



# Jet-Weld™ TE-200 Thermoset Adhesive

Technical Data

July, 2002

## Product Description

3M™ Jet-Weld™ Thermoset Adhesive TE-200 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 **wood**. Yields thin glue lines.

## Features

- 100% solids
- One component
- Low viscosity
- Long open time
- Rapid rate of strength build-up
- Very high strength bonds to wood
- Bonds selected plastics

## 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	250°F (121°C)
Viscosity (@250°F/121°C) <sup>1</sup>	3,000 cps
Color (solid)	White/off white
Open Time <sup>2,4</sup>	4 minutes
Set Time <sup>3,4</sup>	2 minutes
Density, Lbs/Gallon (molten)	8.9

<sup>1</sup>Measured on Brookfield viscometer with Thermosel using spindle #27.

<sup>2</sup>The bonding range of a 1/8" bead of molten adhesive on a non-metallic substrate.

<sup>3</sup>The minimum amount of time required between when the bond is made and when it will support a 5 psi tensile load.

<sup>4</sup>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.

## Typical Cured Properties

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

Shore D Hardness <sup>1</sup>	60
Modulus <sup>2</sup>	9,700 psi
Tensile Strength @ Break <sup>2</sup>	4,000 psi
Elongation @ Break <sup>2</sup>	625%

<sup>1</sup>Measured on .090" - .110" thick bars

<sup>2</sup>ASTM D 638, Die C, measured on .011" - .012" thick films cured for a minimum of 7 days at 77°F (25°C)/50% relative humidity (RH)

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### Dispensing Equipment

**Cartridge dispensing equipment:** 10 fluid ounce aluminum cartridges of 3M™ Jet-Weld™ Adhesive should only be dispensed with the 3M™ Jet-Weld™ Adhesive Applicator or the 3M™ Jet-Weld™ II Adhesive Applicator. The adhesive should be preheated in the 3M™ Jet-Weld™ Adhesive Preheater or the 3M™ Jet-Weld™ II Adhesive Preheater prior to loading into the applicator.

**Important: Adhesive heated at application temperature for more than 16 hours should be discarded.**

**Bulk dispensing equipment:** Bulk containers of adhesive (1 gallon, 5 gallon, and 55 gallon) can only be dispensed through equipment specifically designed for use with hot melt polyurethane reactive adhesives (PURs). All equipment must be used in strict accordance with the recommendations of the equipment manufacturer.

**Note:** The suggestions that follow should be reviewed thoroughly with the bulk equipment manufacturer before using. Most bulk dispensing systems have separate temperature control zones for the platen (or reservoir), hose(s), and dispensing head(s). 5 and 55 gallon drum systems which utilize a heated platen should have all zones set to 250°F (121°C) during normal operation. If equipped, the unit should be programmed to reduce temperatures of all zones to 160-180°F (71-82°C) if not in operation for more than 1 hour. For inverted 1, 5 and 55 gallon systems, the reservoir should be set at 200°F (93°F) with all other zones at 250°F (121°C). The reservoir can be set at temperatures up to 250°F (121°C) if a full container of adhesive or more is dispensed through the machine in a day.

First Time Start-up and Extended Shutdown Periods: 3M™ Jet-Weld™ Purge Material EC-3756 should be used for first time equipment start-up and for shutdown periods of longer than 2 weeks. Purge Material EC-3756 is a non-reactive material designed to dispense and flow like Jet-Weld Adhesives.

Short Shutdown Periods: For shutdown periods of less than 2 weeks a high temperature grease should be applied to all dispensing heads. The grease acts as a moisture barrier which will help prevent or reduce cure in the dispensing heads.

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### Handling/Application Information

**Application:** Apply to clean, dry surfaces. Remove oil, grease and other contaminants by wiping with isopropyl alcohol.\* For fiber reinforced plastics and other 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, see Surface Preparation section.

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

After heating to 250°F (121°C), apply an adequate amount of Jet-Weld Adhesive to one of the substrates to be bonded. Join the substrates within the recommended open time and hold/fixture the bonded part until the adhesive has adequately set. **Note:** Do not bond metal or glass to itself or each other because cure will not occur due to the low moisture vapor permeation rate of the substrate.

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**Handling/Application**  
**Information *continued***

**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. Cure rate is more rapid on wood (moisture-rich substrate) than on plastic.

**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.**

**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 .003-.006" diameter glass bead spacers. The thickness of the substrates were: plastics, .125", Maple, .375". All strengths were measured at 73°F (23°C) except where noted. The separation rate of the testing jaws was 2" per minute.

**B. 180° Peel Strength**

180° peel strengths were measured on 1" x 8" pieces of flexible cotton duck (canvas) bonded to rigid 1" x 4" substrates. The rigid substrates were approximately .125" thick and the separation rate of the testing jaws was 2" per minute. All strengths were measured at 73°F (23°C).

**C. 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.

**Overlap Shear Strength (psi), tested @ 73°F (23°C)**

Substrate	PSI
Maple	1,950
FRP	3,500
Polycarbonate	2,200 <sup>1</sup>
Polyacrylic	1,250 <sup>1</sup>
Polystyrene	650 <sup>1</sup>
ABS	1,250 <sup>1</sup>
PVC	2,150 <sup>1</sup>

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## Typical Performance Characteristics (continued)

**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 @ 180°F (82°C)

Substrate	PSI
Maple	620
FRP	1550

<sup>1</sup>Substrate failure.

### 180° Peel Strength (piw), tested @ 73°F (23°C)

Substrate	PIW
FRP	80 <sup>1</sup>
Polycarbonate	90 <sup>1</sup>
Polyacrylic	46 <sup>1</sup>
Polystyrene	9
ABS	80 <sup>1</sup>
PVC	80 <sup>1</sup>

<sup>1</sup>Cotton duck failed during test

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## Surface Preparation

**Plastic:** Wipe with isopropanol soaked cheesecloth.\* Allow solvent to evaporate before bonding. **Note:** Jet-Weld 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.

**FRP, Rubber and Aluminum (uncoated):** Wipe with methyl ethyl ketone (MEK) soaked cheesecloth, abrade with fine grit abrasive, wipe with MEK soaked cheesecloth.\* Allow solvent to evaporate before bonding. Priming may be necessary on aluminum if part will be subjected to hot/humid conditions.

**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.

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## Storage and Shelf Life

**Storage:** For maximum shelf life, store product at 60°F (16°C) to 80°F (27°C), indoors and protected from exposure to moisture.

**Shelf Life:** Products in 10 fluid ounce cartridges have 12 months, while all other size containers have a 6 month shelf life in original unopened containers from date of shipment.

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### 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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### For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550 or visit [www.3M.com/adhesives](http://www.3M.com/adhesives). Address correspondence to: 3M Engineered Adhesives Division, 3M Center, Building 220-7E-01, St. Paul, MN 55144-1000. Our fax number is 651-733-9175. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.

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ISO 9002

This Engineered Adhesives Division product was manufactured under a 3M quality system registered to ISO 9002 standards.



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40% pre-consumer  
10% post-consumer

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