3M™ Plastic Bonding Adhesive 2665

Product Description
3M™ Plastic Bonding Adhesive 2665 is a one-component, moisture curing, urethane adhesive that is applied warm. This low viscosity adhesive has a long open time and is ideal for bonding plastics. Yields thin glue lines when used with appropriate equipment.

Features
- 100% solids
- One component
- Low viscosity
- Long open time
- High tack
- High strength bonds
- Bonds a variety of plastics
- Reworkable after cured
- Low viscosity
- High strength bonds
- Excellent temperature humidity resistance

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

<table>
<thead>
<tr>
<th>Application Temperature</th>
<th>230°F (110°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (@ 230°F/110°C)</td>
<td>4,000 - 9,000 cps</td>
</tr>
<tr>
<td>Color (solid)</td>
<td>White/Off-white</td>
</tr>
<tr>
<td>Open Time²,₄</td>
<td>1.5 - 4 minutes</td>
</tr>
<tr>
<td>Set Time²,₄</td>
<td>1.5 - 4 minutes</td>
</tr>
</tbody>
</table>

¹ Measured on Brookfield viscometer with Thermosel using spindle #27.
² The upper limit for bonding a 1/16” bead of molten adhesive on a plastic substrate in a room temperature environment. Open time is related to the solidification of the molten adhesive.
³ The minimum amount of time required between when a 1” x 1” bond is made and when it will support a 5 psi tensile load on polycarbonate (PC) substrates.
⁴ Open times and set times are based on a room temperature environment. High temperatures will lengthen open times and set times while lower environmental temperatures will shorten open times and set times.
Handling/Application Information

**Directions for Use**

- Apply to clean, dried surfaces. Remove oil, grease and other contaminants by wiping with isopropyl alcohol.*
  - For materials that are often contaminated with mold release agents, it is recommended that the surface be solvent wiped, abraded and solvent wiped.*
  - For additional information on surface preparation, see section on Surface Preparation.
- For best results, heat the syringe a minimum of 30 minutes at 110°C (230°F) before using.
- Apply adequate amount of adhesive to one of the substrates to be bonded. Join the substrates within the adhesive’s specified open time and hold the bonded part until the adhesive has adequately set.

*Note: When using solvents, extinguish all ignition sources, and follow the manufacturer’s precautions and directions for use.

**Safety Information**

**Warning:** hot syringes are a possible burn or explosion hazard.

To ensure safe handling of 3M™ Plastic Bonding Adhesive 2665 syringes:

1. Do not remove the aluminum label from the syringe. It is designed to make the temperature of the syringe more uniform.
2. The syringe heater must have an opening sufficient to accommodate easy insertion and removal of the syringe including the aluminum label.
3. Do not exceed 110°C (230°F) syringe temperature. Failure of the syringe could result.
4. Do not exceed 4.1 bar (60 psi) dispensing pressure. Failure of the syringe could result.
5. Remove air pressure from the dispensing unit before removing the syringe from the heater.
6. Use only dry air for dispensing to prevent premature curing of the product.
7. Adhesive dripping is sometimes caused by a cured adhesive skin at the syringe back, and can normally be dislodged using a probe. It is not necessary to remove the skin, merely breaking the seal to the syringe barrel normally cures the problem.
8. Use gloves and personal protective equipment when handling hot syringes to prevent burns or injury.

**Dispensing Equipment**

3M™ Plastic Bonding Adhesive 2665 can be dispensed using either a time-pressure dispenser system with luer-lok needle tips or a positive displacement or gear metering valve to yield thin glue lines. Please contact your local technical team for more application support.

**Package Size Available:** 30 mL syringes.

**Cleanup:** Allow product to solidify. Remove uncured waxy material (usually within the first 20 minutes after application) by scraping with a putty knife or similar tool. For cured material, remove by cutting or sanding. **Do not use heat or flame to remove adhesive.**

**Cure Time:** The cure rate will vary depending on air temperature, relative humidity, substrate type and bond line thickness.
Typical Performance Characteristics

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

Overlap Shear Strength (psi), tested @ 73°F (23°C), Thermal Shock (TS) and Temperature/Humidity (TH)

<table>
<thead>
<tr>
<th>Substrate</th>
<th>73°F (23°C) OLSS (psi)</th>
<th>After TS OLSS (psi)</th>
<th>After TH OLSS (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polycarbonate</td>
<td>940</td>
<td>1,115</td>
<td>945</td>
</tr>
<tr>
<td>ABS</td>
<td>690</td>
<td>565</td>
<td>795</td>
</tr>
<tr>
<td>Acrylic</td>
<td>830</td>
<td>715</td>
<td>715</td>
</tr>
<tr>
<td>Stainless Steel</td>
<td>465</td>
<td>590</td>
<td>490</td>
</tr>
<tr>
<td>PVC</td>
<td>560</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Condition for TS: -40° to 85°C, 30 minute dwell for 20 cycles.  Condition for TH: 68°C/95% RH for 3 days.  Not tested.

Rate of Overlap Shear Strength Build-up @ 73°F (23°C)

<table>
<thead>
<tr>
<th>Substrate</th>
<th>Curing Time (hours)</th>
<th>OLSS (psi)</th>
<th>% of Ultimate OLSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polycarbonate</td>
<td>1 hr</td>
<td>60</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td>3 hrs</td>
<td>200</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>6 hrs</td>
<td>350</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>24 hrs</td>
<td>850</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>48 hrs</td>
<td>950</td>
<td>100</td>
</tr>
</tbody>
</table>

Test Procedures

A. Overlap Shear Strength

Overlap shear (OLS) strengths were measured on 1" wide 1/2" overlap specimens. These bonds were made individually using 1" x 4" sample coupons. The thickness of the bond line was controlled with 125 +/- 6% micron glass beads. The thickness of the plastics substrates were 0.125".

All strengths were measured at 73°F (23°C) except where noted. The separation rate of the testing jaws was 2" per minute for plastics and 0.1" per minute for metals.

B. Cure Cycle

All bonds were cured for a minimum period of 7 days at 77°F (25°C)/50% RH before testing. Bonds were prepared using the suggested surface preparation procedure for the particular substrate tested.

Surface Preparation

Plastic: Wipe with isopropyl alcohol-soaked cheesecloth.* Allow solvent to evaporate before bonding. For optimal performance, heptane may be used. Note: 3M™ Plastic Bonding Adhesives are not recommended for bonding untreated polyolefins.

Plastic Contaminated with Mold Release: Wipe with isopropyl alcohol-soaked cheesecloth, abrade with fine grit abrasive, wipe with isopropyl alcohol-soaked cheesecloth.* Allow solvent to evaporate before bonding. For optimal performance, heptane may be used.

Metal: Wipe with methyl ethyl ketone (MEK)-soaked cheesecloth, abrade with fine grit abrasive, wipe with MEK-soaked cheesecloth.* Allow solvent to evaporate before bonding.

*Note: When using solvents, extinguish all ignition sources, and follow the manufacturer’s precautions and directions for use.
**Surface Preparation (continued)**

**Glass:** Wipe with MEK-soaked cheesecloth.* Allow solvent to evaporate before bonding. Priming may be necessary on glass if subject part will be subjected to hot/humid conditions.

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

**Storage and Shelf Life**

Shelf life is 12 months when stored at 60°F (16°C) to 80°F (27°C), indoors and protected from exposure to moisture.

**Health and Safety**

Refer to Product Label and Safety Data Sheet for Health and Safety Information before using this product.

**Regulatory**

For regulatory information about this product, contact your 3M representative.

**Important Note**

Please consult Federal, State, and Local Regulations. State Volatile Organic Compound (VOC) regulations may prohibit the use of certain alcohol solutions or solvents. You should check with your state environmental authorities to determine whether use of a solution or solvent is restricted or prohibited.

**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.

**Warranty, Limited Remedy, and Disclaimer**

Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 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 OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 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.

**Limitation of Liability**

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.