

3M

Fastbond™

Contact Adhesive 30-NF • 30H-NF

Technical Data

January, 2008

Product Description

- 3M™ Fastbond™ Contact Adhesive 30-NF and 30H-NF are water-dispersed, sprayable contact adhesives for high immediate bond strength and long bonding range.

Features

- Non-flammable in the wet state.
- Post-formable and heat resistant.
- Bonds most foamed plastics, plastic laminate, wood, plywood, and canvas to themselves and to each other.
- 3M™ Fastbond™ Contact Adhesive 30 has been tested and approved for use by the Woodwork Institute of California under the provisions of ANSI/HPMA HP 1983 for Type II adhesive and the heat resistance test set forth in its Manual of Millwork.
- Fastbond contact adhesive 30 is recognized under the Component Program Underwriter's Laboratories, Inc. Component Recognition Program Guide GSRJ2, File R14485, Door Construction Materials. For use with swinging type fire doors of the hollow metal and steel composite types rated up to and including 3 hours.
- PPAP (Production Part Approval Process) documentation has been issued for 3M™ Fastbond™ Contact Adhesive 30H.
- Not recommended for drywall laminating or for bonding metal surfaces (unless metal surfaces are completely dried by force drying and protected from moisture).
- **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 4.3: Low Emitting Materials: Flooring Materials
 - Addresses or Contributes to LEED™ EQ Credit 4.4: Low Emitting Materials: Composite Wood and Agrifiber Products
 - 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



Special Note

When bonding wood veneers, success is dependent on many variables such as environmental conditions, bonding process, type of base material, type of veneer, adhesive type and top coat finishing systems to name a few. For un-backed wood veneers, water based contact adhesives are not recommended. It is the user's responsibility to thoroughly test any adhesive for its suitability in bonding wood veneers. It is also recommended to follow the veneer manufacturers recommendation and industry guidelines.

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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.

Product	3M™ Fastbond™ Contact Adhesive 30	3M™ Fastbond™ Contact Adhesive 30H
Base:	Polychloroprene	Polychloroprene
Color:	Green, Blue (Wet), Green (Dry) Neutral, White (Wet), Clear (Dry)	Blue (Wet), Green (Dry)
Net Weight:	8.9 - 9.3 lbs./gal.	8.9 - 9.3 lbs./gal.
Solids (by wt):	47-51%	45-50%
Solvent:	Water, less than 5% Toluene and Methanol	Water, less than 5% Toluene and Methanol
Flash Point:	None – Setaflash® closed cup tester	None – Setaflash® closed cup tester
Coverage: (@ 3 gms./ft.² dry wt.)	680 sq. ft./gal.	680 sq. ft./gal.
Viscosity: Brookfield Viscometer:	200-750 cps RVF #2 sp. @ 20 rpm @ 80°F	5500-9500 cps RVF #4 sp. @ 20 rpm @ 77°F

Handling/Application Information

Directions For Use:

- 1. Surface Preparation:** Surfaces must be clean, dry and dust free. Wiping with a solvent such as 3M™ Scotch-Grip™ Solvent No. 3* will aid in removing oil and dirt. Temperature of adhesive and surfaces during fabrication should be at least 65°F (18°C). If used for decorative plastic laminates, the laminate should have reached moisture equilibrium for the shop conditions.
- 2. Application:** Apply a uniform, generous coat of adhesive to both surfaces with a nylon brush, roller (texturing type), or spray. One coat is usually sufficient on most surfaces. Dull spots when dry indicate insufficient adhesive. Very porous material may require more than one coat. (Allow adhesive to dry completely between coats.) A uniform, glossy film indicates sufficient adhesive.
- 3. Coverage:** Coverage is dependent upon porosity of the substrate and the method by which the adhesive is applied. Use 3.0-3.5 gms/ft² of dry adhesive per surface for wood, particle board and high pressure laminates with the adhesive applied by spray or roller. More adhesive (lower coverage) is recommended if very soft wood, fabrics, foams, etc. are to be bonded, or if the adhesive is applied by brushing.
- 4. Drying Time:** The adhesive dries sufficiently in 30 minutes under normal temperatures and humidities to make bonds. High humidity will slow the drying; high temperature will speed the drying. After the adhesive is dry the bond must be completed within four hours.
- 5. Assembly:** Spacers, such as dowels or strips of laminate, may be used to help prevent premature adhesive to adhesive contact and bonding prior to positioning. Slide out the spacers and apply uniform pressure, working toward the edges.

A 3 in. wide (maximum) roller with maximum body pressure should be used to help ensure adequate contact and bonding, especially on edges. Bonded assemblies may be machined, trimmed, etc. immediately after bonding. The use of a pinch or nip roll is preferred for optimum performance.
- 6. Cleanup:** If adhesive has not dried, clean equipment with water containing a small amount of detergent.** Adhesive cannot be cleaned off rollers or brushes after it has dried.

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

**Cleaning solution: One pint of cleaner to five gallons of water. Flush with clean water.

Application Tips for Using 3M™ Fastbond™ Contact Adhesive 30-NF

- (1) Working Temperature:** The adhesive and both surfaces to be bonded should be 65°F (18°C) or above at the time of bonding. After storage at low temperature and before using, the adhesive must be warmed to room temperature. Do not place in oven or on stove; bring to temperature by placing in a warm room. If this is not done, the open time and other working properties of the adhesive may be adversely affected.

Handling/Application Information *(continued)*

- (2) **Use Enough Adhesive:** It is important to remember that it is difficult to use too much adhesive, but you can have problems if you don't use enough. 3M™ Fastbond™ Contact Adhesive 30 must be applied to both surfaces. Adhesive can be applied by spray (see Application Equipment Suggestions), brush or a texturing type roller.

Non-porous surfaces should require only one coat, while porous surfaces may require two coats. Wherever you use more than one coat, be sure to let the adhesive dry completely between coats. Hardwoods, tempered hardboard and decorative laminates are non-porous. Soft woods, untempered hardboard, plywood and plaster are typical porous surfaces which may require two coats.

Note: 3M water-dispersed contact adhesives should never be thinned.

- (3) **Let Adhesive Dry Completely:** Under normal temperature and humidity conditions, Fastbond contact adhesive 30 will dry in approximately 30 minutes. In very warm, low humidity conditions, drying may take as little as 10-15 minutes. Lower temperatures and higher humidity mean slower drying. When the adhesive coating completely loses its milky appearance and becomes clear it is ready to bond. You have four (4) hours after the adhesive is dry in which to complete the bonding job. You can bond as soon as it is dry, but the longer you wait the stronger the initial bond will be.

To speed drying, infrared heat lamps may be used. When force drying is used, assembly and bonding must be completed while one or both of the bonding surfaces is warm. If both surfaces are cold, reheat either or both before bonding.

If your two surfaces do not grab onto each other immediately when brought into contact, the adhesive has dried too long or not enough adhesive was applied. In either case, another coat of adhesive over each surface will remedy the problem.

- (4) **Apply Pressure Thoroughly:** Bonding is immediate upon contact. Sustained pressure is not required, but good uniform pressure must be applied to every square inch of the surface. Apply pressure by using heavy body pressure on a small (not over 3") hand "J"-roller. The use of a pinch roll is preferred for optimum performance.

Note: Rolling pins and other wide rollers are unsatisfactory because they bridge low spots and because they distribute the pressure over too large an area.

- (5) **Assembling:** Position the surfaces carefully before assembly. No adjustment is possible after the adhesive films make contact. Use the paper slip sheet method or spacers to position large pieces.
- (6) **Finishing:** Bonded assemblies can be machined, trimmed and finished immediately after bonding.

Handling/Application Information *(continued)*

(7) Cleaning: Brushes or rollers which are to be reused should be wrapped with plastic wrap to keep adhesive wet as complete cleaning is difficult.

Note: Never pour solvent onto a bonded surface; it will attack the adhesive line and weaken the bond. Just wipe with cloth dampened in solvent or cleaner such as 3M™ Citrus Base Cleaner.* Turpentine will not dissolve the adhesive.

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

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. Air Atomizing Spray Equipment

Hand Held Spray Applicators	Air Cap	Fluid Tip	Air Pressure	Approximate Air Requirement	Fluid Flow*
Binks 2001SS, 95	66SD	65SS	10-15 psi	6 scfm @ 20 psi	9-12 fl. oz./min.
DeVilbiss MSA-510	#30	FF	10-15 psi	6 scfm @ 20 psi	9-12 fl. oz./min.
H.V.L.P. (high volume, low pressure)					
Binks Mach 1	95P	94F	30 psi	11 scfm @ 30 psi	9-12 fl. oz./min.
Automatic Spray Applicators					
Binks No. 95A	66SD	65SS	10-15 psi	6 scfm @ 20 psi	9-12 fl. oz./min.
H.V.L.P. Mach 1A	95P	94F	30 psi	11 scfm @ 30 psi	9-12 fl. oz./min.

*To measure fluid flow: Pressurize fluid source only; pull trigger; flow material into measuring device for 60 seconds; increase or decrease fluid source pressure to obtain desired fluid flow.

Note: Low pressure, air operated piston pumps should not be used with these products.

2. Pressure Pot: Polyethylene liner. Dip tube and fittings should be plastic or stainless steel.

3. Pumping Equipment: 1 in. plastic diaphragm pump with Teflon® checks and diaphragms such as manufactured by Warren Rupp Co.

4. Filter: (pump output) Graco model 12 (stainless steel) with filter bag #521-264 or equivalent.

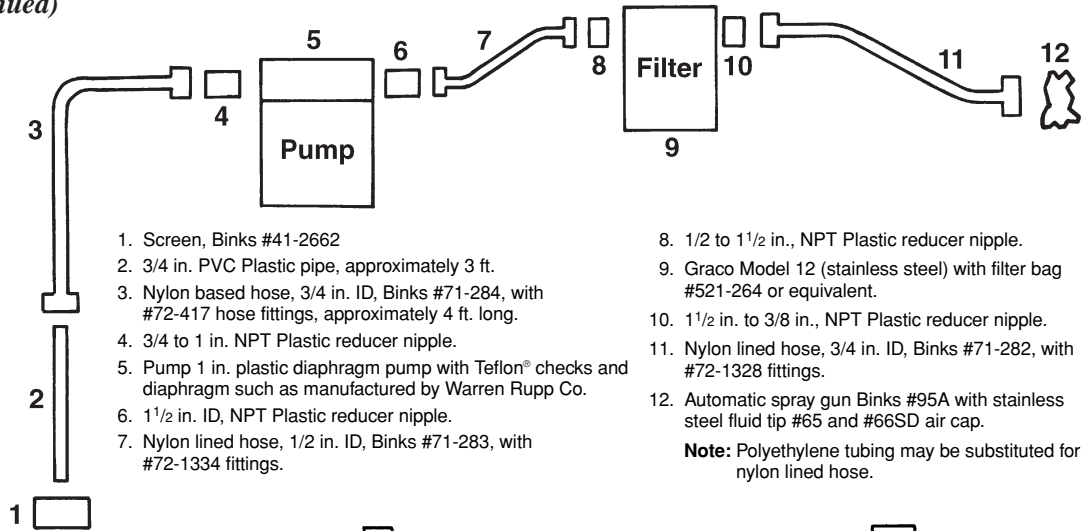
5. Airless Spray: This product can be airless sprayed. Fluid tips ranging from .018 in. to .031 in. at fluid pressures up to 1,100 psi are normally used.

6. Hoses: All material hoses should be nylon or polyethylene lined with plastic or stainless steel fittings.

7. Roll Coating: 3M™ Fastbond™ Contact Adhesive 30H may be coated with a machine type roll coater such as manufactured by Black Bros., Mendota, IL. Roll covering should be urethane with 24 grooves per inch for most applications.

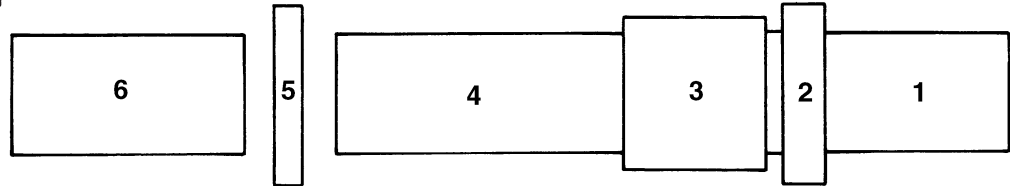
Application Equipment Suggestions (continued)

Typical Automatic Spray System



1. Screen, Binks #41-2662
 2. 3/4 in. PVC Plastic pipe, approximately 3 ft.
 3. Nylon based hose, 3/4 in. ID, Binks #71-284, with #72-417 hose fittings, approximately 4 ft. long.
 4. 3/4 to 1 in. NPT Plastic reducer nipple.
 5. Pump 1 in. plastic diaphragm pump with Teflon® checks and diaphragm such as manufactured by Warren Rupp Co.
 6. 1 1/2 in. ID, NPT Plastic reducer nipple.
 7. Nylon lined hose, 1/2 in. ID, Binks #71-283, with #72-1334 fittings.
 8. 1/2 to 1 1/2 in., NPT Plastic reducer nipple.
 9. Graco Model 12 (stainless steel) with filter bag #521-264 or equivalent.
 10. 1 1/2 in. to 3/8 in., NPT Plastic reducer nipple.
 11. Nylon lined hose, 3/4 in. ID, Binks #71-282, with #72-1328 fittings.
 12. Automatic spray gun Binks #95A with stainless steel fluid tip #65 and #66SD air cap.
- Note:** Polyethylene tubing may be substituted for nylon lined hose.

Typical Laminating Line



1. Conveyor: Conveyor should be adjusted to give the required drying time. For example, a conveyor speed of 10 feet per minute with a 10-foot long oven will give a drying time of 60 seconds.
2. Reciprocating Spray Machine and Spray Booth.
3. Drying Oven.
4. Lay-Up Area.
5. Nip Rolls.
6. Take Off Table.

Start Up, Maintenance and Shut Down for Automatic Spray Lines:

Water-based adhesives differ from solvent based adhesives in two major respects:

1. Dried water-based adhesive will not dissolve in the wet adhesive.
2. The presence of water in the system creates the potential for corrosion of or reaction with certain metals, such as copper, brass, steel, aluminum, etc.

As a result, *extra care* is required to assure proper functioning of spray equipment. The attached schematic of a suggested spray system, start-up procedure for this system, and suggested maintenance program, were developed with the properties of 3M water-based adhesives in mind.

Start-Up Procedure for Air Atomizing Spray System with Rupp Pump

1. Connect pump to piping system. Flush lines and pipes with hot, soapy water* to remove possible contaminants before attaching pump or spray gun. Flush thoroughly with clean water. Blow out excess water. Do not connect fluid line to spray applicator.
2. If pump has not been supplied with air regulator, attach regulator and gauge to air inlet of pump.
3. Close air inlet valve on pump and attach regulator inlet to air supply.
4. Adjust regulator to "0" pressure reading on the gauge.
5. Open air inlet valve all the way and tighten lock nut.
6. Insert suction tube in adhesive so that inlet to tube is at bottom of container.
7. Direct end of fluid hose into a waste container.
8. Start pump by increasing regulated inlet air pressure (approximately 5 psi will be required).
9. Run pump until all traces of air are out of the system and adhesive is flowing in a steady, uninterrupted stream.
10. Shut off pump by reducing inlet air pressure to "0" psi or disconnecting inlet air line from regulator.
11. Immediately connect fluid hose to spray applicator.
12. Turn on pump and manually trigger applicator a few times to purge air from applicator.
13. Set flow rate of spray applicator by increasing or decreasing inlet air pressure to pump (normally 5-30 psi).
14. Adjust atomizing air pressure and fan air to obtain desired spray pattern (normally 10-20 psi).

*Cleaning solution: One pint detergent to five gallons of water. Flush with clean water.

Application Equipment Suggestions (*continued*)

Maintenance Program

- 1. Filter:** Follow the manufacturer's instructions for disassembling filter. Remove dirty filter bag and replace with clean bag. Do not allow adhesive to dry. Reassemble filter immediately.
- 2. Pump:** To remove pump from system for cleaning, disconnect fluid line at outlet of pump and insert threaded plug into fluid line to prevent drying of adhesive. Remove suction line from adhesive and place in 5 gallons of soapy water.** Flush through the pump. Disconnect siphon line at inlet to pump and invert pump to allow water to drain out. Follow disassembly instructions to remove manifold, diaphragms and valves. Soak these parts in 3M™ Adhesive Remover or equivalent until adhesive has been sufficiently loosened and can be rubbed off.* Dry parts overnight at room temperature or 2 to 3 hours at 120°F (49°C) before reassembling pump. Do not install parts until all odor is gone. If pump must be returned to service quickly, a second set of diaphragms and valves should be purchased and installed while the first set is being cleaned. To put the pump back into operation, follow steps 6 through 12 in Start-Up Procedure.
- 3. Spray Applicator:** Should the fluid tip become plugged, shut off pump by reducing inlet air pressure to "0" psi, or disconnect inlet air. Manually trigger applicator to relieve pressure in fluid lines. Remove tip, wipe any particles from fluid needle with damp cloth and immediately install a clean fluid tip. (Note: Fluid tips must be stainless steel.) Do not allow adhesive to dry in applicator or tip. Plugged tip may be rinsed in water and soaked in mineral spirits, followed by brushing with stiff bristle brush to remove adhesive. Air caps which become coated with adhesive should be replaced with clean caps. Soak adhesive coated caps in mineral spirits to clean.*

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

**Cleaning solution: One pint cleaner to five gallons of water. Flush with clean water.

Attention:

- 1. Do not use fluid lines that have previously been used with solvents whether flammable or non-flammable.**
- 2. Do not use "rubber" lined hose. Hose should be either flexible polyethylene or nylon lined. All hose and pipe fittings should be plastic or stainless steel. DO NOT use copper, aluminum, brass or steel fittings.**
- 3. A pressure pot may be used in place of the pump. In this case, a polyethylene bag liner should be used. Also the DIP TUBE AND FITTINGS SHOULD BE CHANGED TO PLASTIC OR STAINLESS STEEL.**

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Typical Adhesive Performance Characteristics

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

Test Temp.	Time @ 75°F	T-Peel Strength	Test Temp.	Overlap Shear Strength
		Canvas/Canvas		1/8" Birch 1/8" Birch
75°F (24°C)	1 Day	25	-30°F (-37°C)	1100
75°F (24°C)	3	35	75°F (24°C)	480
75°F (24°C)	5	30	180°F (82°C)	60
75°F (24°C)	7	20	200°F (93°C)	30
75°F (24°C)	2 wks.	20	225°F (107°C)	40
75°F (24°C)	3 wks.	15		
-30°F (-37°C)	3 wks.	5		
150°F (66°C)	3 wks.	10		
180°F (82°C)	3 wks.	10		

Flatwise Tensile Test: High pressure laminate/particle board.

Test speed = 0.05 in./min.

Test Temperature	3M™ Fastbond™ Contact Adhesive 30-NF
75°F (24°C)	*113 psi
150°F (66°C)	55 psi
180°F (82°C)	30 psi
200°F (93°C)	27 psi

*Particle board failure

Activation of Pre-Applied Adhesive

Sections of high pressure laminate were sprayed with adhesive, dried, and then stored at 75°F (24°C). Each month for nine months a piece of pre-coated laminate was bonded to birch plywood that had been sprayed with adhesive and allowed to dry for 10 minutes. The bonds were made in a pinch roller and then aged 3 weeks before testing.

1/8 in. Birch/High-Pressure Laminate Shear Strength (lbs./sq. in.)

Aging Period Months	Test Temp. 75°F (24°C)	Test Temp. 150°F (66°C)	Test Temp. 180°F (82°C)
Control	265	130	30
3	315	140	80
6	305	150	75
9	285	125	50

Note: Pre-applied adhesive must be kept free of dust and dirt. Pre-applied adhesive can also be activated with 3M™ Scotch-Weld™ Contact Adhesives 5 and 1357.

Surface Flammability

Test conducted in accordance with ASTM E-286-69 "Surface Flammability of Building Materials" using an eight (8) foot tunnel furnace.

Test Results	Fastbond contact adhesive 30-NF
Flame Spread Index	0
Fuel Contributed Index	0
Smoke Density Index	16.1

Note: No flaming or odor emissions were present during testing. Adhesive application amount was 2.95 gm./ft.² dry.

Moisture vapor transmission: MVP rating = 0.0091 perm inches.

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Storage	Best storage temperature is 60-80°F (16-27°C) for maximum storage life. Higher temperatures reduce normal storage life. Lower temperatures cause increased viscosity of a temporary nature. These water-based contact adhesives will become unusable with prolonged storage below 40°F (4°C). Rotate stock on a “first-in, first-out” basis.
Shelf Life	When stored at the recommended temperature in the original, unopened container, these products have a shelf life of 15 months.
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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ISO 9001:2000

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