



Science.
Applied to Life.™



Stick with 3M

Paste adhesives, liquid shim
and void filling compounds

Paste adhesives

Every choice you make is vital to keeping aircraft out of the repair shop and in the air. So every part must be exceptionally strong and durable – no exceptions. 3M’s extensive range of paste adhesives rise to the challenges of advanced aircraft performance, from superior peel, sheer and tensile strength – to extreme temperature tolerance. They’re designed with one purpose in mind, and that is to keep you flying.



One-part structural paste adhesives

Product name	Chemistry	Colour	Solids content (%)	Overlap shear strength MPa				Floating roller peel (N/25mm)	Properties
				-55°C	23°C	149°C	178°C		
EC-3984	Epoxy	Blue	18–22	N/A	34.5	9.7	N/A	178	<ul style="list-style-type: none"> ▶ A solution version of 3M™ Scotch-Weld™ Structural Adhesive Film AF 3109-2 ▶ Typical use: bonding wire mesh on engine nacelles, thrust reversers and acoustic panels ▶ Can be sprayed, brushed, or flow applied ▶ Cure temperature ranges from 107–177°C ▶ Low volatiles during cure permits low pressure bonding
EC 3694	Modified Epoxy	Light Tan	18–22	32.4	32.4	12.4	N/A	138	<ul style="list-style-type: none"> ▶ A solution version of 3M™ Scotch-Weld™ Structural Adhesive Film AF 147 ▶ Typical use: bonding screen in sound suppression panels on aircraft engine nacelles ▶ Can be sprayed, brushed, or flow applied
EC 3710	Epoxy	Clear	19–23	N/A	34.5	N/A	6.2	285	<ul style="list-style-type: none"> ▶ A solution version of 3M™ Scotch-Weld™ Structural Adhesive Film AF 191 ▶ Excellent performance up to 177°C ▶ Extremely tough at low or high temperatures ▶ Can be brushed, roll coated, or sprayed in place

One-part contact adhesives

These adhesives produce high strength air-dried bonds that can withstand weathering, water, oil and most solvents, at fast drying rates. Some of the products provide immediate bonding capabilities and handling strength without the need for forced drying equipment which makes the completion of tasks much quicker and easier. They bond to a wide variety of surfaces including vinyl, extrusions, sheeting, fabrics, foam and flexible plastics.



Product name	Base	Colour	Solids content (%)	Bonding range	Flash point (TCC)	Overlap shear strength (MPa) after 3 weeks at 24C			Properties
						Minutes	-34°C	66°C	
EC-847	Nitrile Rubber	Dark Brown	36	>10	-17°C	1.4	0.2	0.1	<ul style="list-style-type: none"> ▶ Develops strong flexible bonds to: plastics, rubbers, gasketing material and leather ▶ Resistant to most fuels and oils ▶ Medium viscosity grade and quick drying
EC-1300L	Polychloroprene	Yellow	26-33	8–12	-26°C	0.3	0.2	0.2	<ul style="list-style-type: none"> ▶ Can bond metal, wood, most plastics, and neoprene, reclaim, SBR, and butyl rubber ▶ High immediate strength and excellent heat resistance. ▶ Low viscosity
EC-1357L	Polychloroprene	Grey/Green	17-19	Approx. 30	-26°C	964	N/A	199	<ul style="list-style-type: none"> ▶ Long bonding range ▶ Excellent initial strength ▶ High heat resistance

Two-part structural paste adhesives

Product name	Colour (mixed)	FST/ FR	Work life (mins at room temp.)	Time to handling strength (mins at room temp.)	Cure time at (mins at room temp.)	Overlap shear MPa			Properties
						-55°C	24°C	82°C	
Epoxy adhesives									
EC-1838 B/A	Green	No	60	6–10 hours	7 days	10.3	20.7	3.4	<ul style="list-style-type: none"> ▶ High shear strength ▶ Excellent environmental resistance ▶ Excellent for bonding many metals, woods, rubbers and some plastics
	Tan	No	60	6–10 hours	7 days	10.3	13.8	3.4	
EC-2216 B/A	Grey	No	90	8–10 hours	7 days	20.7	22.1	2.8	<ul style="list-style-type: none"> ▶ Resistant to extreme shock, vibration and flexing ▶ Excellent for cryogenic bonding applications ▶ Excellent for bonding many metals, woods, rubbers and masonry products ▶ Tan: non-sag ▶ Translucent: can be injected
	Tan	No	120	10 hours	7 days	13.8	17.2	2.8	
	Translucent	No	120	12–16 hours	30 days	20.7	11.7	1	
EC-2615 B/A	Grey	No	>20	2–3 hours	7 days	25.4	30.1	3.2	<ul style="list-style-type: none"> ▶ High shear and peel strength ▶ Outstanding environmental resistance ▶ Non-Sag (thixotropic)
EC-2615 LW B/A	Grey	No	>60	5–6 hours	7 days	35.4	34.5	5	<ul style="list-style-type: none"> ▶ Extended work life version of EC 2615
EC-2615 B/A FR	Light Grey	FR	>60	4 hours	7 days	25.5^	34.5	23.4	<ul style="list-style-type: none"> ▶ Meets the flammability requirements of 14 CFR 25.853 (a) ▶ Thixotropic properties for ease of application ▶ Excellent sag resistance
EC-2792 B/A	Off-White	No	60	4–6 hours	7 days	33.8	38.6	9.4	<ul style="list-style-type: none"> ▶ High shear and peel strength ▶ Outstanding environmental performance ▶ Easy mixing and non sag ▶ For composite, metal to composite, structural, and metal bonding
EC-3333 B/A	Grey	No	20	2–3 hours	7 days	31	37.9	13.8+	<ul style="list-style-type: none"> ▶ Extremely high shear and peel strength ▶ Outstanding environmental resistance ▶ Easy mixing and controlled flow ▶ Excellent adhesion to many metal and plastic substrates
EC-3501 B/A	Grey	No	7	25 mins	12 hours	6.9	16.5	1	<ul style="list-style-type: none"> ▶ High shear strength and fast curing ▶ Non sag (thixotropic) ▶ Good environmental resistance. ▶ Excellent for bonding metal, wood, most plastics and masonry products.
EC-7202 B/A	Olive Green	No	10	1.5 hours	72 hours	23	30	7*	<ul style="list-style-type: none"> ▶ High thixotropy - instant hold for mounted parts, ideal for bracket and fastener bonding ▶ Fast cure at room temperature ▶ Excellent shear and peel strength on a variety of substrates ▶ Low sag and controlled bond line thickness 150µm



3M Scotch-Weld™
Epoxy-Adhesive



Two-part structural paste adhesives



Product name	Colour (mixed)	FST/ FR	Work life (mins at room temp.)	Time to handling strength (mins at room temp.)	Cure time at (mins at room temp.)	Overlap shear MPa			Properties
						-55°C	24°C	82°C	
EC-7236 B/A	White/Black	No	>60	3–4 hours	14 days	28	39	22	<ul style="list-style-type: none"> ▶ High mechanical strength ▶ Wide service temperature range ▶ Excellent environmental resistance
EC-7246-2 B/A FST	Off White	FST	>90	5 hours	7 days	24	14	3.4	<ul style="list-style-type: none"> ▶ Metal-to-composite bonding, structural bonding, metal bonding, and insert potting ▶ Availability in duo-pack cartridges or in bulk for machine dispensing ▶ Low sag ▶ Halogen and heavy metal compound free FST system
EC-7256 B/A	Off-White	No	12	70–80 minutes	7 days	26	35	8	<ul style="list-style-type: none"> ▶ Low-flow paste ▶ Fast curing ▶ Excellent shear and peel strength ▶ Good environmental and ageing resistance ▶ Ideal for bracket and fastener bonding
EC-9300 B/A FST	Brown	FST	5	4–5 hours	7 days	24	29	11	<ul style="list-style-type: none"> ▶ Low viscosity and non-sag ▶ Excellent chemical and ageing resistance ▶ Halogen and heavy metal compound free FST system ▶ Available in cartridges or as bulk material
EC-9323 B/A	Pink / Orange	No	150	4–5 hours	14 days	38	36	22	<ul style="list-style-type: none"> ▶ Extremely high shear and peel strength ▶ Wide service temperature range ▶ Outstanding environmental resistance ▶ Full room temperature processing
EC-9323-2 B/A	Dark Grey	No	>120	4 hours	7 days	24	29	10	<ul style="list-style-type: none"> ▶ Thixotropic, non-sag, full room temperature processable ▶ Available in duo-pack cartridge for easy and best processing ▶ Toughened system providing very high shear and peel strength ▶ Excellent environmental resistance
EC-9323-150 B/A	Pink / Orange	No	150	4–5 hours	14 days	38	22	4	<ul style="list-style-type: none"> ▶ Toughened system providing extremely high shear and peel strength ▶ Wide service temperature range ▶ Outstanding environmental resistance ▶ It contains 1wt% of glass beads 90–150µm diameter for bond line thickness control
Polyurethane adhesives									
EC-3532 B/A	Brown/Off-White	No	5–15	60 minutes	1 day	17.2'	15.2	2.1	<ul style="list-style-type: none"> ▶ Forms tough, impact-resistant structural bonds ▶ Excellent adhesion to many primed or painted metal and plastic substrates
EC-3549 B/A	Brown	No	45–70	4 hours	7 days	17.2'	13.8	2.1	<ul style="list-style-type: none"> ▶ High shear and high peel strength on primed or painted metal and plastics.

Time to handling strength is defined in many different ways. Some define it as the time to reach 1MPa Overlap Shear Strength, and others 2MPa. Please see the data sheets for further information or speak to one of our aerospace specialists.

' 71 0C | ^ -43 0C | * 85 0C

Liquid shim

Shimming materials are required to fill small gaps in rib-to-skin and other load-bearing aero-structure applications in order to reduce stress and premature fatigue cracking of the assembly.

Aside from the costly and complex management of hundreds of bespoke sizes, traditional hard shims are time-consuming and labour-intensive to apply.

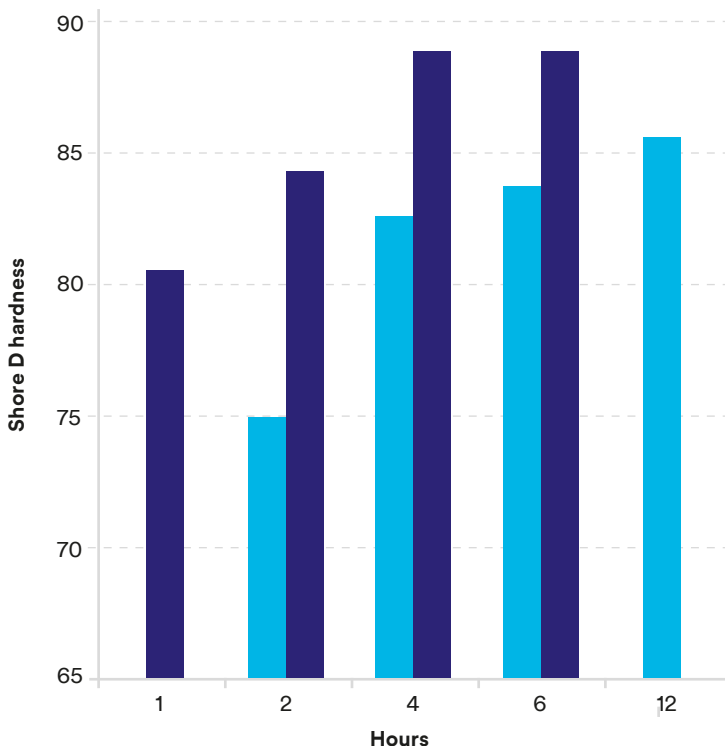
3M Aerospace has been engineering a sophisticated epoxy-based liquid shim that offers superior structural gap filling properties up to 3mm, thereby significantly reducing the need for hard shims. 3M™ Scotch-Weld™ Advanced Liquid Shim EC-7272 B/A is a single, injectable, fast-curing solution designed to deliver an increase in productivity and overall cost reduction.

- ▶ Fills gaps up to 3mm
- ▶ Cures to drilling strength within 4-5 hours (Shore D hardness of 82 achieved after 4 hours at 23 °C ± 2 °C, 50 % ± 5 % relative humidity)
- ▶ Non sag in vertical applications
- ▶ Excellent chemical and environmental resistance
- ▶ Easy injectable application
- ▶ Extrudable from duo-pack cartridges for easy and accurate mixing

Product name	Chemistry	Colour (mixed)	FST/ FR	Work life	Time to handling	Cure time at 23°C	Overlap shear strength MPa			
							-55°C	23°C	80°C	120°C
EC-7272	Epoxy	Greenish blue	No	30 mins	4-5 hours	7 days	16	23	21	16

Shore D hardness was determined according to ISO 868 in two conditions using 50g of mixed material on a disc of 70mm diameter and 10mm height.

- Condition 1: 23°C ± 2°C, 50% ± 5% relative humidity
- Condition 2: 30°C ± 2°C, 50% ± 5% relative humidity





Void filling compounds



3M™ Scotch-Weld™ Void Filling Compound EC-3524 B/A

Low-density, two-part epoxy void-filling compound.

- ▶ Can be used for void filling, edge sealing, and as an abradable compound in aircraft engines
- ▶ Available in antimony free (AF) and fire, smoke, and toxicity-compliant (FST) versions
- ▶ Available in white, blue and black
- ▶ Worklife > 90 minutes
- ▶ Hand or specialist mixing equipment application



3M™ Scotch-Weld™ Void Filling Compound EC- 3550 B/A FST and EC-3555 B/A FST

Low density, two-part, epoxy void filling compounds for aircraft interior applications.

- ▶ Designed for edge sealing, honeycomb reinforcement and gap filling
- ▶ Extrudable through both cartridge and bulk dispensing systems
- ▶ Non-sag, non-brittle, low-shrinkage formulation
- ▶ Full room temperature processing
- ▶ Sandable and machinable within 6 (EC-3555) or 12 hours (EC-3550)
- ▶ Fulfills stand alone FAR / JAR 25.853 and ABD 0031



3M™ Scotch-Weld™ Void Filling Compound 3450 FST

A low density one-part, heat curing epoxy structural void filling compound for aircraft interior applications.

- ▶ Designed for edge sealing, honeycomb reinforcement and gap filling
- ▶ Extrudable through both cartridge and dispensing systems
- ▶ Low shrinkage formulation
- ▶ Excellent chemical resistance
- ▶ Worklife > 5 days
- ▶ Fulfills stand alone FAR / JAR 25.853 and ABD 0031



3M™ Scotch-Weld™ Void Filling Compound EC-3439HT FST

A one-part, compression resistant, low density epoxy void filling compound for aircraft interior applications.

- ▶ Designed for room or high temperature curing
- ▶ Cures to a rigid material in 1 hour at 121°C
- ▶ High compressive strength and excellent chemical resistance
- ▶ Extruded through a cartridge system
- ▶ Thixotropic properties for ease of application

3M™ Scotch-Weld™ Void Filling Compound 3460 FST

One-part, heat-curing, medium-density, structural epoxy void filling compound for aircraft interior applications.

- ▶ High compressive strength
- ▶ Designed for use on interior honeycomb sandwich structure edge finishing, local reinforcement and complex gap or mismatch area filling
- ▶ Fulfils stand alone FAR / JAR 25.853 and ABD 0031
- ▶ Extrudable through both cartridge and bulk dispensing systems
- ▶ Low shrinkage formulation
- ▶ Excellent chemical resistance
- ▶ Worklife > 5 days

3M™ Scotch-Weld™ Void Filling Compound EC-3500-2 B/A

A two part, high temperature curing, epoxy void filling compound.

- ▶ High performance from -55°C to +175°C
- ▶ Thixotropic for ease of application
- ▶ Long work life at 15–25°C
- ▶ Cures from 120°C to 175°C in one hour
- ▶ Excellent water and chemical resistance
- ▶ Room temperature storage of the two compounds
- ▶ Available in a fire, smoke, and toxicity-compliant (FST) version
- ▶ Hand or specialist mixing equipment application

Product name	Colour (mixed)	Hand mix	Extrudable (cartridge)	FR/ FST	Compressive strength at 23°C (Mpa)	Cured density (g/cm ³)	Work life at 23°C	Cure time at 23°C
3524 B/A	Light blue & black	Yes	No	FR	16	0.48	90 mins (200g mixed)	48 hours
3524 B/A FST	Grey	Yes	No	FST	23	0.55	90 mins (200g mixed)	48 hours
3450 FST	Light brown	No	Yes	FST	33	0.64	5 days	60 mins at 125°C
3460 HT FST	Light brown	No	Yes	FST	68	0.74	3 days	60 mins at 125°C or 175°C
EC-3550 B/A FST	Light brown	No	Yes	FST	24	0.58	120 mins	48 hours
EC-3555 B/A FST	Light brown	No	Yes	FST	24	0.58	60 mins	48 hours
3500-2 B/A	Dark Grey	Yes	No	N/A	64	0.62	48 hours	60 mins at 125°C or 175°C
EC-3439 HT FST	Off White	No	Yes	FR	52.5	0.75	4 days	60 mins at 125°C or 175°C

3M Aerospace and Commercial Transport Division
3M United Kingdom plc
3M Centre
Cain Road, Bracknell
Berkshire RG12 8HT
Tel: 0870 6080 060
www.3M.co.uk

3M Ireland Limited
The Iveagh Building
The Park, Carrickmines
Dublin 18
Tel: 1 800 303 437

Please recycle. Printed in the UK. © 3M 2016.
3M is a registered trademark of 3M company.
All rights reserved. J351147

