



# Jet-Weld™

## TS-230 Black Thermoset Adhesive

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### Product Data Sheet

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Updated : October 1998

Supersedes : April 1997

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#### Product Description

Sprayable/extrudable grade adhesive with long set time ideal for bonding a wide variety of plastics including polystyrene and polyacrylic. Bonds aluminium and glass to plastic and wood.

3M Jet-Weld Thermoset Adhesives are a family of one-component, moisture curing, urethane adhesives. These adhesives are applied warm and can bond a wide variety of substrates such as wood, fibre reinforced plastic (FRP) and many other plastics to themselves, to metal and glass.

#### Features:

100% solids.  
Rapid rate of strength build-up.  
Broad substrate adhesion.  
Highly plasticiser resistant.  
High strength bonds.  
One component.  
Can be used to bond heat sensitive materials.

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#### Physical Properties (Uncured)

Not for specification purposes

<b>Application Temperature</b>	250 °F 121°C	
<b>Viscosity</b> (at 250°F - 121°C)	8,400 cps	
<b>Colour</b> (solid)	Black	
<b>Open Time</b> <sup>24</sup>	4 minutes	
<b>Set Time</b> <sup>34</sup>	2.5 minute	
<b>Specific Gravity</b>	0.91	
<b>Shelf Life</b>	6 months from date of despatch by 3M when stored in the original carton at 21°C (70°F) & 50 % Relative Humidity	

<sup>1</sup> Measured on Brookfield viscometer with Thermosel using spindle no. 27.

<sup>2</sup> The bonding range of a 3.2mm/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 / 35 kPa tensile load.

<sup>4</sup> Open time and set time are based on a room temperature environment. Higher temperatures will lengthen open times and set times while lower ambient temperatures will shorten open times and set times.

Date : October 1998  
 TS-230 Black Thermoset  
 Adhesive

**Physical Properties  
 (Cured)**  
 Not for specification purposes

<b>Shore D Hardness<sup>1</sup></b>	42	
<b>Modulus<sup>2</sup></b>	3,000 Psi	21.3 mPa
<b>Tensile Strength @ Break <sup>2</sup></b>	3,200 Psi	22.8 mPa
<b>Elongation at Break<sup>2</sup></b>	825 %	
<sup>1</sup> Measured on .090" - .110" thick bars (2.3 - 2.8mm) <sup>2</sup> ASTM D 638, Die C, measured on .011" - .017" (280-430µm) thick films cured 7 days at 77°F (25°C)/50% Relative Humidity.		

**Performance  
 Characteristics**  
 Not for specification purposes

**Overlap Shear Strength**      Tested at 73°F (23°C)

Substrate	Psi	mPa
Maple	1,500	10.6
FRP	3,100	22.0
Polycarbonate	1,840	13.1
Polyacrylic	1,340 <sup>1</sup>	9.5
Polystyrene	690 <sup>1</sup>	4.9
ABS	1,400 <sup>1</sup>	9.9
PVC	2,110 <sup>1</sup>	15.0
<sup>1</sup> Substrate Failure		

**Overlap Shear Strength**      Tested at 180°F (82°C)

Substrate	Psi	mPa
Maple	450	3.2
FRP	700	4.9

**180° Peel Strength**      Tested at 73°F (23°C)

Substrate	piw	N/10mm
FRP	78 <sup>1</sup>	136
Polycarbonate	101 <sup>1</sup>	177
Polyacrylic	47	82
Polystyrene	45	78
ABS	47	82
PVC	90 <sup>1</sup>	157
Aluminium	48	84
Glass	45	78
<sup>1</sup> Cotton duck failed during test. <sup>2</sup> Jet-Weld Adhesive not suggested for use on uncoated aluminium		

Date : October 1998  
 TS-230 Black Thermoset  
 Adhesive

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### 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\*. After heating to 250°F (121°C), apply 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 vapour permeation rate of the substrate.

#### 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.

#### Clean Up:

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.**

\* **Note:** When using solvents, extinguish all ignition sources and observe manufacturers' directions and precautions for handling such materials.

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### Dispensing Equipment

**Cartridge dispensing equipment:** 300ml aluminium cartridges of 3M Jet-Weld™ Adhesive should only be dispensed with the 3M Jet-Weld™ II Adhesive Applicator. The adhesive should be preheated for 45 minutes in the 3M Jet-Weld™ Adhesive Preheater or the 3M Jet-Weld™ II Applicator prior to dispensing.

**Bulk dispensing equipment:** Bulk containers of adhesive can only be dispensed through equipment specifically designed for use with hot melt polyurethane reactive adhesives (PUR's). All equipment must be used in strict accordance with the recommendations of the equipment manufacturer.

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

Date : October 1998  
TS-230 Black Thermoset  
Adhesive

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**Health and Safety  
Information**

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

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Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications. This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.

**Specialty Tapes & Adhesives**

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3M United Kingdom PLC  
3M House,  
28 Great Jackson Street,  
Manchester,  
M15 4PA

Customer Service :  
Tel 0161 236 8500  
Fax 0161 237 1105

3M Ireland  
3M House, Adelphi Centre,  
Upper Georges Street,  
Dun Laoghaire, Co. Dublin,  
Ireland

Customer Service :  
Tel (01) 280 3555  
Fax (01) 280 3509