



# Panel Bonding Adhesive

## 08116

Technical Data

September 2019

| 3M Part Numbers | 3M Part Descriptor                  |
|-----------------|-------------------------------------|
| 08116           | 3M™ Panel Bonding Adhesive – 200 mL |

### Product Description

3M™ Panel Bonding Adhesive is intended for use in outer body, non-structural panel attachment applications, including applications where panels are used in conjunction with welding and/or riveting. Industry professionals appreciate the performance benefits that 3M™ Panel Bonding Adhesive provides, including the continuous bond, load distribution, ease of use that drives more consistent results, corrosion protection, and excellent adhesion to a wide variety of substrates.

3M™ Panel Bonding Adhesive is a two-part epoxy adhesive which provides a long open-time or work-time but can be rapidly cured with heat once the panel has been positioned and clamped into its proper position. 3M™ Panel Bonding Adhesive also contains 10 mil glass beads to help users control bond line thickness and to prevent excessive squeeze out.

There are of course many factors and variables that can affect an individual repair, so the technician and repair facility need to evaluate each specific application and repair process, including relevant vehicle, part and OEM guidelines, and determine what is appropriate for that repair.

This adhesive meets the following OEM (Original Equipment Manufacturer) specifications:

- *General Motors GM6449G Automotive (Metallic) Panel Bonding Performance Guidelines For After Market Service Use*
- *Chrysler MS-CD507 Structural Adhesive - Two Component – Room Temperature Cure - Metal Bonding Applications*

### Features

- 3M™ Epoxy Technology
- Meets GM and Chrysler specifications
- Corrosion Inhibiting
- Heat Cure on Demand
- Bonds Steel, Aluminum, SMC, FRP
- Contains Glass Beads to Control Bond Line Thickness

# 3M™ Panel Bonding Adhesive

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## Typical Physical Properties

The accuracy or completeness of the following product information is considered reliable, but is not guaranteed and is subject to change without notice.

|                               |                             |             |
|-------------------------------|-----------------------------|-------------|
| Container                     | 200mL Duo Syringe Cartridge |             |
| Base                          | Epoxy                       | Accelerator |
| Density lbs./Gallon (Approx.) | 8.0                         | 9.3         |
| Color                         | Black                       | Tan/Amber   |
| Solids Content (Approx.)      | 100%                        |             |
| Consistency                   | Viscous Liquid              |             |

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## Typical Performance Properties

The following times have been determined with ambient air temperature and substrate temperature @ 73°F (23°C) and are considered typical values.

### WORK TIME:

90 - 120 minutes

### CLAMP TIME:

6 hours

### CURE TIME:

24 hours

### PAINT TIME:

24 hours

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## Product Uses

3M™ Panel Bonding Adhesive is intended for use in outer body, non-structural panel attachment applications, including applications where panels are attached in conjunction with welding and/or riveting.

There are of course many factors and variables that can affect an individual repair, so the technician and repair facility need to evaluate each specific application and repair process, including relevant vehicle, part and OEM guidelines, and determine what is appropriate for that repair. Examples of where Panel Bonding Adhesive may be used in conjunction with other traditional joining methods in a repair scenario, subject to OEM recommendations, can include door skins, roof skins, quarter panels and box sides.

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This product is not intended to be used for structural parts, such as pillars, rockers, strut/shock towers, frame rails, or frame members unless specifically recommended by the vehicle manufacturer and used in the manner specified in the OEM repair manual and procedures. If doubt exists as to whether a particular component is structural, consider it structural.

**For professional use only. Not intended for retail sale.**

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## Accessories

200mL Duo-Pak Syringe Format, PN 08116

Applicators:

PN08117 3M™ Manual Applicator

PN09930 3M™ Pneumatic Applicator

Mixing Nozzles:

PN08193 3M™ Static Mixing Nozzle – 6 nozzles per bag, 6 bags per case

PN08194 3M™ Static Mixing Nozzle – 50 nozzles per box, 6 boxes per case

**See the Instructions provided with each applicator for proper set-up and use.**

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## Directions for Use

There are of course many factors and variables that can affect an individual repair, so the technician and repair facility need to evaluate each specific application and repair process, including relevant vehicle, part and OEM guidelines, and determine what is appropriate for that repair. See Product Use Section.

If no OEM procedures exist, 3M makes the following general repair suggestions for the technician and repair facility's consideration:

- If outer body panels, skins or assemblies include attached structural parts, the structural parts must be welded. If doubt exists as to whether a particular component is structural, then that component should be welded.
- For those applications determined to be appropriate for the use of Panel Bonding Adhesive:
  - Non-structural door skin applications – Apply Panel Bonding Adhesive to the perimeter of the door mating flanges and re-hem the new door skin to the inner support.
  - Non-structural roof panel applications – Apply Panel Bonding Adhesive to the perimeter of the mating flange areas, and weld in areas where structural parts meet.
  - Non-structural quarter panel applications – Apply Panel Bonding Adhesive to the mating flange areas, weld the sail panel, belt line, rear vertical joints, and in areas where structural parts meet.
  - Non-structural box side applications – Apply Panel Bonding Adhesive to the mating flange areas, weld the rear vertical flange, and in areas where structural parts meet.

### **SURFACE PREPARATION:**

1. Wash the surface 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.
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## Directions for Use, cont.

### PRODUCT PREPARATION:

6. Place an adhesive cartridge in the proper 3M Applicator. Remove the threaded retaining collar and red plug from the end of the cartridge. Discard plug, but save the retaining collar.
7. Equalize the cartridge: Extrude a small amount of adhesive until both parts A and B are present at the outlet of the cartridge and attach the correct mixing nozzle.
8. Attach a 3M™ Mixing Nozzle, PN 08194, to the cartridge and secure in place with the retaining collar.
9. Equalize the Mix Nozzle: Dispense a 1 to 2-inch (25 to 50 mm) line of adhesive through the mixing nozzle and discard.
  - *3M™ Panel Bonding Adhesive has a work time of 90 minutes. For best results, adhesive should be immediately dispensed once a new mix nozzle has been equalized. If the adhesive cartridge is left unused for more than 30 minutes, install a new mix nozzle to ensure proper adhesive mixing, before continuing use.*

### REPAIR PROCESS:

- *Areas to be Metal Inert Gas (MIG) welded should be coated with 3M™ Weld-Thru II Coating, according to the directions on the can. Adhesive should not be applied to the areas that will be MIG welded.*
  - *Areas to be Squeeze Type Resistance Spot Welded (STRSW) should NOT be coated with Weld-Thru coating. 3M™ Panel Bonding Adhesive should be applied to these areas and can be spot welded through before adhesive is cured.*
10. Apply first adhesive bead to all bare metal surfaces of both host and replacement panel. Use enough adhesive and a plastic spreader or acid brush to tool-out the adhesive to ensure coverage of all bare metal surfaces.
  11. Apply a second bead of adhesive (1/8 inch [3 mm] diameter or more) approximately ¼ inch [6 mm] from the inside edge of the replacement panel.
  12. Install the panel into position being careful not to wipe away or scrape off adhesive from the mating flanges.
  13. Properly align the panel and clamp it in place using the correct type(s), placement of, and number of clamping devices to ensure secure fixturing of the replacement panel to the host panel.
  14. Tool the adhesive squeeze-out to seal all of the seams around the bonded edge(s) and to fill any gaps or voids between the panels.

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## Directions for Use, cont.

15. Follow applicable OEM instructions and recommendations. See Product Use section. Weld cosmetic joints/splices as necessary or recommended by the OEM. If no OEM recommendations exist, 3M suggests welding those areas marked in Red in the accompanying diagram. Areas marked in Blue in the accompanying diagram, subject to the repair facility's confirmation, are potential bonding areas.

- Perform STRS welding in appropriate areas while the adhesive is uncured. DO NOT attempt to MIG weld through the adhesive.
- **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.

**Red** = Suggested Welding Areas, subject to OEM recommendations

**Blue** = Potential Adhesive Bonding Areas, subject to OEM recommendations



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## Directions for Use, cont.

16. Quarter panels, interior cavities, and any welded seams **MUST** be coated with 3M™ Cavity Wax Plus.
17. Clamp Time: Clamps may be removed after four hours if temperature remains at or above 73°F (22.8°C). Parts will need to remain clamped longer if the temperature is below 73°F and/or if there is any tension on the part.

## Adhesive Cure Requirements:

- *3M™ Panel Bonding Adhesive achieves Full Cure in 24 hours with a constant temperature of 73°F.*
  - *3M recommends holding vehicles repaired with Panel Bonding Adhesive in a heated area for a minimum of 24 hours with a constant temperature of 73°F or higher before returning the vehicle to service.*
  - *If temperatures are colder than 73°F, cure time can be significantly slower (days instead of hours). Removing the vehicle from a heated shop to a colder storage area immediately after the application of Panel Bonding Adhesive is **NOT RECOMMENDED**.*
  - *The cure time may be accelerated in warmer conditions or by applying even heat with a heat gun or heat lamps. Bake time in the spray booth can be counted towards achieving Full Cure but caution should be used. The repair facility and technician need to evaluate each specific application and repair process and determine what is appropriate in order to achieve Full Cure of the Panel Bonding Adhesive before returning the vehicle into service.*
18. Further repairs to the replaced part(s) can proceed once the minimum clamp time/temperature requirement is met.
  19. CLEAN-UP: Unmixed/uncured material may be cleaned from most surfaces with an appropriate VOC compliant product.

3M also recommends the replacement of all originally installed anti-flutter, sound deadening, and corrosion protection materials\* such as:

- 3M™ Urethane Seam Sealer, PN 08360, PN 08361 or PN 08364
- 3M™ MSP Seam Sealer, PN 08369, PN 08370, or 08370
- 3M™ Weld-Thru II Coating, PN 05917
- 3M™ NVH Dampening Material, PN 04274
- 3M™ Sound Deadening Pad, PN 08840
- 3M™ Cavity Wax Plus, PN 08852

\*Depending on the specific application, additional 3M products may be required.

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## Storage and Handling

Store at temperatures between 65°F and 80°F (18° C to 27°C). Store away from excessive heat, cold and out of direct sunlight. When stored at the recommended temperature in original, unopened containers, this product has a shelf life of 24 months from the date of manufacture.

Rotate stock on a “first-in / first-out” basis.

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

3M Static Mix Nozzles:

- ONLY use 3M Static Mix Nozzles with 3M adhesive cartridges.
- Keep static mix nozzles stored in their original container away from dust, debris and other contaminants.

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## Precautionary Information

IMPORTANT NOTE: There are of course many factors and variables that can affect an individual repair, so the technician and repair facility need to evaluate each specific application and repair process, including relevant vehicle, part and OEM guidelines, and determine what is appropriate for that repair. 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 (VOCs) 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.

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## Technical Information

The technical information, physical and performance properties 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.

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## Product Selection & Use

Many factors beyond 3M’s 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 user’s purpose and suitable for user’s method of application.

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## Warranty, Limited Remedy and Limitation of Liability

3M warrants to the purchaser that 3M™ Panel Bonding Adhesive PN 08116 will perform to 3M’s performance specifications as stated in 3M’s corresponding product technical data sheets for the life of the vehicle, when the 3M product is applied stored and used in accordance with 3M’s Directions For Use. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, PERFORMANCE, CUSTOM OR USAGE OF TRADE. If a 3M product does not conform to this warranty, purchaser’s exclusive remedy and 3M’s entire liability will be the reimbursement of the cost of the parts, materials and labor needed to reattach the panel(s) plus reimbursement of the cost of a comparable rental vehicle during the repair time period, within a reasonable time after written notification of the defect and return of the defective product to 3M, if requested by 3M. LIMITATION OF LIABILITY: Except for the limited remedy offered by 3M above, and except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.



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