



# Scotch-Weld™

## Polyurethane Reactive Easy 250 Plastic Adhesive

### EZ250030 • EZ250150



#### Technical Data

**February, 2016**

**Product Description** 3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesives are 100% solid, warm temperature applied, moisture curing urethanes. These products bond a wide variety of **plastics and wood to themselves and to metal and glass.**

**3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesive EZ250030**

Fast setting adhesive ideal for bonding many plastics including polystyrene and polyacrylic.

**3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesive EZ250150**

Long open and set time ideal for bonding a wide variety of substrates including wood, plastics and also bonds aluminum glass to plastics and wood.

- |                 |                                |                                   |
|-----------------|--------------------------------|-----------------------------------|
| <b>Features</b> | • 100% solids                  | • Moisture curing urethane        |
|                 | • One component                | • Rapid rate of strength build up |
|                 | • Open time from 2 - 4 minutes | • Set times from 30 - 150 seconds |

#### 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.

Property	3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesive	
	EZ250030	EZ250150
Application Temperature	121°C (250°F)	121°C (250°F)
Viscosity @ 121°C (250°F) <sup>1</sup>	13,000 cps	9,000 cps
Colour (solid)	white/off-white	white/off-white
Open Time <sup>2,4</sup>	2 minutes	4 minutes
Set Time <sup>3,4</sup>	30 seconds	150 seconds
Density, Lbs/Gallon (molten)	8.7	9.1

<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 environmental temperatures lengthen open times and set times while lower temperatures will shorten open times and set times.

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### 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.

Property	3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesive	
	EZ250030	EZ250150
Shore D Hardness <sup>1</sup>	50	45
Tensile @ Break <sup>2</sup>	3,900 psi	3,300 psi
Elongation @ Break <sup>2</sup>	725%	700%

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

<sup>2</sup>ASTM D638, Die C, measured on .011" - .012" thick films cured for a minimum of 7 days at 25°C (77°F)/50% relative humidity (RH).

### Handling/Curing Information

#### Directions for Use

Apply to clean, dry surfaces. Remove oil, grease and other contaminants by wiping with isopropyl alcohol.\* For fibre 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 section on surface preparation. After heating to recommended application temperature, apply adequate amount of 3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesive to one of the substrates to be bonded. Join the substrates within the adhesives specified open time and hold/fixture the bonded part until the adhesive has adequately set. Do not use to bond metal or glass to itself or each other or cure will not occur due to low moisture vapour transmission of the substrate.

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

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

#### Dispensing Equipment

3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesive Cartridges can only be dispensed through the 3M™ Scotch-Weld™ Polyurethane Reactive Adhesive Applicator or the 3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Adhesive Applicator. Other container sizes can be dispensed through bulk equipment specifically designed for use with hot melt polyurethane reactive adhesives. For more information on PUR application equipment, contact your local 3M sales representative. All equipment must be used in strict accordance with the recommendations of the manufacturer.

**Warning: Do not use Scotch-Weld polyurethane reactive easy 250 plastic adhesive above 135°C (275°F) and should not be applied to substrates that exceed 135°C (275°F).**

**Caution: Wear heat resistant gloves and safety glasses when handling.**

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## Handling/Curing Information (continued)

**Cleanup:** Allow products 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 (psi), tested @ 23°C (73°F)

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 .003-.006".

The thickness of the substrates were approximately: Maple, .375", plastics .125".

The separation rate of the testing jaws was 2" per minute.

Substrate	3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesive	
	EZ250030	EZ250150
Polycarbonate	2,100	1,490
Polyacrylic	1,330 <sup>1</sup>	1,280 <sup>1</sup>
ABS	1,350 <sup>1</sup>	930
PVC	1,805	1,675
Maple	1,540	1,570

<sup>1</sup>Substrate failure

### B. Overlap Shear Strength (psi), tested @ 82°C (180°F)

Substrate	3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesive	
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Maple	540	410
PVC	310	275

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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.

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

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 tests were conducted at 23°C (73°F).

Substrate	3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesive	
	EZ250030	EZ250150
Polycarbonate	95 <sup>1</sup>	95 <sup>1</sup>
Polyacrylic	75 <sup>1</sup>	50
ABS	83 <sup>1</sup>	55
PVC	100 <sup>1</sup>	75 <sup>1</sup>
Aluminum	N/R	50
Glass	N/R	60

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

N/R – Not Recommended

#### D. Typical Rate of Strength Build-Up

PVC and maple Overlap Shear Strength (psi) tested @ 23°C (73°F) at various times after bonding. The substrates were conditioned for 7 days at 25°C (77°F)/50% RH prior to bonding.

	3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesive			
	EZ250030		EZ250150	
Time	PVC	Maple	PVC	Maple
10 minutes	325	450	285	410
60 minutes	600	1,295	530	815
24 hours	1,900	1,240	1,460	1,280
72 hours	1,775	1,155	1,530	1,275
7 days	1,805	1,500	1,675	1,150

The cure rate will vary depending on air temperature, relative humidity, substrate and bond line thickness. Cure rate is more rapid on wood (moisture-rich substrate) than on plastic.

### Cure Cycle

With the exception of rate of strength build-up, all bonds, unless otherwise noted, were cured for a minimum period of 7 days at 25°C (77°F)/50% RH before testing or subjecting to further conditioning or environmental aging. Bonds were prepared using the suggested

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## Surface Preparation

All wood should be dry and free of contaminants such as sawdust, dirt or other substances that may interfere with the adhesive bonding process. If the surface to be bonded contains a coating or finish, bonds should be made and evaluated to ensure proper adhesion. It may be necessary to evaluate other 3M™ Scotch-Weld™ Polyurethane Reactive Easy 250 Plastic Adhesive products that are better suited to bond plastic surfaces.

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## Storage

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

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## Shelf Life

Products in 10 fluid ounce cartridges have 12 months while all others have a 6 month shelf life in unopened containers.

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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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## Product Use

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

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