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December, 2009

3M™ Scotch-Weld™ Epoxy Adhesive 1751 B/A

Product Description

3M™ Scotch-Weld™ Epoxy Adhesive 1751 B/A is a gray, aluminum filled, two-part, room temperature curing structural adhesive.

Product Features

- Excellent adhesion to metals
- Good void filling properties
- Ideal for repairing holes, dents and cracks in metal

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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	Notes
Base Color	Gray	
Accelerator Color	Amber	
Base Viscosity	145 s	Time to deliver 20 gms@ 50 psi thru a 0.104in orifice
Accelerator Viscosity	125 s	Time to deliver 20 gms@ 50 psi thru a 0.10in orifice
Base Resin	Modified Epoxy	
Accelerator Resin	Modified Epoxy	
Base Net Weight	10.8 lb/gal	
Accelerator Net Weight	7.9 lb/gal	
Mix Ratio by Volume (B:A)	3:2	
Mix Ratio by Weight (B:A)	2:1	

Typical Mixed Physical Properties

Property	Values	Temp C	Temp F	Notes
Worklife, 100g mixed	45 min	23C	73F	

Table continued on next page

Typical Mixed Physical Properties (continued)

Property	Values	Temp C	Temp F	Notes
Open Time	45 min			Maximum time allowed after applying adhesive to one substrate before bond must be closed and fixed in place. Cure times are approximate and depend on adhesive temperature. For hotmelts: The approximate bonding range of a 1/8" bead of molten adhesive on a non-metallic surface.
Time to Handling Strength	8 to 12 h	23C	73F	
Time to Full Cure	7 day	23C	73F	
Time to Full Cure (set time)	4 h	23C	73F	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

Color: Gray

Conditions
Test Name: Cured

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Typical Cured Characteristics

Shore D Hardness: 77

Conditions
Temp C: 23C
Temp F: 73F
Methods
ASTM D2240

Typical Performance Characteristics

Property	Value	Method	Dwell Time	Dwell Time Cure Units	Temp C	Temp F	Environmental Conditions	Substrate	Substrate Notes	Surface Preparation	Notes	Test Name
Overlap Shear Strength	2400 lb/in²	ASTM D1002	7	day	23C	73F	50%RH	Steel	0.005in bondline	Solvent Wipe	All aluminum data were developed on .063-inch thick 2024 T-3 clad aluminum and all steel data on .035-inch cold rolled steel. Test specimens were 1/2-inch overlap, 1-inch wide, pulled at a testing rate of .1-inch/min.	
T-Peel Adhesion 7day 23C FPL Etched Aluminum	4 lb/in width	ASTM D1876	7	day	23C	73F		FPL Etched Aluminum			2 psi applied during dwell	T-Peel Adhesion
T-Peel Adhesion 7day 23C Steel	5 lb/in width	ASTM D1876	7	day	23C	73F		Steel		Solvent Wipe	2 psi applied during dwell	T-Peel Adhesion

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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. See surface preparation section.
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 45 minutes. Large 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. 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 (67°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 bondline will yield a coverage of 320 sqft/gallon.
*Note: When using solvents, extinguish all ignition sources 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.
*Note: Read and follow component supplier's environmental, health and safety recommendations prior to preparing this etch solution.
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 ± 3°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
4. Rinse: Rinse panels in clean running tap water.
5. Dry: Air dry 15 minutes; force dry 10 minutes at 190°F (88°C) ± 10°F (5°C).
6. If primer is to be used, it should be applied within 4 hours after surface preparation.
Plastics/Rubber
1. Wipe with isopropyl alcohol.*
2. Abrade using fine grit abrasives.
3. Wipe again 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) of 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 and follow manufacturer's precautions and directions for use

Storage and Shelf Life

Store products at 60-80°F (15-27°C) for maximum storage life.
Rotate stock on a "first in-first out" basis. 3M™ Scotch-Weld™ Epoxy Adhesive 1751 B/A has a storage life of 24 months from date of manufacture in unopened containers.

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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-1751?N=5002385+3293242441&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=1751 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.

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Information

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