



# Technical Data Sheet

## 3M™ Scotch-Weld™ Epoxy Adhesive 2158 B/A



[Regulatory Info/SDS](#)

### Product Description

3M™ Scotch-Weld™ Epoxy Adhesive 2158 B/A is a gray, two-part, high strength adhesive that chemically cures at room temperature. It has good adhesion to a variety of substrates including metals, many plastics, wood and concrete.

### Product Features

- Equal mix ratio by weight or volume.
- Good adhesion to damp concrete.
- 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 Uncured Physical Properties

Attribute Name	Value
Mix Ratio by Weight (B:A)	1:1
Mix Ratio by Volume (B:A)	1:1

Attribute Name	Temperature	Value
Base Color		White
Accelerator Color		Dark Gray
Base Resin		Modified Epoxy
Accelerator Resin		Synthetic Resin
Base Net Weight		13.0 ± 0.2 lb/gal
Accelerator Net Weight		12.8 ± 0.4 lb/gal
Base Viscosity	22 °C (72 °F)	250,000-450,000 cP <sup>1</sup>
Accelerator Viscosity	22 °C (72 °F)	200,000-800,000 cP <sup>2</sup>

<sup>1</sup> Viscosity obtained by Brookfield, DV-II, #7 Spindle, 20 rpm

<sup>2</sup> Viscosity obtained by Brookfield, DV-II, #7 Spindle, 20 rpm.

### Typical Mixed Physical Properties

Attribute Name	Temperature	Value
Open Time		120 min <sup>1</sup>
Worklife, 100g mixed	22 °C (72 °F)	120 min
Time to Handling Strength	22 °C (72 °F)	8 – 12 h
Time to Full Cure	22 °C (72 °F)	7 d

<sup>1</sup> 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.

## Typical Physical Properties

Attribute Name	Value
Cured Color	Gray

## Typical Cured Characteristics

Temperature: 22 °C (72 °F)

Attribute Name	Test Method	Value
Shore D Hardness	ASTM D2240	85 <sup>1</sup>

<sup>1</sup> Tensile and Elongation. Samples were 51 mm (2") dumbbells with 3 mm (0.125") neck and 0.8 mm (0.03" sample thickness. Separation rate was 51 mm/min (2"/min)

## Typical Performance Characteristics

Substrate: FPL Etched Aluminum

Temperature: 22 °C (72 °F)

Dwell Time: 7 d

Attribute Name	Test Method	Value
T-Peel Adhesion	ASTM D1876	3 lb/in width <sup>1</sup>

<sup>1</sup> 2 psi applied during dwell

## Electrical and Thermal Properties

Attribute Name	Test Condition	Value
Coefficient of Thermal Expansion	-50 ~ 30°C	53 x 10 <sup>-6</sup> m/m/°C
Coefficient of Thermal Expansion	70°C ~ 130°C	135 x 10 <sup>-6</sup> m/m/°C
Thermal Conductivity		0.283 (btu-ft)/(h-ft <sup>2</sup> -°F)
Glass Transition Temperature (Tg)	Mid-Point	52 °C <sup>1</sup>

<sup>1</sup> Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 68°F (20°C) per minute. Second heat values given.

Temperature: 22 °C (72 °F)

Attribute Name	Test Method	Test Condition	Value
Dielectric Constant	ASTM D150	1 KHz	5.6
Dissipation Factor	ASTM D150	1 KHz	0.019
Volume Resistivity	ASTM D257		1.4 x 10 <sup>15</sup> Ω-cm

## **Handling/Application Information**

### **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 depends on the required bond strength and the environmental aging resistance desired by user. For specific surface preparations on common substrates, see the section on surface preparation.
  2. Use gloves to minimize skin contact with adhesive.
  3. This product consists of two parts. Mix thoroughly by weight or volume in the proportions specified in the Uncured Properties Section. Mix approximately 15 seconds after a uniform color is obtained.
  4. For maximum bond strength apply product evenly to both surfaces to be joined.
  5. Application to the substrates should be made within 120 minutes. Larger quantities and/or higher temperatures will reduce this working time.
  6. Join the adhesive coated surfaces and allow to cure at 60°F (16°C) or above until firm. Heat, up to 200°F (93°C), will speed curing.
  7. The following times and temperatures will result in a full cure:  
Cure Temperature Time  
75°F (24°C) 7 days  
150°F (49°C) 120 minutes  
200°F (93°C) 30 minutes
  8. Keep parts from moving until handling strength is reached. Contact pressure is necessary. Maximum shear strength is obtained with a 3-5 mil bond line.
  9. Excess uncured adhesive can be cleaned up with ketone type solvents.\* Adhesive coverage: A 0.005 in thick bond line will yield a coverage of 320 sqft/gallon.
- \*Note: When using solvents, extinguish all ignition sources, including pilot lights, and follow manufacturer's precautions and directions for use.

### **Surface Preparation**

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 depends on the required bond strength and the environmental aging resistance desired by user.

**The following cleaning methods are suggested for these common surfaces:**

#### **Steel:**

1. Wipe free of dust with oil-free solvent such as acetone, isopropyl or alcohol solvents.\*
2. Sandblast or abrade using clean fine grit abrasives.
3. Wipe again with solvent to remove loose particles.
4. If a primer is used, it should be applied within 4 hours after surface preparation.

#### **Aluminum:**

1. Vapor Degrease: Perchloroethylene condensing vapors for 5-10 minutes.\*
  2. 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.
  3. 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°Be 38.5-41.5 oz./gallon  
2024-T3 aluminum (dissolved) 0.2 oz./gallon minimum  
Tap Water as needed to balance
- Note:** Read and follow component supplier's environmental health and safety recommendations prior to preparation of this etch solution.
4. Rinse: Rinse panels in clear running tap water.
  5. Dry: Air dry 15 minutes; force dry 10 minutes at 150°F ± 10°F (66°C ± 5°C).
  6. If primer is to be used, it should be applied within 4 hours after surface preparation.

#### **Plastics/Rubbers:**

1. Wipe with isopropyl alcohol.\*
2. Abrade using fine grit abrasives.
3. Wipe with isopropyl alcohol.\*

#### **Glass:**

1. Solvent wipe surface using acetone or methyl ethyl ketone (MEK).\*
2. Apply a thin coating (0.0001 in. or less) or primer such as 3M™ Scotch-Weld™ Structural Adhesive Primer EC-3901 to the glass surfaces to be bonded and allow the primer to dry before bonding.

\***Note:** When using solvents, extinguish all ignition sources, including pilot lights, and follow manufacturer's precautions and directions for use.

## **Application Equipment**

These products may be applied by 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. For more information, contact your local 3M sales representative.

## **Industry Specifications**

UL 94 HB

## **Storage and Shelf Life**

Store under normal conditions of 16° to 27°C (60° to 80°F) in the original, unopened packaging, out of direct sunlight. For best performance, use this product within 12 months from date of manufacture.

## **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

## **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.

## **Information**

**Technical Information:** The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

**Product Selection and Use:** Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

**Warranty, Limited Remedy, and Disclaimer:** Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price. Warranty claims must be made within one (1) year from the date of 3M's shipment.

**Limitation of Liability:** Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

**Disclaimer:** 3M industrial and occupational products are intended, labeled, and packaged for sale to trained industrial and occupational customers for workplace use. Unless specifically stated otherwise on the applicable product packaging or literature, these products are not intended, labeled, or packaged for sale to or use by consumers (e.g., for home, personal, primary or secondary school, recreational/sporting, or other uses not described in the applicable product packaging or literature), and must be selected and used in compliance with applicable health and safety regulations and standards (e.g., U.S. OSHA, ANSI), as well as all product literature, user instructions, warnings, and limitations, and the user must take any action required under any recall, field action or other product use notice. Misuse of 3M industrial and occupational products may result in injury, sickness, or death. For help with product selection and use, consult your on-site safety professional, industrial hygienist, or other subject matter expert. For additional product information, visit [www.3M.com](http://www.3M.com).

## **ISO Statement**

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

3M™ Industrial Adhesives and Tapes Division  
3M Center, St. Paul, MN 55144-1000  
[3M.com/iatd](http://3M.com/iatd)

3M and Scotch-Weld are trademarks of 3M Company.  
©3M 2024 (6/24)