Scotch-Weld™

Epoxy Adhesive 7240 FR B/A

Product Data Sheet

Updated : December 2001
Supersedes : November 2000

Product Description

3M Scotch-Weld™ 7240 FR B/A epoxy adhesive is a high performance, two-part toughened adhesive.

Offers high shear and peel adhesion and outstanding levels of durability. Contains 300 µm glass beads for accurate glue line control.

Tested to FAR25 (vertical burn) and meets the 15 second self extinguishing requirement.

Physical Properties
Not for Specification Purposes

	BASE	ACCELERATOR
Base	Toughened Epoxy	Modified Amine
Colour	Black	Off-white
Specific Gravity (approx.)	1.05-1.10	1.12-1.18
Mix Ratio By Volume By Weight	100 100	50 52
Viscosity (Pa.s at 23°C)	100-200	100-200
Worklife at 23°C (min) 20 g	45	
Time to Handling Strength at 23°C (Hours)	6	
Shelf Life	12 months from date of dispatch by 3M when stored in the original carton at 21 °C and 50% relative humidity.	

Typical Performance Characteristics
Not for specification purposes

Overlap Shear Strength (MPa)

Test method EN 2243-1

Test conditions	Cure cycle 1	Cure cycle 2	Cure cycle 3
- 55 ± 3°C	17.9 (C)	18.2 (C)	19.4 (C)
-40 ± 2°C	20.4 (C)	21.9 (C)	22.4 (C)
23 ± 2°C	26.9 (C)	27.4 (C)	26.6 (C)
70 ± 2°C	16.2 (C)	16.4 (C)	14.3 (C)
100 ± 2°C	5.7 (C)	6.2 (C)	4.8 (C)
150 ± 3°C	1.9 (C)	1.9 (C)	2.0 (C)

Overlap shear specimens were constructed using 1.6 mm thick 2024 T3 clad aluminium with the surface prepared using the optimised FPL etch.

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Typical Performance Characteristics(Cont'd) **Roller (Bell) Peel Strength (N/25mm)** **Test method EN 2243-2**
Not for specification purposes

Cure cycle 1	Cure cycle 2	Cure cycle 3
120	105	90

Roller (Bell) peel specimens were constructed using 1.6 and 0.5 mm thick 2024 T3 clad aluminium with the surface prepared using the optimised FPL etch

Cure cycles :

1. 7 days at 23 ± 2°C under a pressure of 100 kPa the first 24 hours
2. 24 hours at 35 ± 2°C under a pressure of 100 kPa followed by a 60 minute post-cure at 80 °C
3. 60 min at 60-65 °C under a pressure of 100 kPa.

~300 µm diameter glass beads were used to control glue line thickness

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Adhesion Properties **Overlap Shear Strength (MPa)** **Test method EN 2243-1**
Not for specification purposes

Typical results obtained using overlap shear specimens prepared according to EN 2243-1. All specimens were cured for 24 hours at 35 °C under a pressure of 100 kPa.

Substrate	Overlap shear strength / MPa	Failure Mode
2024 T3 clad aluminium	22.4	Cohesive
5754 H111 aluminium alloy	12.5	Substrate failure (stretching)
Cold rolled steel	17.1	Substrate failure (stretching)
Stainless steel	23.7	Cohesive
Hot dip galvanised steel	15.9	Substrate failure (stretching)
Carbon fibre reinforced epoxy	24.3	Cohesive
Glass fibre reinforced phenolic	17.2	Substrate failure (delamination)
Glass fibre reinforced polyester	6.2	Substrate failure

Environmental Resistance **Overlap shear strength (MPa)** **Test method EN 2243-1**
Not for specification purposes

Table denotes typical results obtained on 1.6 mm thick optimised FPL etched 2024 T3 bare aluminium after curing for 60 minutes at 60-65 °C. Testing was conducted at 23 ± 2°C after aging for 750 hours.

Conditions	Test results
Control (23 °C / 50% RH)	19.7 (Cohesive – no degradation)
20 mins dry heat (200°C)	32.8 (Cohesive)
D.I. water at 23°C	19.9 (Cohesive)
Jet fuel at 23°C	22.3 (Cohesive)
Lead free fuel at 23°C	23.2 (Cohesive)
Hydraulic oil at 23°C	24.8 (Cohesive)
Hot –wet exposure (70°C ; ≥ 95 % relative humidity)	19.4 (Cohesive)*
5 % salt spray at 35 °C	18.2 (Cohesive)*

* Denotes no corrosion under the glue line

Flammability (FAR25)

(25 x 12.5 x 12.5) mm sample blocks of adhesive were mounted vertically, and exposed to a flame for 30 seconds. On removal of the flame, the adhesive 'self extinguished' in less that 15 seconds

Compression strength and Young's modulus

Data generated from a cast block of material (25 x 12.5 x 12.5 mm), cured for 24 hours at 23+/-3°C followed by a 60 minutes post-cure at 80+/-3°C. Specific gravity of the cured material was measured as 1.03-1.06 at 23 °C

Compression strength (MPa)	Young's modulus (MPa)
23 +/- 2°C : 45-50	23 +/- 2°C : 3500-4000

Additional Product Information	**Work Life:** After mixing, the mixture remains workable for a time before it becomes too viscous to properly wet the surface to which it is applied.	The work life and rate of cure are both greatly affected by temperature and to some extent humidity, curing faster as temperature and humidity are raised.	Once mixed, the adhesive should be used within 45 minutes.
	Equipment : 3M Scotch-Weld™ 7240 FR B/A is supplied either in a dual syringe plastic cartridge designed to fit the EPX™ applicator system or via bulk packaging formats.	Contact your 3M representative for assistance in selecting application equipment to suit your specific needs.	
	Clean Up: Excess adhesive can be cleaned up prior to curing with 3M Solvent No.2.	Note: 3M Solvent No.2 is flammable. When using solvents for clean up it is	essential that the correct safety precautions are observed.
Surface Preparation	For high strength structural bonds, paint, oxide films, oils, dust and all other surface contaminants	Must be completely removed. The level of surface preparation will depend on the required	bond strength and environmental resistance required.
Storage Conditions	Rotate stock on a "first in - first out" basis. When stored at room temperature in the original packaging, shelf life is 12 months.		

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Additional Information	For any additional information please contact your local 3M representative
Health & Safety Information	For Health & Safety information, please contact the Product Responsibility Department Tel: 01344 860678

Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications.
This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.

Tapes & Adhesives

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