Scotch-Weld™
Structural Adhesive
EC-3587 B/A Gray

Technical Data **Issue No. 1**

Introduction

3M™ Scotch-Weld™ Structural Adhesive EC-3587 B/A Gray is a two-part polyurethane that cures at room temperature or with heat to a tough, impact-resistant material. It has excellent adhesion to many metal and plastic substrates. It can be used as structural adhesive, void filler, or as a fairing compound.

Advantages

- Sandable structural adhesive
- Excellent void or gap filler
- Excellent fairing compound
- Base and Accelerator are contrasting colors
- Mixed material can be easily extruded from plastic cartridges
- Non-sag when mixed

Product Description

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

	Part B (Base)	Part A (Accelerator)	Part B (Base)	Part A (Accelerator)
	Class B-1/4		Class B-1	
Consistency:	Viscous Paste	Viscous Liquid	Viscous Paste	Viscous Liquid
Color:	Gray	Brown	Gray	Brown
Weight/Gallon:	6.3-7.7 lbs.	11-11.4 lbs.	6.4-7.8 lbs.	11-11.4 lbs.
Solids:	100%	100%	100%	100%
Mix Ratio: By Weight	100	100	100	100
By Volume	175	100	175	100
Worklife at 72 ± 3°F (100 g mixed):	5-20 minutes		60 minutes	
Flow (mixed): per Mil-S-8802, fig. 1	.1 inch (.25 cm)		.1 inch (.25 cm)	
Shore D Hardness (cured):	62		62	

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Product Performance

Note: The following performance data has been obtained in the 3M Laboratory under the conditions specified.

Overlap Shear Strength (ASTM D 1002)

The following data show values obtained with EC-3587 B/A in aluminum overlap shear. All tests were run on 1" wide x 1/2" (2.54 cm wide x 1.27 cm) overlap specimens cut from .063" (1.6 mm) thick 2024-T3 alclad aluminum panels which had been FPL etched. The bonds were cured 16 hours at 75°F (24°C) and 2 psi (.14 bar) pressure plus post cured for 90 minutes at 280°F (138°C).

Test Temperature		Class B-1/4		Class B-1	
°F	°C	psi	MPa	psi	MPa
-40	-40	3390	23.4	3765	26.0
75	24	2450	16.9	2512	17.3
180	82	476	3.3	475	3.3

Surface Preparation

Abrade metal surfaces by sanding, vapor degreasing and/or solvent wash. Solvent washed parts must be thoroughly dry before use. Prepare plastic surfaces by light sanding or grit blast followed by an air blast to remove any dust.

If desired, 3M™ Scotch-Weld™ Structural Adhesive Primer EC-1945 B/A or other 3M adhesion promoter may be used with EC-3587. See Technical Data Sheet on EC-1945 B/A for application procedures.

The following procedures were used for the aluminum adherends in the Product Performance Section.

Aluminum

1. Degrease – Aluminum panels were degreased in Oakite 164 solution (9-11 oz./gallon water) at 180°F (82°C) for 10-20 minutes and rinsed in liberal quantities of cold water.

2. Acid Etch – Optimized FPL Etch Solution (1 liter):

Material	Amount
Distilled Water	700 ml plus balance of liter (see below)
Sodium Dichromate	28 to 67.3 grams
Sulfuric Acid	287.9 to 310.0 grams
Aluminum Chips	1.5 grams/liter of mixed solution

To prepare 1 liter of this solution, dissolve sodium dichromate in 700 ml of distilled water. Add sulfuric acid and mix well. Add additional distilled water to fill to 1 liter. Heat mixed solution to 66 to 71°C (150 to 160°F). Dissolve 1.5 grams of 2024 bare aluminum chips per liter of mixed solution. Gentle agitation will help aluminum dissolve in about 24 hours.

To FPL etch panels, place them in the above solution at 150 to 160°F (66 to 71°C) for 12 to 15 minutes.

Note: Review and follow safety and precautionary information provided by chemical supplier prior to preparing this etch solution.

Surface Preparation ***(continued)***

3. Rinse – Rinse panels in clear deionized running water.
4. Dry – Air dry 15 minutes, force dry 10 minutes minimum at 140°F (60°C) maximum.
5. It is advisable to coat the freshly cleaned surfaces with adhesive or primer within 4 hours after surface preparation.

Adhesive Layup

Care should be taken to avoid contaminating either the adhesive or the cleaned parts by any substance which will hinder the wetting action of the adhesive.

A. **Mixing**

Mix only those amounts of adhesive which can be used within the work life of the mixture. To achieve optimum physical properties, mixing of the base and accelerator must be thorough. Care should be taken to avoid incorporating moisture or excessive air into the adhesive during mixing or application. Moisture and air will tend to yield a porous and weak bond.

B. **Adhesive Application**

Apply mixed EC-3587 B/A to surface. The mixed material can be applied by a spatula, knife coat, notched trowel, or extruded into place.

C. **Work Life**

The work life of a 100 gram batch at 73°F (23°C) is 5-20 minutes for EC-3587 Class B-1/4 and 40-150 minutes for EC-3587 Class B-1.

D. **Sanding**

It may be desired to sand the cured EC-3597 B/A smooth for the application of an overcoat. Approximately a 16 hour cure is required at 70-75°F (21-24°C) before EC-3587 B/A Class B-1 can be sanded. Cure time can be decreased up by heating. For example, it can be sanded in approximately 4 hours when cured at 120°F (49°C). EC-3587 B/A Class B-1/4 can be sanded after approximately a 3 hour cure at 70-75°F (21-24°C).

E. **Cleanup**

Excess adhesive and equipment may be cleaned prior to curing with toluene or Methyl Ethyl Ketone (MEK) solvents.*

*__Note:__ When using solvents, extinguish all ignition sources and follow manufacturer's precautions and directions for use.

Storage Stability

Store this product indoors in a dry place at 60-80°F (16-27°C) for the maximum shelf life. If properly stored in its original unopened containers, the 3M Standard shelf life is 6 months from date of shipment from 3M.

Part A (Accelerator) and Part B (Base) will absorb moisture which may be present in the atmosphere. Store in tightly closed containers at all times in order to prevent skin formation and porous bondlines.

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Precautionary Information

Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information call 1-800-364-3577 or (651) 737-6501.

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free (800) 235-2376. Our fax number is (417) 869-5219. Address correspondence to: 3M Aerospace Central, 3211 E. Chestnut Expressway, Springfield, MO 65802.

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ISO 9002

This Adhesives Division product was manufactured under a 3M quality system registered to ISO 9002 standards.

3M

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Printed in U.S.A.
 78-6900-9773-4