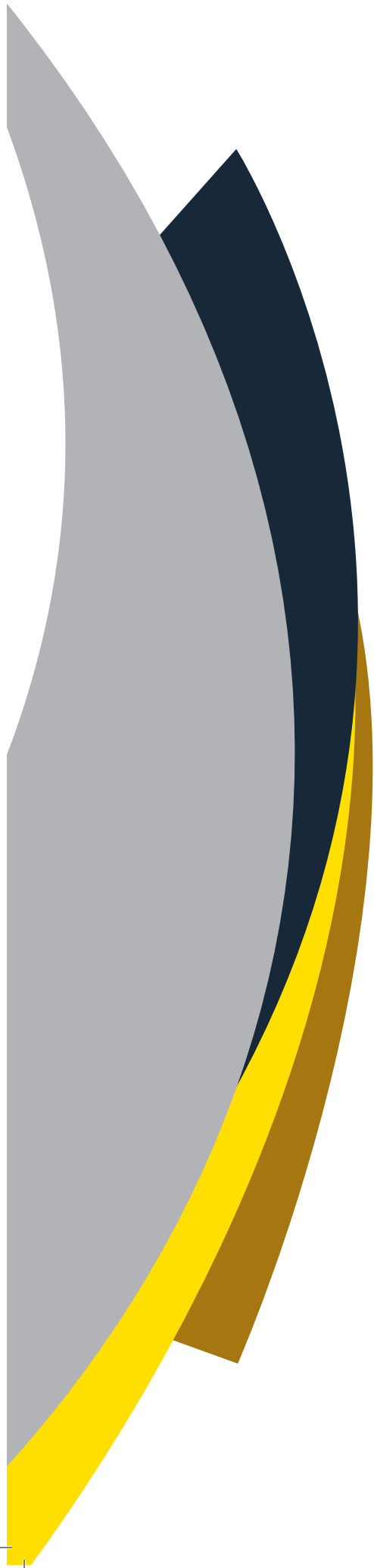
Cyanate ester prepregs provide excellent FST properties and can be used in thermally demanding applications due to their high glass transition temperatures (up to 380°C). Laminates constructed with cyanate ester prepregs demonstrate very low gas permeability and are volatile-free, resulting in low void and porous free components. This together with their excellent FST and high Tg properties make them ideal for air-conditioning ducting construction in aerospace applications.

⚡ **FURAN (BIO based):**

Isovolta's furan prepregs represent the next generation of fire-retardant composites where similar FST properties to phenolics are required. One benefit of the furan resin chemistry is that the base materials are sourced from renewable feedstocks, such as agricultural waste streams. That's why a major portion of the final matrix may be regarded as 'biobased' (>75 wt.%). Another big advantage of furan resin is the significantly reduced health and safety hazards during handling and curing.

PF801 PD	<ul style="list-style-type: none"> ➤ Modified phenolic novolac resin ➤ Co-curing with EPI21 / PECE ➤ Only dry tack available (T0) ➤ Self adhesive to core materials 	Fulfils	Autoclave Pressed	6	15	90	130	45	155	-55 to 90°C (up to 120°C)	➤ Co-curing	
		➤ FAR 25.853 (FST)										
		➤ ATS 1000.001										
		➤ ABD 0031										
		Qualified to										
		➤ ABS 5034										
		➤ DAN 407										
		➤ AIMS 05-10-013										
		➤ DAN 1178-02										
		➤ AIMS 05-10-014										
		➤ DAN 1179-01										
		➤ ABS 5047										
		➤ AIMS 05-10-019										
		➤ DAN 1177-01										
		➤ AIMS 05-10-024										
➤ DAN 1176-01												
PF808	<ul style="list-style-type: none"> ➤ Phenol resol system ➤ Excellent adhesion to honeycomb ➤ Long shelf and shop life 	Fulfils	Autoclave Pressed	6	60	30	138	20	155	-55 to 90°C (up to 140°C)	<ul style="list-style-type: none"> ➤ Aircraft Bulk and Cargo Container ➤ Compartment Lining (BCC/CCC) ➤ Class partition 	
		➤ FAR 25.853 (FST and HR/HRR)										
		➤ ATS 1000.001										
		➤ ABD 0031										
		Qualified to										
		ABS 5047										
		➤ AIMS 05-10-002										
		➤ AIMS 05-10-008										
		➤ AIMS 05-10-009										
		➤ AIMS 05-10-010										
		➤ AIMS-05-10-031										
		➤ AIMS 05-10-032										





Product	Main features	Fire performance / qualifications	Recommended process	Storage		Lowest temp cure		Highest temp cure		Service temp	Typical applications
				-18°C (months)	21-25°C (days)	mins	°C	mins	°C		
PF811	<ul style="list-style-type: none"> ➤ Tack 0 or 2 ➤ Suitable for hot in/out press processes (crushed core) ➤ Fast curing ➤ Excellent surface finish ➤ Light colored appearance after cure 	<ul style="list-style-type: none"> ➤ Fulfills ➤ ABD 0031 ➤ Qualified to (crushed-core) ➤ ABS 5047 (glass) ➤ AIMS 05-10-023 ➤ AIMS 05-10-025 ➤ ABS 5034 (carbon) ➤ AIMS 05-10-021 ➤ AIMS 05-10-026 ➤ NTA 62467 	<ul style="list-style-type: none"> ➤ Pressed ➤ Crushed Core 	6	30	30	140	15	160	-55 to 80°C (up to 120°C)	<ul style="list-style-type: none"> ➤ Crushed-Core interior parts and panels
PF812	<ul style="list-style-type: none"> ➤ Tack 2 ➤ Fast curing ➤ Excellent surface finish ➤ Light colored appearance after cure 	<ul style="list-style-type: none"> ➤ Fulfills ➤ ABD 0031 ➤ Qualified to ➤ ABS 5047 (glass) ➤ AIMS 05-10-023 ➤ AIMS 05-10-025 ➤ ABS 5034 (carbon) ➤ AIMS 05-10-021 ➤ BMS8-381 	<ul style="list-style-type: none"> ➤ Autoclave ➤ Pressed ➤ Vacuum bagging 	6	30	30	140	15	160	-55 to 80°C (up to 120°C)	<ul style="list-style-type: none"> ➤ Aircraft interior parts ➤ Sidewalls ➤ Hatracks ➤ Ceilings ➤ Doors ➤ Galleys ➤ Airducts

PH831

<ul style="list-style-type: none"> ➤ Suitable for hot in/out press processes (crushed core) ➤ Excellent surface finish ➤ Fast curing ➤ Very versatile system ➤ Adjustable tack 	<ul style="list-style-type: none"> ➤ Fulfills FAR 25.853 (FST and HR/HRR) ➤ ATS 1000.001 <p>Qualified to</p> <ul style="list-style-type: none"> ➤ ABS 5047 ➤ AIMS 05-10-001 ➤ AIMS 05-10-012 ➤ AIMS 05-10-003 ➤ AIMS 05-10-018 ➤ AIMS 05-10-009 ➤ DAN 407 ➤ DAN 1190-01 ➤ DAN 1000.1 ➤ DAN 1298.01 ➤ DAN 1003.1 ➤ DAN 1299-01 	Autoclave Pressed Vacuum bagging Crushed Core	6	30	90	110	10	160	-55 to 80°C (up to 80°C)	<ul style="list-style-type: none"> ➤ Sidewalls ➤ Hatracks ➤ Ceilings ➤ Doors
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**PH840
PC**

<ul style="list-style-type: none"> ➤ Established product for aircraft and railway interiors ➤ Halogen free modified phenolic systems ➤ Light colored appearance after cure ➤ Improved vacuum process surface finish ➤ Adjustable tack 	<ul style="list-style-type: none"> ➤ Fulfills BS 6853 a1 (S4,SR2,ST2) ➤ UNE 23-727 M1 ➤ DIN 5510 (S4,SR2,ST2) ➤ NF F16-101 (M1,F1) ➤ ABD 0031 ➤ FAR 25.853 (FST and HR/HRR) <p>Qualified to</p> <ul style="list-style-type: none"> ➤ AIMS 05-10-003 ➤ FMS 2401 ➤ FMS 2402 	Autoclave Pressed Vacuum bagging Crushed Core	24	30	90	120	10	160	-55 to 95°C (up to 160°C)	<ul style="list-style-type: none"> ➤ Monolithic or sandwich structures ➤ Railway exterior and interior structural components ➤ Crushed-Core interior parts and panels
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PH860

<ul style="list-style-type: none"> ➤ Crushed core prepreg ➤ Fast curing ➤ Amber colour for decorative finish ➤ Non-halogenated formulation 	<ul style="list-style-type: none"> ➤ Fulfills ABD 0031 ➤ FAR 25.853 (FST) <p>Qualified to</p> <ul style="list-style-type: none"> ➤ 75-T-2-0410-2-1 ➤ DS-M0001PD40 	Autoclave Pressed	6	15	10	160	15	160	-55 to 90°C	<ul style="list-style-type: none"> ➤ Crushed-Core interior parts and panels
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EPOXY PREPREG SYSTEMS

Product	Main features	Fire performance / qualifications	Recommended process	Storage		Lowest temp cure		Highest temp cure		Service temp	Typical applications
				-18°C (months)	21-25°C (days)	mins	°C	mins	°C		
EH250	Highly toughened epoxy resin system	Fulfilis ➤ FAR 25.853 ➤ LTV 1500-850 (BV 11)	Autoclave Pressed Vacuum bagging	6	5	90	130	30	155	-55 to 80°C	Secondary aircraft structures such as: ➤ flap track fairing ➤ belly fairing ➤ leading edge VTP (vertical tail plane) ➤ Inserts for sandwich panels
	Controlled resin flow										
	Self-extinguishing										
	Outstanding adhesion to core materials										
	High volume, reference aerospace epoxy system										
	Qualified to	LN 29549									
		WL 5.2321.1									
		WL 8.4321.0/1									
		WL 5.2321									
		WL 8.4321.2									
		WL 5.2321.2									
		WL 8.4322.0/1									
		WL 5.232.30									
		WL 8.4323.2									
		WL 8.4320.0/1									
		WL 8.4324.0/1									
		WL 8.4320.2									
	WL 8.4324.2										
	EIP-W-93-094										
	EP-ECS 7042										
EPI21 PE CFG PE CF	Highly toughened epoxy resin systems	Fulfilis ➤ FAR 25.853 (FST)	Autoclave Pressed Vacuum bagging	6	15	90	120	30	155	-55 to 90°C	Secondary Aircraft structures such as BCC floor (bulk cargo compartment) ➤ Inserts for sandwich panels ➤ Airbus Radomes
	Improved hot/wet stability										
	Self-extinguishing	Qualified to									
	Controlled resin flow	ABS 5003									
	Suitable for co-curing with phenolic novolac systems such as PD or PF801	DAN 1180-02									
	Excellent adhesion to core materials	AIMS 05-10-016									
		ABS 5672									
		AIMS 05-10-035									
		ABS 5009									
		DAN 1227-53									
		DAN 1242-40									
		IGC 04-38-100									
		EIP W-93-094									
		AWMS44-004									
		AWMS44-058									
		AIMS 05-29-002									

EP127

- Resin system for structural applications
- Toughened modified epoxy resin system
- Improved hot/wet properties
- Improved self-adhesion to core materials
- Free standing post cure, Tg up to 230°C
- Self-extinguishing
- Self-adhesive to core materials

Fulfil
➤ FAR 25.853 Flame test - (Self-extinguishing)
➤ ABD 0031

Autoclave Pressed
Vacuum bagging

-55 to 200°C

Primary structures for A/C and helicopters
➤ Engine cowlings
➤ Thrust reverse

EP137

PE E

EP340

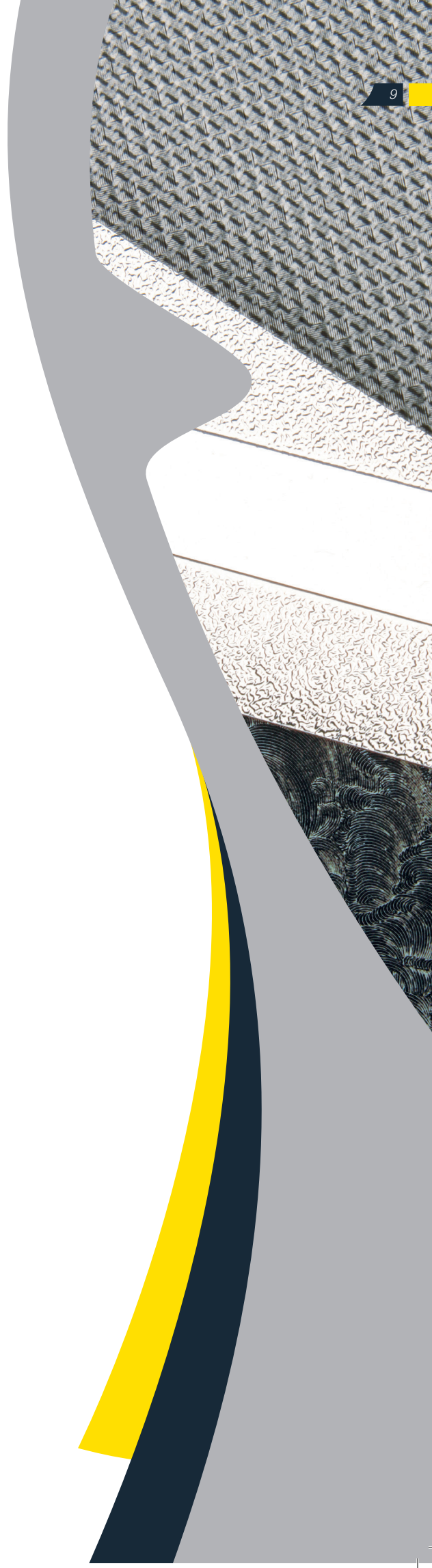
- Highly toughened epoxy resin systems
- Improved hot/wet stability
- Self-extinguishing
- Controlled resin flow
- Excellent adhesion to core materials

Fulfil
➤ FAR 25.853 (FST)
➤ ATS 1000.001
➤ ABD 0031

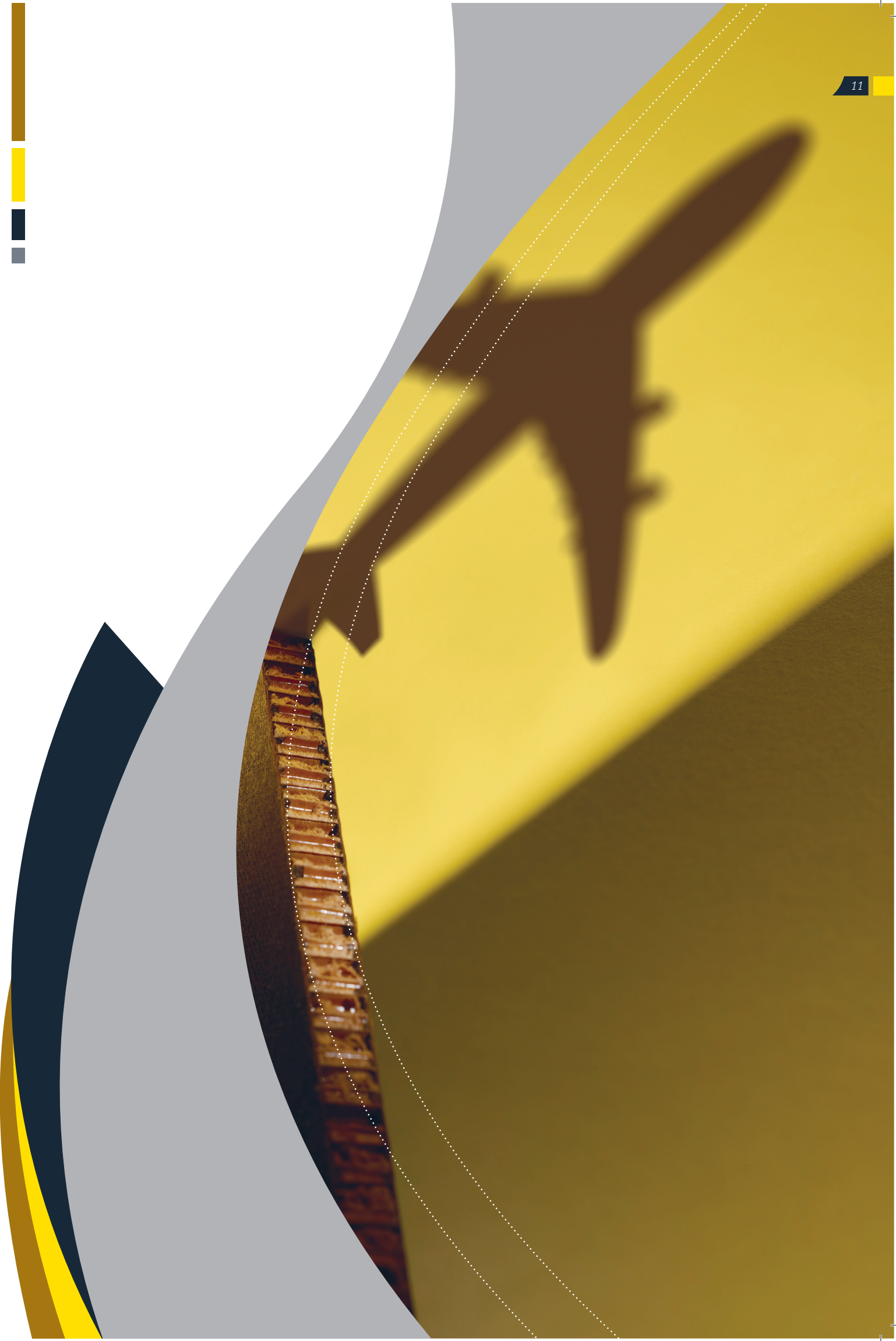
Autoclave Pressed
Vacuum bagging

-55 to 90°C

High performance passenger floor panels



Product	Main features	Fire performance / qualifications	Recommended process	Storage		Lowest temp cure		Highest temp cure		Service temp	Typical applications
				-18°C (months)	21-25°C (days)	mins	°C	mins	°C		
EP141	<ul style="list-style-type: none"> ➤ High performance toughened epoxy ➤ Low smoke density epoxy system ➤ Good hot-wet properties ➤ Self-adhesive to core materials 	<ul style="list-style-type: none"> Fulfilis ➤ FAR 25.853 (FST) ➤ ATS 1000.001 Qualified to ➤ ABS 5672 ➤ AIMS 05-10-34 	Autoclave Pressed Vacuum bagging	6	15	60	140	25	155	-55 to 135°C	➤ Cargo and bulk floor panels
EH275	<ul style="list-style-type: none"> ➤ Increased service temperature ➤ Controlled resin flow ➤ Self-extinguishing ➤ High volume, reference aerospace epoxy system 	<ul style="list-style-type: none"> Fulfilis ➤ LTV 1500-850 (BV 11) Qualified to ➤ LN 29549 ➤ WL-8.4330.0/1 ➤ WL-8.4332.0/1 ➤ WL-8.4330.2 ➤ WL-8.4333.2 ➤ WL-8.4331.0/1 ➤ WL-8.4334.2 ➤ WL-8.4331.2 ➤ EIP-W-93-094 	Autoclave Pressed Vacuum bagging	6	10	60	180	60	180	-55 to 135°C	➤ Monolithic and sandwich structures for aerospace applications
EH420 / EH420 C / EH421 C	<ul style="list-style-type: none"> ➤ Short curing time ➤ Extended shop life ➤ Suitable for co-curing with phenolic 	<ul style="list-style-type: none"> Fulfilis ➤ FAR 25.853 (FST) ➤ ATS 1000.001 ➤ ABD 0031 Qualified to ➤ ABS 5009 ➤ DAN 1227-53 ➤ DAN 1242-40 ➤ BMS8-264 	Autoclave Pressed Vacuum bagging	6	30	360	80	10	160	-55 to 80°C	➤ Monolithic and sandwich structures for interior parts of Aircraft
EH410	<ul style="list-style-type: none"> ➤ Short curing time ➤ Controlled low resin flow ➤ Highly toughened 	-	Press	6	15	5	130	-	-	-55 to 80°C	➤ Industrial applications





CYANATE ESTER RESIN PREPREG SYSTEMS

Product	Main features	Fire performance / qualifications	Recommended process	Storage		Lowest temp cure		Highest temp cure		Service temp	Typical applications
				-18°C (months)	21-25°C (days)	mins	°C	mins	°C		
PN900	<ul style="list-style-type: none"> ➤ Modified cyanate ester resin system ➤ Excellent balance between mechanical and FST properties ➤ Volatile content < 1% ➤ Fulfils numerous FST requirements ➤ High quality surface finish ➤ Self adhesive to honeycomb ➤ Adjustable tack ➤ Post curing possible to Tg 235°C 	<ul style="list-style-type: none"> ➤ Fulfils ATSI1000.001 ➤ FAR 25.853 (FST) <p>Qualified to</p> <ul style="list-style-type: none"> ➤ ABS 5047 ➤ AIMS 05-10-015 ➤ AIMS 05-10-030 ➤ ABS 5736 ➤ AIMS 05-10-036 ➤ MDD DMS 2296, 2297, 2441 ➤ BMS 8-363 ➤ SPS-DS- ➤ M0001CF43, -DS-M0001CG43, -DS-M0001CB43 ➤ MS040044 ➤ DAN 407 ➤ DAN 1149-01 ➤ DAN 1148-01 ➤ NTA 62473 ➤ NTA 62474 	Autoclave Pressed Vacuum bagging	6	15	120	125	30	135	-55 to 200°C	<ul style="list-style-type: none"> ➤ Aircraft air conditioning system (ACS) ➤ Radomes
PN901 CN	<ul style="list-style-type: none"> ➤ Modified cyanate ester resin systems ➤ High temperature system ➤ Post curing possible to Tg of 380°C ➤ Low moisture absorption ➤ Good hot/wet properties ➤ Suitable for primary aircraft structures ➤ Adjustable tack ➤ May substitute BMI resin system 	<ul style="list-style-type: none"> ➤ Fulfils ATSI1000.001 ➤ FAR 25.853 (FST) <p>Qualified to</p> <ul style="list-style-type: none"> ➤ DS-M0001CG43HT ➤ -DS-M0001CB43HT 	Autoclave Pressed Vacuum bagging	6	15	90	160	60	180	-55 to 270°C	<ul style="list-style-type: none"> ➤ Aircraft Structures for high temperature applications e.g. engine cowling flaps, etc.

FURAN RESIN SYSTEMS

Product	Main features	Fire performance / qualifications	Recommended process	Storage	Lowest temp cure	Highest temp cure	Service temp	Typical applications
				-18°C (months)	mins	mins	°C	
				21-25°C (days)	mins	mins	°C	
FA810	<ul style="list-style-type: none"> ⚡ Modified furan resin system ⚡ Long shelf life and shop life ⚡ >75% biobased chemistry ⚡ Optimised peel strength ⚡ Self adhesive to core materials 	<ul style="list-style-type: none"> ⚡ Fulfills FAR 25.853 (FST and Heat Release) and ABD 0031 	<ul style="list-style-type: none"> Press Cure, Crushed Core Process 	6	120	30	-55 to 90°C	Aircraft interior parts <ul style="list-style-type: none"> ⚡ Sidewalls ⚡ Hatracks ⚡ Ceilings ⚡ Doors ⚡ Galleys



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LOCATIONS



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