

# **3M**

# **Fastbond™**

# **Insulation Adhesive**

## **49**

**Technical Data**

**September, 2010**

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### **Product Description**

3M™ Fastbond™ Insulation Adhesive 49 is a water-based, high solids, fast tacking, pressure sensitive adhesive for bonding lightweight materials like fiberglass insulation, felt, shoddy, paper and other materials to metal and many other surfaces.

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### **Features**

- Water-based, non-flammable in the wet state.
- Spray, brush, or roll apply.
- High coverage.
- Instant tack on fiberglass insulation.
- Permanently pressure sensitive with aggressive tack.
- Recognized by Underwriters Laboratories, Inc., Component Recognition Category MAGW2 (Adhesives, Insulation), File Number MH 6288.
- **Certified to GREENGUARD® Product Emission Standard For Children and Schools<sup>(SM)</sup> for low emitting interior building materials:**
  - Addresses or Contributes to LEED™ EQ Credit 4.1: Low Emitting Materials: Adhesive and Sealants
  - Addresses or Contributes to LEED™ EQ Credit 4.5: Low Emitting Materials: Furniture and Furnishings
  - Addresses or Contributes to LEED™ EQ Credit 4.6: Low Emitting Materials: Ceiling and Wall Systems



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#### **Typical Physical Properties**

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

<b>Viscosity (approx.):</b>	450 - 650 cps
<b>Brookfield Viscometer:</b>	RVF #3 Sp. @ 20 rpm @ 77°F (25°C)
<b>Solids Content (by wt.):</b>	53 - 57%
<b>Base:</b>	Acrylate
<b>Color (wet):</b> <b>Color (dry):</b>	Milky White Clear
<b>Net weight (approx.):</b>	8.25 lbs./gal.
<b>Flashpoint (C.C.):</b>	None
<b>Coverage (@ 2.5 gms. ft<sup>2</sup> [dry wt.]):</b>	824 ft. <sup>2</sup> /gal.*
<b>pH</b>	4.1 - 4.5
<b>Flammability (wet):</b> <b>Flammability (dry):</b>	Non-flammable Combustible

\*For most HVAC applications. Coverage for other applications may be lower.

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#### **Handling/Application Instructions**

#### **Directions For Use:**

##### **Setting Up the 3M™ Fastbond™ Insulation Adhesive 49 Container for Dispensing:**

Suggested equipment for dispensing is outlined in the section under Application Equipment. If using open head drums or totes it is suggested that one check for dried skins on the surface and remove them prior to using the product. For containers using a flexible poly bag skinning should not occur. For hook up considerations the outlet for the various containers are:

Schutz tote – 2" male cam lock

EZ-Bulk tote – 1.5" FNPT

Drum – 2" FNPT or 3/4" FNPT

Hedwin Box uses a 38 MM 400 finish screw on cap

**Surface Preparation:** Surfaces must be clean, dry and dust free. Remove all dirt, dust, oil, grease, wax, loose paint, etc. to ensure proper adhesion.

**Applications:** Adhesive may be applied by spray, brush or paint roller. Apply a uniform, generous coat of adhesive to one of the surfaces to be bonded (porous surface preferred.) Very porous material may require more than one coat. (Allow adhesive to dry completely between coats).

**Coverage:** Coverage is dependent upon porosity of the substrate and the method by which the adhesive is applied. To bond fiberglass insulation, apply the adhesive to the insulation in a uniform pattern at a coverage rate between 1.0 - 2.0 dry gms./sq. ft. (2000 sq. ft. to 1000 sq. ft./gallon). (Additional adhesive may be required for heavier materials).

**Drying:** Allow adhesive to dry until the surface becomes tacky. The insulation may then be bonded using hand pressure. Bonded parts may be handled immediately.

**Cleanup:** Wet adhesive may be removed using soapy water. For dry adhesive removal, use 3M™ Scotch-Weld™ Solvent No. 3 (Methyl Ethyl Ketone), or 3M™ Citrus Base Cleaner, or isopropyl alcohol.\*

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

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#### **Application Equipment Suggestions**

#### **Air Atomizing Spray Equipment**

**Note:** Appropriate application equipment can enhance adhesive performance. We suggest the following application equipment for the user's evaluation in light of the user's particular purpose and method of application.

#### **Spray Guns**

Type	Example	Air Cap	Fluid Tip	Atomizing Air Pressure <sup>2</sup>
Pressure fed, hand held spray	Binks Model 2001 SS Binks Model 95	66S 66S	63A SS (.040") 63A SS (.040")	25 psi 25 psi
Gravity fed, hand held	Binks 2001 SS Binks Model 95 SS	Tornado Tip <sup>1</sup> Tornado Tip <sup>1</sup>	0.070"-0.096" <sup>1</sup> 0.070"-0.096" <sup>1</sup>	40 psi 40 psi

**Note:** Gravity fed systems are preferred to minimize fluid shear.

<sup>1</sup>Air cap and fluid tip combination available from U.S. Legends, Inc.

<sup>2</sup>Starting air pressure on regulator. Adjust up and down based on application requirements.

#### **Pressure Pots**

Stainless steel pressure pots recommended. Non-stainless may be used with plastic liners if dip tube and fittings are changed to plastic or stainless steel.

#### **Pumping Equipment**

Due to the shear sensitivity of this product pumping is not recommended. If pumping is under consideration please consult with your local 3M sales representative.

#### **Filter (Between Gun and Fluid Source)**

The use of a 40-mesh stainless steel strainer is suggested to filter any impurities or dried adhesive that may have entered the system.

#### **Hoses**

Hoses used with pressure pots should be nylon or polyester lined. For gravity feed systems a clear PVC hose with a 0.5" inside diameter is adequate. Avoid using fluid hoses that have previously been used with solvent.

#### **Brushes and Rollers**

Typical brushes and rollers designed for use with latex paints may be used.

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### Performance Characteristics

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

Adhesive was tested in 180° (angle) peel, overlap shear, and dead load strength by first applying a 6 mil (wet thickness) coating of adhesive to a primed polyester film. After drying, bonds were made to various substrates. Test results after 48 hrs. @ 73°F (23°C) were as follows:

Substrate	Peel Strength (piw)	Overlap Shear (psi)
Glass	1.6	53
Cold Rolled Steel	3	57
2024 T3 Aluminum	2.3	51
Clad Aluminum	2.8	52
Stainless Steel	3.2	52
High Density Polyethylene	0.5	34
Polypropylene	2.2	39
High Impact Polystyrene	5.6	53
PVC	4.5	56
ABS Plastic	4.7	50
Polycarbonate	5.2	57
Acrylic	3.9	52
Neoprene Rubber	1.3	12
EPDM	1	14

**Wet Strength:** Adhesive was spray applied on 6 in. x 12 in. x 1.0 in. pieces of 1.5 lb. per cubic foot density fiberglass insulation at the recommended coverage level. After 1 minute of drying at room temperature, the fiberglass was bonded (using hand pressure) to 6 in. x 12 in. galvanized steel panels pre-bent to form a 90° angle. The wet strength of the adhesive was sufficient to hold the fiberglass in place.

**Heat Resistance:** The bonded panels above were allowed to air dry for 24 hours and then they were placed in 127°F (53°C) oven for 15 minutes. The temperature was then raised 18°F (8°C) every 10 minutes until 325°F (162°C) was achieved. No failure of the fiberglass to the substrate was observed within this temperature range.

**Accelerated Aging:** Adhesive was spray applied to pieces of 1.5 lb. per cubic foot density fiberglass insulation at the recommended coverage rate. The fiberglass was then bonded to galvanized steel panels and allowed to air dry for 24 hours. After drying, the bonded panels were aged in a 320°F (160°C) oven for 60 days. Bond strength sufficient to tear fiberglass was observed after aging.

**Humidity Resistance:** As above, 1.5 lb. per cubic foot density fiberglass was bonded to galvanized steel and aged for 60 days at 140°F (60°C) and 95-100 percent relative humidity. Bond strength sufficient to tear fiberglass was observed after aging.

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#### **Performance Characteristics (continued)**

#### **Underwriters Laboratories, Inc.**

\*Tunnel Test Results – ASTM E-84

<b>Measurement</b>	<b>UL Requirement</b>	<b>Test Results</b>
Flame Spread	Less than 25	1.8
Smoke Development	Less than 50	4

\*Tested at a coverage rate of 800 sq. ft./gallon.

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#### **Storage**

#### **Protect from freezing!**

Best storage temperature is 60-80°F (15-27°C). Higher temperatures reduce normal storage life. Lower temperatures can cause increased viscosity of a temporary nature. This water-based adhesive will become unusable with prolonged storage below 40°F (4°C). Rotate stock on a “first in, first out” basis.

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#### **Shelf Life**

When stored at recommended temperature in the original, unopened container, this product has a shelf life of 15 months 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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#### **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.

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#### **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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#### **Warranty, Limited Remedy, and Disclaimer**

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This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2000 standards.



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