Technical Data Sheet

3M™ Scotch-Weld™ Epoxy Adhesive 1838 B/A Green

Product Description

- 3M™Scotch-Weld™ Epoxy Adhesive 1838 B/A Green is a controlled flow product
- This epoxy adhesive is two-part, room temperature curing structural adhesive with high shear strengths and excellent environmental resistance.
- Excellent for bonding many metals, woods, and some plastics.
- Recognized as meeting UL 94 HB

Technical Information Note

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

Typical Mixed Physical Properties

Property	Values	Additional Information
Open Time (min)	60 min	View

Notes: Max time allowed after applying adhesive to a substrate before bond must be closed and fixed. Cure times approximate and depend on adhesive temperature. Hotmelts: The approx. bonding range of a 1/8" bead of molten adhesive on a non-metallic surface.

Worklife, 100g mixed	60 min	View
Temp C: 23C Temp F: 73F		
Time to Full Cure	8 hr	View
Temp C: 23C Temp F: 73F		

Notes: The cure time is defined as that time required for the adhesive to achieve a minimum of 80% of the ultimate strength as measured by aluminum-aluminum OLS.

Typical Physical Properties

Property	Values	Additional Information
Color	Green	View
Test Name: Cured		

Typical Uncured Physical Properties

Property	Values	Additional Information
Base Color	White	

Accelerator Color	Green

Base Viscosity	70,000-600,000 cP	View
Temp C: 27C Temp F: 80F		
Accelerator Viscosity	300,000-1,000,000 cP	View
Temp C: 27C Temp F: 80F		

Base Resin	Modified Epoxy
Accelerator Resin	Polyamide
Base Net Weight	11.0 to 11.6 lb/gal
Accelerator Net Weight	8.9 to 9.3 lb/gal
Mix Ratio by Volume (B:A)	4:5
Mix Ratio by Weight (B:A)	1:1

Typical Cured Characteristics

Property	Values	Additional Information
Modulus	344000 lb/in²	
Shore D Hardness	82	View
Test Method: ASTM D2240 Temp C: 23C Temp F: 73F		
Tensile Strength	4290 lb/in²	View
Test Name: At Break		

Typical Performance Characteristics

Property	Values	Additional Information
Elongation at Break	2 to 3 %	
T-Peel Adhesion -55C Aluminum	2 lb/in width	View

Test Method: ASTM D1876

Test Name: T-Peel Adhesion
Temp C: -55C
Temp F: -67F
Substrate: Aluminum

Notes: T-Peel bonds were measured on 1 in. wide specimens cut from two FPL etched 8 in. x 8 in. x .032 in., 2024 T3 clad aluminum panels bonded together. The separation note of the testing jaws was 20 in./minute.

T-Peel Adhesion 23C Aluminum	4 lb/in width	View

Test Method: ASTM D1876

Test Name: T-Peel Adhesion
Temp C: 23C
Temp F: 73F
Substrate: Aluminum

Notes: T-Peel bonds were measured on 1 in. wide specimens cut from two FPL etched 8 in. x 8 in. x .032 in., 2024 T3 clad aluminum panels bonded together. The separation note of the testing jaws was 20 in./minute.

T-Peel Adhesion 82C Aluminum	4 lb/in width	View

Test Method: ASTM D1876

Test Name: T-Peel Adhesion
Temp C: 82C
Temp F: 180F
Substrate: Aluminum

Notes: T-Peel bonds were measured on 1 in. wide specimens cut from two FPL etched 8 in. x 8 in. x .032 in., 2024 T3 clad aluminum panels bonded together. The separation note of the testing jaws was 20 in./minute.

Electrical and Thermal Properties

Property	Values	Additional Information
Glass Transition Temperature (Tg)	55 °C	View

Test Condition: Mid-Point

Notes: Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 68°F (20°C) per minute. Second heat values given.

Glass Transition Temperature (Tg)	131 °F	View

Test Condition: Mid-Point

Notes: Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 68°F (20°C) per minute. Second heat values given.

Dielectric Constant 1KHz	6.06	View

Test Method: ASTM D150

Temp C: 23C
Temp F: 72F
Test Condition: 1 KHz

Dissipation Factor 1KHz	0.012

View

Test Method: ASTM D150

Temp C: 23C
Temp F: 72F
Test Condition: 1 KHz

Thermal Conductivity	0.169 (btu-ft)/(h-ft²-°F)	
Volume Resistivity	1.5 x 10^15 Ω-cm	View

Test Method: ASTM D257

Temp C: 23C
Temp F: 73F

Coefficient of Thermal Expansion	79 x 10^-6 m/m/°C	View

Test Condition: Between 32-40°F(0-40°C)

Storage and Shelf Life

Store products at 80°F (27°C) or below for maximum shelf life. Higher temperatures reduce normal shelf life.
These products have a shelf life of 24 months from date of manufacture when properly stored in their unopened containers. Lower temperatures can cause increased viscosity of a temporary nature. Rotate stock on a “first in-first out” basis.

Industry Specifications

UL 94 HB

Automotive Disclaimer

Select Automotive Applications: This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

Bottom Matter

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Trademarks

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Handling/Application Information

Application Equipment

These products may be applied with spatula, trowel, or flow equipment.

Two part mixing/proportioning/dispensing equipment is available for intermittent or production line use. These systems are ideal because of their variable shot size and flow rate characteristics and are adaptable to most applications.

Directions for Use

1. For high strength structural bonds, paint, oxide films, oils, dust, mold release agents and all other surface contaminants must be completely removed. The amount of surface preparation directly depends on the user's required bond strength and environmental aging resistance. For suggested surface preparations on common substrates, see the section on Surface Preparation.

2. These products consist of two parts. Mix thoroughly by weight or volume in proportions specified on product label or in Typical Uncured Physical Properties section below. Resulting color should be uniform. Properly reseal containers.

3. For maximum bond strength apply product evenly to both surfaces to be joined.

4. Application to the substrates should be made within 1 hour for 3M™ Scotch- Weld™ Epoxy Adhesives 1838 B/A Green and Tan and 90 minutes for Scotch- Weld 1838-L B/A adhesive. Larger quantities and/or higher temperatures will reduce this working time.

5. Join the adhesive coated surfaces and allow to cure until completely firm. Overnight curing @75°F (24°C) is usually sufficient. Heat, up to 200°F (100°C), will speed curing.

6. The following times and temperatures will result in handling strength for these products:

Temperature Time

RT 6-10 hrs.

150°F (65°C) 15-20 mins.

7. The following times and temperatures will result in a full cure of these products:

Temperature Time

75°F (24°C) 7 days

150°F (65°C) 2 hours

200°F (100°C) 30 minutes

8. Keep parts from moving during cure. Contact pressure is necessary. Maximum shear strength is obtained with a 3-5 mil bond line.

Surface Preparation

The following cleaning methods are suggested for common surfaces.

Steel:

1. Wipe free of dust with oil-free solvent such as Methyl Ethyl Ketone (MEK).*

2. Sandblast or abrade using clean fine grit abrasives.

3. Wipe again with solvents to remove loose particles.

Aluminum:

1. Alkaline Degrease – Oakite 164 solution (9-11 oz./gallon water) at 190°F ± 10°F (88°C ± 5°C) for 10-20 minutes. Rinse immediately in large quantities of cold running water.

2. Acid Etch – Place panels in the following solution for 10 minutes at 150°F ± 5°F (66°C ± 2°C).*

Sodium Dichromate 4.1 - 4.9 oz./gallon

Sulfuric Acid, 66° 38.5 - 41.5 oz./gallon 2024-T3 aluminum (dissolved) 0.2 oz./gallon minimum Tap Water as needed to balance

3. Rinse – Rinse panels in clear running tap water.

4. Dry – Air dry 15 minutes; force dry 10 minutes at 150°F ± 10°F (66°C ± 5°C).

5. If primer is to be used, it should be applied within 4 hours after surface preparation.

Plastics:

1. Solvent wipe with Isopropyl Alcohol.*

2. Abrade using clean fine grit abrasives.

3. Solvent wipe with Isopropyl Alcohol.*

Rubbers:

1. Solvent wipe with MEK.*

2. Abrade using clean fine grit abrasives.

3. Solvent wipe with MEK.*

Glass:

1. Solvent wipe with acetone or MEK.*

For glass applications which will be subjected to high moisture/humidity conditions, EC-3901 primer or equivalent should be used to prime the glass.

*Note: When using solvents or chemicals, be sure to extinguish all ignition sources and follow the manufacturer's precautions and directions for use when handling such materials.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b40066479/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=1838 B/A Green

Family Group

Link Tags:

1838 B/A Green | 1838 B/A Tan | 1838-L B/A Translucent

Products	Color	Shore D Hardness	Open Time (min)
1838 B/A Green	Green	82	N/A
1838-L B/A Translucent	Clear/Amber	82	60 min
1838 B/A Tan	Tan	N/A	60 min

ISO Statement

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

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.

Information

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