

3M

Fastbond™

Insulation Adhesive

42-NF Plus NV

Technical Data

June, 1996

(Replaces all previous Data Pages)

Features

- Listed under UL Inc., Component Recognition Category MAGW2 (Adhesives, Insulation), File Number MH 6288 (N).
- Water-dispersed, non-flammable in the wet state.
- Excellent wet strength, rapid rate of tack buildup.
- Resists elevated temperature and high humidity.
- Bonds most low density fiberglass insulation, EPS, felt, cardboard, cork and paper to metal and many other surfaces.

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.

Viscosity (approx.):	60,000 - 100,000 cps
Brookfield Viscometer:	RVF #7 Sp. @ 20 rpm @ 80°F (27°C)
Solids Content (by wt.):	60.5 - 65.0%
Base:	Asphalt/SBR
Color (wet and dry):	Black
Net weight (approx.):	8.3 - 8.8 lbs./gal.
Flash point (C.C.):	None
Coverage (@ 3.7 gms.ft. ² dry wt.):	670 ft. ² /gal.
Flammability (wet): Flammability (dry):	Non-flammable Combustible

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Handling/Application Information

Directions for Use:

1. **Surface Preparation:** Surfaces to be bonded should be clean and dry. Remove all dust, dirt, oil, grease, wax, etc., to help ensure proper adhesion.
2. **Application Temperature:** For best results the temperature of the adhesive and the surfaces to be joined should be at least 65°F (18°C).
3. **Application:** Adhesive may be applied by spray, brush or paint roller. Apply a uniform, textured pattern of adhesive to one of the surfaces to be bonded. On some substrates where high immediate stress is placed on the bond it may be necessary to coat both surfaces. Sample evaluation by the user will help determine the procedure required for each specific use.
4. **Drying:** Bond may be made immediately if immediate strength is not required. If immediate strength is needed, allow the adhesive to air dry until tack starts to build; this time can be shortened by force drying with heat.

Drying Tests:

To bond fiberglass insulation, adhesive was sprayed on galvanized steel at the recommended rate (670 ft.²/gal.). The insulation (1 lb. per cubic foot density) was bonded at various open times using hand pressure. "Dry Time" was the time that it took to produce fiberglass delamination when pulled immediately after bonding.

Drying Condition	Dry Time 42-NF Plus NV90
75°F (24°C) - 30% Rel. Humidity	1 Min.
75°F (24°C) - 50% Rel. Humidity	3 Min.
75°F (24°C) - 70% Rel. Humidity	5 Min.

5. **Cleanup:** Adhesive may be cleaned up when wet using soapy water. When adhesive has dried, use a cleaner such as 3M Brand Citrus Base Cleaner.*

***Note:** When using solvents, extinguish all sources of ignition and follow the manufacturer's precautions and directions for use when handling such materials.

Application Equipment Suggestions

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.

1. **Pumping:**** Use an 8:1 divorced design stainless steel pump with inductor plate.
2. **Conventional Air Spray:****

Spray Gun	Air Cap	Fluid Tip	Air Pressure	Approximate Air Requirement	Fluid Flow***
DeVilbiss, JGV**	30	E	20-30 psi	5 CFM	8-10 fl. oz./min.
Binks** 2001 SS	66SD	66SS	20-30 psi	5 CFM	8-10 fl. oz./min.

Because the adhesive contains water, pumping and spray equipment should be stainless steel for maximum durability. Wetted parts of chrome or nickel should also be suitable. Teflon®** packings are recommended for pumps. All material hoses should be nylon lined. Do not use PVA hoses. DO NOT USE MATERIAL HOSES PREVIOUSLY USED WITH SOLVENT-BASED ADHESIVE SINCE RESIDUAL SOLVENT WHICH MAY CAUSE THE WATER DISPERSION TO BREAK. NEW MATERIAL HOSES SHOULD BE INSTALLED WHEN CHANGING FROM A SOLVENT TO A WATER-BASED ADHESIVE.

***FLUID FLOW: To measure fluid flow, pressure fluid source only: pull trigger, flow material into measuring device for 60 seconds. Increase or decrease fluid source pressure to obtain desired fluid flow

****Teflon is a registered trademark of E.I. DuPont de Nemours Co.

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Application Equipment Suggestions (*continued*)

3. **Airless Spray:** Airless spraying Fastbond 42-NF Plus NV Adhesive requires pressures of 4000 to 4500 psi. This will require a 45:1 pump, equipped with a lift and inductor plate. Tip size can vary, but .019 to .023 inches in diameter is most common.
4. **Roll Coating:** This product is not recommended for machine roll coating.
5. **Brush and Hand Roller:** Typical brushes and rollers designed for use with latex type paints may be used.

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.

180° Peel Strength:

Substrates	Test Temp	Value (lbs./inch width)
Canvas/Cold Rolled Steel	75°F (24°C)	19.9
Canvas/Cold Rolled Steel	-30°F (-37°C)	14.3
Canvas/Cold Rolled Steel	150°F (66°C)	0.9
Canvas/Bare Aluminum	75°F (24°C)	17.7
Canvas/Bare Aluminum	-30°F (-37°C)	12.4
Canvas/Bare Aluminum	150°F (66°C)	0.9
Canvas/Galvanized Steel	75°F (24°C)	18.9
Canvas/Galvanized Steel	-30°F (-37°C)	12.5
Canvas/Galvanized Steel	150°F (66°C)	1.4

Wet Strength: Adhesive was spray applied at the recommended coverage rate on 6 in. x 12 in. pieces of aluminum bent to form 90° corners. After 5 minutes drying time at room temperature, 6 in. x 12 in. x 1.5 in. pieces of 1 lb. per cubic foot density fiberglass were bonded to the panels around the 90° corners. The wet strength of the adhesive was sufficient to hold the fiberglass in place.

Heat Resistance: The above bonded panels were allowed to air dry for 24 hours and they were then placed in a 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 reached. No failure of the fiberglass to metal bond around the 90° corner was observed.

Accelerated Aging: Adhesive was spray applied to galvanized steel at the recommended coverage. Bonds were made using 1 pound per square foot density fiberglass. After drying 24 hours at room temperature, the bonded panels were aged for 60 days in a 300°F (149°C) oven. A fiberglass tearing bond was maintained after the aging period and no embrittlement of adhesive as observed.

Humidity Resistance: Similarly bonded panels were aged for 60 days at 140°F (60°C) and 95-100% relative humidity. A fiberglass tearing bond was maintained after the aging period.

Underwriters Laboratories, Inc.

Tunnel Test Results – ASTM E-84

Measurement	UL Requirement	Fastbond 42-NF Plus NV Adhesive Test Results
Flame Spread	less than 25	5
Smoke Development	less than 25	0

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Storage and Shelf Life

Storage:

Protect from Freezing!

Product should be stored at temperatures above 40°F (4°C). Best storage temperature is between 60-80°F (16-27°C). Lower temperatures can cause increased viscosity of a temporary nature. Storage below 32°F (0°C) will cause irreversible coagulation. After storage at lower temperatures the contents of the adhesive container should be allowed to warm to room temperature before using. Rotate stock on a “first in-first out” basis.

Shelf Life:

When stored at the recommended conditions in original, unopened containers, this product has a shelf life of 15 months from date of shipment.

Precautionary Information

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

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550. Address correspondence to: 3M Adhesives Division, 3M Center, Building 220-8E-05, 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.

Important Notice

3M MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. Please remember that many factors can affect the use and performance of a 3M Adhesives Division product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which 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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If the 3M product is proved to be defective, THE EXCLUSIVE REMEDY, AT 3M'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE 3M PRODUCT. 3M shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including, but not limited to, contract, negligence, warranty, or strict liability.

ISO 9002

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

For Additional Product Safety and Health Information, See Material Safety Data Sheet, or call:

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Adhesives Division

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10% post-consumer

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