

September, 2010

3M™ Fastbond™ Insulation Adhesive 49

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.

Product 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(SM) 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



Technical Information Note

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

Typical Physical Properties

Property	Values		Notes	Test Condition
Color	Milky White (wet), Clear (dry)			
Solids Content by Weight	53 to 57 %			
Flash Point	None °F	None °C	Closed Cup	
Coverage	824 sq ft/gal		2.5 gms. ft² [dry wt.]; For most HVAC applications. Coverage for other applications may be lower.	
Viscosity	450 to 650 cP		Brookfield Viscometer RVF #3 Sp. @ 20 rpm	Room Temperature
pH	4.1 to 4.5			
Flammability (Wet)	Non-Flammable			
Flammability (Dry)	Combustible			

Overlap Shear Strength	Substrate	Notes
53 lb/in²	Glass	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.
57 lb/in²	Cold Rolled Steel	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.
51 lb/in²	2024 T3 Aluminum	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.
52 lb/in²	Clad Aluminum	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.

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Typical Physical Properties (continued)

Overlap Shear Strength	Substrate	Notes
52 lb/in ²	Stainless Steel	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.
34 lb/in ²	High Density Polyethylene (HDPE)	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.
39 lb/in ²	Polypropylene (PP)	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.
53 lb/in ²	High Impact Polystyrene	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.
56 lb/in ²	Polyvinyl chloride (PVC)	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.
50 lb/in ²	ABS	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.
57 lb/in ²	Polycarbonate (PC)	
52 lb/in ²	Acrylic (PMMA)	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.
12 lb/in ²	Neoprene Rubber	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.
14 lb/in ²	EPDM Rubber	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.

Property: Overlap Shear Strength
Dwell/Cure Time: 48 hr @ Room Temperature

Typical Uncured Physical Properties

Property	Values
Base	Acrylate
Net Weight	8.25 lb/gal

Typical Performance Characteristics

Property	Values	Method	Notes
Flame Spread	1.8	ASTM E84	Tunnel test results; Test at a roverage rate of 800 sqft/gal; UL Requirement: Less than 25
Smoke Development	4	ASTM E84	Tunnel test results; Test at a roverage rate of 800 sqft/gal; UL Requirement: Less than 50

180° Peel Adhesion	Substrate
26 oz/in	Glass
48 oz/in	Cold Rolled Steel
37 oz/in	2024 T3 Aluminum
45 oz/in	Clad Aluminum
51 oz/in	Stainless Steel
8 oz/in	High Density Polyethylene (HDPE)
35 oz/in	Polypropylene (PP)
90 oz/in	High Impact Polystyrene
72 oz/in	Polyvinyl chloride (PVC)
75 oz/in	ABS
83 oz/in	Polycarbonate (PC)
62 oz/in	Acrylic (PMMA)
21 oz/in	Neoprene Rubber
16 oz/in	EPDM Rubber

Property: 180° Peel Adhesion
Dwell/Cure Time: 48 hr @ Room Temperature
notes: 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.

Typical Environmental Performance

Property	Values
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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Typical Environmental Performance (continued)

Property	Values
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.
Temperature 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.

Handling/Application Information

Application 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.

Air Atomizing Spray Equipment

Spray Guns

Type	Example	Air Cap	Fluid Tip	Atomizing Air Pressure ²
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 ¹ Tornado Tip ¹	0.070"-0.096" ¹ 0.070"-0.096" ¹	40 psi 40 psi

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

¹Air cap and fluid tip combination available from U.S. Legends, Inc.

²Starting 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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Handling/Application Information (continued)

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

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./sqft (2000 sqft to 1000 sqft/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.

Surface Preparation

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

Storage and Shelf Life

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. When stored at recommended temperature in the original, unopened container, this product has a shelf life of 18 months from date of manufacture.

Industry Specifications

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Trademarks

3M, Fastbond and Scotch-Weld are trademarks of 3M.

References

Safety Data Sheet (SDS)

https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=49

ISO Statement

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

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.

Technical Information

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