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
- 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.

Application Temperature	230°F (110°C)
Viscosity (@ 230°F/110°C)[1]	4,000 - 9,000 cps
Color (solid)	White/Off-white
Open Time[2,4]	1.5 - 4 minutes
Set Time[3,4]	1.5 - 4 minutes

[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)[5] and Temperature/Humidity (TH)[6]

Substrate	73°F (23°C)	OLSS (psi) After TS	After TH
Polycarbonate	940	1,115	945
ABS	690	565	795
Acrylic	830	715	715
Stainless Steel	465	590	490
PVC	560	[7]	[7]

[5]Condition for TS: -40° to 85°C, 30 minute dwell for 20 cycles. [6]Condition for TH: 68°C/95% RH for 3 days. [7]Not tested.

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

Substrate	Curing Time (hours)	OLSS (psi)	% of Ultimate OLSS
Polycarbonate	1 hr	60	6.3
	3 hrs	200	15
	6 hrs	350	35
	24 hrs	850	90
	48 hrs	950	100

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.

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Electronics Markets Materials Division
3M Center, Building 225-3S-06
St. Paul, MN 55144-1000
1-800-251-8634 phone
651-778-4244 fax
www.3M.com/electronics

60-5002-0041-9

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