

February, 2016

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



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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 Uncured Physical Properties

Property	Values	Test Condition
Base Color	White	
Accelerator Color	Green	
Base Viscosity	70,000-600,000 cP	80°F(27°C)
Accelerator Viscosity	300,000-1,000,000 cP	80°F(27°C)
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 Mixed Physical Properties

Worklife, 100g mixed: 60 min

Conditions

Test Condition : Room Temperature

Typical Cured Characteristics

Property	Values	Attribute Modifier	Method	Dwell/Cure Time
Modulus	344000 lb/in ²			
Tensile Strength	4290 lb/in ²	At Break		
Shore D Hardness	82		ASTM D2240	60 min @ Room Temperature

Typical Physical Properties

Color: Green

Conditions

Attribute Modifier: Cured

Typical Performance Characteristics

Elongation at Break: 2 to 3 %

Typical Performance Characteristics (continued)

T-Peel Adhesion	Temp C	Temp F
2 lb/in width	-55C	-67F
4 lb/in width	23C	73F
4 lb/in width	82C	180F

Property: T-Peel Adhesion

Method: ASTM D1876

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 rate of the testing jaws was 20 in./minute.

Electrical and Thermal Properties

Property	Values		Test Condition	Notes	Method
Glass Transition Temperature (Tg)	55 °C	131 °F	Mid-Point	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	6.06		1 KHz, Room Temperature		ASTM D150
Dissipation Factor	0.012		1 KHz, Room Temperature		ASTM D150
Thermal Conductivity	0.169 (btu-ft)/(h-ft ² -°F)				
Volume Resistivity	1.5 × 10 ¹⁵ Ω-cm		Room Temperature		ASTM D257
Coefficient of Thermal Expansion	79 × 10 ⁻⁶ m/m/°C		Between 32-40°F(0-40°C)		

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.

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Handling/Application Information (continued)

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.

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.

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Industry Specifications

UL 94 HB

Trademarks

3M and Scotch-Weld are trademarks of 3M Company.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/company-us/all-3m-products/-/3M-Scotch-Weld-Epoxy-Adhesive-1838?N=5002385+3293241555&rt=rud
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

	1838 B/A Green	1838 B/A Tan	1838-L B/A Translucent
Color Attribute Modifier: Cured	Green	Tan	Clear/Amber

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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