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

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

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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	Notes
Base Color	White		
Accelerator Color	Dark Gray		
Base Viscosity	250,000-450,000 cP	Room Temperature	Viscosity obtained by Brookfield, DV-II, #7 Spindle, 20 rpm
Accelerator Viscosity	200,000-800,000 cP	Room Temperature	Viscosity obtained by Brookfield, DV-II, #7 Spindle, 20 rpm.
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		
Mix Ratio by Volume (B:A)	1:1		
Mix Ratio by Weight (B:A)	1:1		

Typical Mixed Physical Properties

Property	Values	Test Condition
Worklife, 100g mixed	120 min	Room Temperature
Time to Handling Strength	8 to 12 h	Room Temperature
Time to Full Cure	7 day	Room Temperature

Typical Physical Properties

Color: Gray

Conditions
Attribute Modifier: Cured

Typical Cured Characteristics

Shore D Hardness: 85

Conditions
Dwell/Cure Time: 60 min @ Room Temperature
Methods
ASTM D2240

Electrical and Thermal Properties

Property	Values	Test Condition	Notes	Method
Glass Transition Temperature (Tg)	52 °C	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	5.6	1 KHz, Room Temperature		ASTM D150

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Electrical and Thermal Properties (continued)

Property	Values	Test Condition	Notes	Method
Dissipation Factor	0.019	1 KHz, Room Temperature		ASTM D150
Thermal Conductivity	0.283 (btu-ft)/(h-ft²-°F)			
Volume Resistivity	1.4 × 10^15 Ω-cm	Room Temperature		ASTM D257
Coefficient of Thermal Expansion	53 × 10^-6 m/m/°C	@ -50 to 30°C		
Coefficient of Thermal Expansion	135 × 10^-6 m/m/°C	@ 70 to 130°C		

Typical Performance Characteristics

T-Peel Adhesion: 3 lb/in width

Conditions
Dwell/Cure Time: 7
Dwell Time Units: day
Temp C: 23C
Temp F: 73F
Substrate: FPL Etched Aluminum
Methods
ASTM D1876
Additional Information

Notes: 2 psi applied during dwell

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Handling/Application Information

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.

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.

Handling/Application Information (continued)

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.

Storage and Shelf Life

Store product at 60-80°F (15-27°C) for maximum storage life.
3M™ Scotch-Weld™ Epoxy Adhesive 2158 B/A has a storage life of 24 months from date of manufacture in unopened containers. 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-2158?N=5002385+3293241326&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=2158 B/A

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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3M United States
3M Center
St. Paul, MN 55144-1000
800-362-3550
www.3M.com

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