



Panel Bonding Adhesive

08115

Technical Data

August 2017

Product Description

3M™ Panel Bonding Adhesive is a two-part epoxy adhesive which provides extended work-time but can be rapidly cured with heat. 3M™ Panel Bonding Adhesive has excellent adhesion to a wide variety of plastic and metal substrates.

Features

- Corrosion Inhibiting Formula
- 200 ml Duo-Syringe Cartridge System

Typical Physical Properties

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

Container	200 ml Duo-Pak	
Base	Epoxy	Amine
Density lbs/Gallon (Appx.)	8.0	10.0
Color	Black	Butterscotch
Solids Content (Appx.)	100%	100%
Consistency	Viscous Liquid	Viscous Liquid
Mix Ratio by Weight	172 Parts	100 Parts
Mix Ratio by Volume	200 Parts	100 Parts

Product Uses

When the manufacturer's directions are followed, this product can be used to bond door skins, roof skins, quarter panels and box sides. In addition, product can be used for bumper cover repair under certain conditions. Typical substrates include cold roll steel, aluminum, SMC, and FRP. This product is not intended to bond structural components of a vehicle such as pillars, rockers, or frame members. If doubt exists as to whether a particular component is structural, then that component should be welded. **Use with the following applicators: PN08117 (manual), PN 09930 (pneumatic). 3M™ Mixing Nozzle, PN 08193 (6/bag), PN 08194 (50/box).**

For professional use only. Not intended for retail sale.

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Typical Performance Properties

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

The following times have been determined with ambient air temperature and substrate temperature @ 70°F and are considered typical values.

WORK TIME:

90 minutes

CLAMP TIME

4 hours

CURE TIME:

24 hours

Overlap Shear Adhesion to Various Substrates

Typical overlap shear strength of bonds with 10 to 12 mil bond lines are reported below as pounds per square inch (psi). All materials except aluminum, E-Coat, and two-part epoxy primed steel, were abraded with a 50 grit coated abrasive and solvent wiped with 3M™ General Purpose Adhesive Cleaner, P.N. 08984. Aluminum samples were abraded with a Scotch-Brite™ Rivet Cleaning Disc, P.N. 07410 and solvent wiped. E-Coat samples were solvent wiped. No extra surface preparation was performed on the epoxy primed steel. The bonds were allowed to cure for 7 days at 73°F and then tested on a Sintech tester at a joint separation rate of 0.5 inches/minute.

*all adhesion values in psi

Substrate	-40°F	73°F	180°F
0.057" Steel/0.057" Steel	4003(C)	3935(C)*	
0.036" Steel/0.036" Steel	3309(C)	2904(C)	1259(A)
0.035" E-Coat Primed Steel/0.035" E-Coat Primed Steel		3514(S)	
0.036" Galvanized Steel/0.036" Galvanized Steel		3008(C)	
Two-Part Epoxy Primed 0.036" Steel/Two-Part Epoxy Primed 0.036" Steel		2183	
0.062" Aluminum 6111/0.062" Aluminum 6111		3144(C)	
0.063" Aluminum 5754/0.063" Aluminum 5754		2152(A)	
0.057" Steel/0.062" Aluminum 6111		3795(C)	
FRP/FRP		1283(S)	
SMC/SMC		785(S)	
ABS (Acrylonitrile butadiene styrene)/ABS		942(S)	
Acrylic (Plexiglas)/Acrylic		345(A)	
Polycarbonate (Lexan)/Polycarbonate		733(S)	
PVC/PVC		578(A)	
HIPS (High Impact Polystyrene)/HIPS		122(A)	
Polystyrene/Polystyrene		116(A)	
Polypropylene/Polypropylene		435(A)	
High Density Polyethylene/HDPE		311(A)	
Low Density Polyethylene/LDPE		176(A)	
SBR/SBR		104(S)	

*(S) = Substrate Failure

(A) = Adhesive Failure

(C) = Cohesive Failure

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Typical Performance Properties *(continued)*

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

Adhesion to Steel at Varying Bond line Thickness

*all adhesion values in psi

Bond line Thickness	0.036" thick steel	0.057" thick steel
10 mils	2690	3935
20 mils	2638	3863
32 mils	2653	3693
41 mils	2601	3510
47 mils	2432	3268

Rate of Strength Buildup at Various Temperatures (0.057" Steel)

*all adhesion values in psi

Cure Time	Cure Temperature				
	50°F	73°F	100°F	150°F	200°F
10 min				262	3061
20 min			22	1562	3707
40 min			32	3316	3786
1 hr			172	3569	
2 hr			1382	3833	
4 hr		78	2836		
5 hr		569			
6 h		865			
8 hr	24	1756			
16 hr	592	2920			
1 day	1413	3273			
7 days	2774	3935			

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Directions for Use

SURFACE PREPARATION:

1. Wash surface with soap and water to remove water soluble contaminants. Follow the soap and water wash with an appropriate VOC compliant product for removal of surface contaminants.
2. Remove all rust, primer and paint from the areas to be bonded or welded using a Scotch-Brite™ Clean & Strip Disc or 3M grade 50 Grinding Disc.
3. Straighten all metal, and “dry-fit” the parts.
4. Clamp the part in place and check for fit and alignment.
5. Remove the panel from the vehicle. All areas to be welded should be coated with 3M™ Weld-Thru II Coating (PN 05917) according to the directions on the can. Adhesive should not be applied to these areas.

PRODUCT PREPARATION:

6. Place an adhesive cartridge in the applicator gun.
7. Remove the retaining collar and plug from the end of the cartridge. Discard plug, but save the retaining collar.
8. Before attaching a nozzle, “equalize” the cartridge by dispensing just enough product to be sure that both parts A and B are present at the outlet.
9. Attach a 3M™ Static Mixing Nozzle to the cartridge and lock in place with the retaining collar.
10. Dispense a small amount of material through the mixing nozzle onto a disposable surface and discard.

REPAIR PROCESS:

11. Apply an adhesive bead to all bare metal surfaces of both pieces to be bonded. Using a plastic spreader or acid brush, tool out the adhesive to cover all bare metal surfaces.
12. Apply a 1/8" diameter adhesive bead approximately 1/4" from the inside edge of the replacement panel.
 - **Quarter Panels:** Adhesive should be applied to the lower edge, the wheel opening, the door jamb areas of the quarter, and at the factory seam of the sail panel. 3M suggests that the rear vertical portion of a quarter panel should be welded. It is acceptable to bond the rear vertical portion of a quarter panel, if recommended by the OEM. Additionally, most OEM's only recommend full panel replacement. Should you perform a belt cut on a sail panel, 3M recommends welding the belt cut to ensure optimal cosmetic appearance. All areas to be welded should be sprayed with 3M™ Weld-Thru II (PN 05917). Do not apply adhesive to these areas.
 - **Roof Panels:** Adhesive should be applied around the perimeter of the roof panel. To replace the factory-applied NVH foam/spacer between the roof bow and the roof panel, use one of the following: 3M™ Urethane Seam Sealer (PN 08360, PN 08361 or PN 08364), 3M™ MSP Seam Sealer (PN 08369 or PN 08370), or 3M™ NVH Dampening Material (PN 04274) to the roof bows as needed.

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Directions for Use (continued)

- **Door Skins:** Adhesive should be applied to the hem flange area. To replace the factory-applied NVH foam/spacer between the intrusion beam/s and the door skin, use one of the following: 3M™ Urethane Seam Sealer (PN 08360, PN08361 or PN 08364), 3M™ MSP Seam Sealer (PN 08369 or PN 08370), or 3M™ NVH Dampening Material (PN 04274) to the intrusion beam/s as needed.
13. Clamp the panel in its proper position.
 14. Tool any adhesive “squeeze out” to seal the outside of the seam all along the bonded edge of the panel.
 - **Caution:** The adhesive is combustible. Keep any MIG welding a minimum of two inches from the adhesive. As with any welding operation, keep the appropriate fire extinguisher within reach, and be alert to any smoke or flame that may be present.
Resistance spot welding through uncured adhesive is acceptable.
 15. Spray the inside of quarter panels, interior cavities, and any welded seams with 3M™ Cavity Wax Plus (PN 08852).
 16. Clamps may be removed after four hours at 73°F. Parts will need to remain clamped longer if the temperature is below 73°F and/or if there is any tension on the part. The cure time may be accelerated by applying heat with a heat gun or lamps.
 17. Allow 24 hours at a minimum of 73°F before returning vehicle to service.

CLEAN-UP: Unmixed material may be cleaned from most surfaces with an appropriate VOC compliant product.

Storage and Handling

When stored at the recommended conditions in original, unopened containers, this product has a shelf life of 24 months from the date of manufacture. Store at room temperature. Rotate stock on a “first-in-first-out” basis.

After use, leave the mix nozzle in place to seal the cartridge.

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Precautionary Information

Before using this product, please reference Product Label and/or Safety Data Sheet for Health and Safety Information. Note: Laws controlling the acceptable amounts of Volatile Organic Compounds (VOC's) vary by state, and in some cases by locality. For surface preparation and clean-up activities, consult federal, state and local regulations regarding use of products containing VOCs in your area.

IMPORTANT NOTE: There are many factors that can affect an individual repair, so the technician and repair facility need to evaluate each specific application and repair process and determine what's appropriate. 3M recommends referring to relevant vehicle repair and OEM guidelines prior to starting all repairs.

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product 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. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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