

3M

Adhesive Technology

Designer's Reference Guide



A collage of various 3M adhesive products including tubes, bottles, and dispensers. The products are arranged in a dense, overlapping manner. A yellow hose is visible, looping through the scene. A red banner is positioned across the top, and a yellow oval is in the bottom right corner.

Now it's easier than ever to get connected...

www.
3M.com/
adhesives

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Get connected with 3M adhesives if you want help to make your product lighter, longer lasting, stronger, less costly, better looking, and easier to manufacture.

Designers and engineers increasingly rely on adhesives for improved end-use performance, greater design flexibility, and more efficiency in putting their products together.

Backed with more than 50 years experience in industrial adhesives, 3M continues to meet that demand. In addition to advanced formulations for reliability and versatility, 3M provides application systems to facilitate production, and service to help customers in their selection of the right adhesive for the job.

Your first step is to get connected. And now that's easier than ever. This guide is a start – an overview with enough details to help you select adhesive possibilities for evaluation. Next, a simple click takes you to our interactive website designed to simplify the adhesive selection process and provide greater detail. Here's what you'll find at

www.3M.com/adhesives:

- Complete product selection guide
- Instant access to product data
- Downloadable product data pages
- Online request for product sample
- Downloadable MSDS sheets

While you'll find many answers to questions and problems on the site, cyberinformation is not a replacement for personal service:

- 3M Bonding Solutions sales professionals are located throughout the U.S., Canada, and 50 other countries.
- Highly trained 3M technical teams are ready to help you in your evaluation of products and systems.
- 3M nationwide network of authorized distributors provides professional sales assistance, local product availability, and fast, efficient service.

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4 Stress resistance, simplification, economy and more.

One of the primary benefits of adhesive is that it holds something together resisting the stress trying to pull it apart.

Tensile stress is exerted equally over the entire joint straight and away from the adhesive bond.

Shear stress is across the adhesive bond. The bonded materials are being forced to slide over each other.

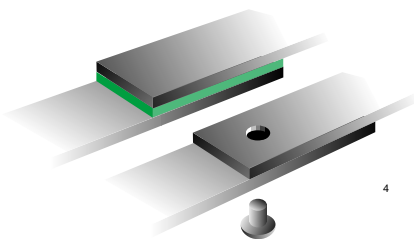
Cleavage stress is concentrated at one edge and exerts a prying force on the bond.

Peel stress is concentrated along a thin line at the bond's edge. One surface is flexible.

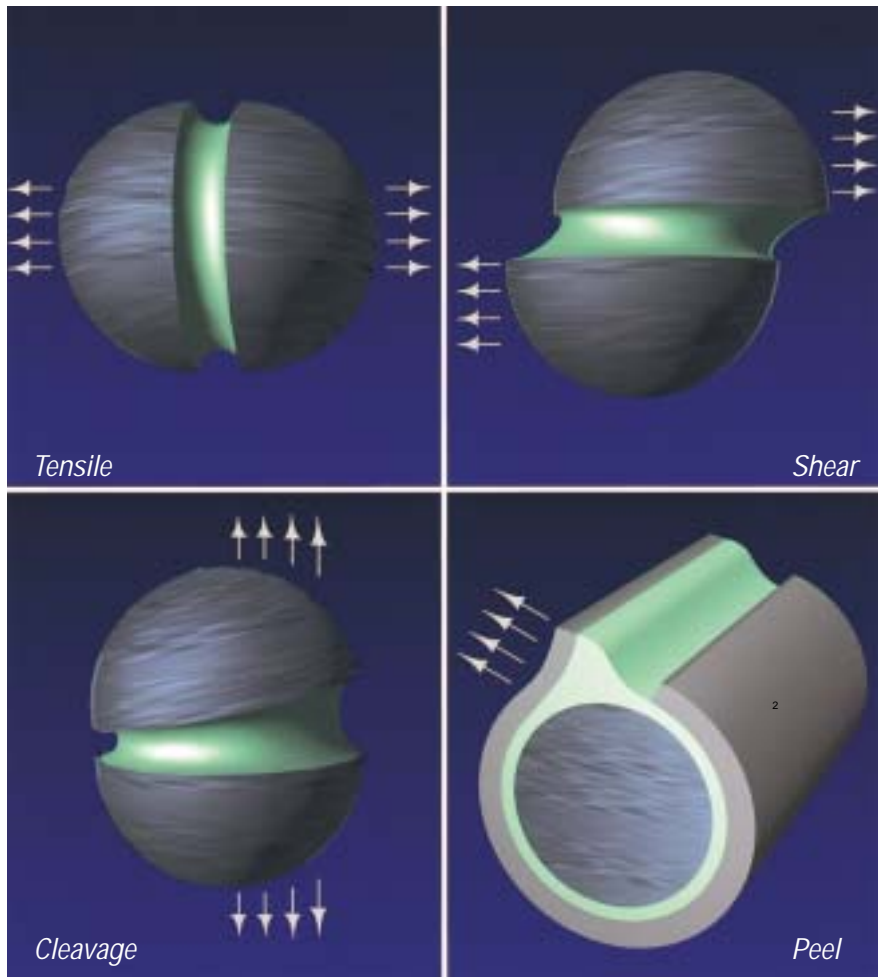
Most applications combine stresses.

The following six points elaborate on the advantages of using adhesives for stress resistance and more.

1. Uniform distribution of stress over the entire bonded area can **eliminate stress concentration** caused by rivets, spot welds, and similar mechanical fastening. Lighter, thinner materials can often be used without sacrificing strength.



2. Bonding laminates of **dissimilar materials** can produce combinations superior in strength and performance to either adherent alone. Adhesive flexibility compensates for differences in coefficients of expansion.



3. Elastomeric flexibility **improves resistance to vibration fatigue**.



4. Holes are eliminated **maintaining the integrity** of the bonded material. This can reduce finishing and increase design flexibility.
5. **Continuous contact** between mating surfaces can effectively **bond and seal** against many environmental conditions.
6. **Costs can be lowered** by reducing material requirements and weight; eliminating drilling, welding, screwing, and similar operations.

Choice of 3M structural or non-structural formulations.

To meet requirements for stress resistance, specific substrates, application efficiency and cost, 3M offers a wide range of easy-to-use adhesives in handy sizes with practical dispensing systems.

Structural adhesives (pages 5 to 15) bond the load-bearing parts of a product. Usually these are metal, but wood, glass and rigid plastics can also be structurally bonded.

Non-structural adhesives (pages 16 to 33) bond materials for insulation, cushioning and paneling, rubber, plastic, fabric, leather, wood, cardboard, and other substrates used in non load-bearing applications.



Structural Adhesives

3M high-strength structural adhesives are fundamentally load-bearing formulations. Bond strength is often as strong as, or stronger than the materials joined. These adhesives are generally cross-linked or thermosetting, and include epoxies, phenolics, urethanes, acrylics, and cyanoacrylates.

The aircraft industry is one of the pioneers in use of structural adhesives. And structural adhesives still play an integral role in the aerospace industry. Many other industries have also been taking advantage of 3M's advanced formulations and innovative dispensing.

For example, structural adhesives are used in bushing assembly in appliances, headlight assembly in cars, fiberglass decks in boats, relays and controls in electronic equipment, lawn sprinklers, window frames, office partitions, pump casting components, golf clubs, home furniture, and surgical instruments.

The 3M structural adhesives product line includes the following:

- 3M™ Scotch-Weld™ Structural Adhesives
- 3M™ Scotch-Weld™ Electronic Grade Epoxy Adhesives
- 3M™ Scotch-Weld™ Film Adhesives
- 3M™ Pronto™ Instant Adhesives
- 3M™ Jet-Weld™ Thermoset Adhesive System.

3M™ Scotch-Weld™ Structural Adhesives

Load-bearing formulations for metals, rubber, glass and more.

As an alternative to mechanical or fusion fastening, the reasons for Scotch-Weld Adhesives are many: greater design latitude, cleaner lines, material substitution, less machining, lighter weight, more durability, and often less cost.

To meet application and end-use requirements you can select from one-part heat-curing epoxies, and two-part room-temperature curing epoxies, acrylics and urethanes. There are formulations for bonding steel, aluminum, copper, low surface energy plastics, rubber, glass, wood, masonry and more.

Whatever properties you need—durable adhesion, flexibility, creep resistance, heat and environmental resistance, void-filling—you'll likely find a Scotch-Weld product to meet your requirements and expectations.



3M has long been recognized as a pioneer in structural strength adhesives. But to meet end use performance requirements doesn't just mean providing the right chemical formula. Which is why 3M also develops dispensing systems to facilitate production in low and high volume assembly. Many two-part 3M formulations are available in Duo-Pak cartridges for dispensing with a manual or pneumatic 3M™ EPX™ Applicator.



Porch railing – 3M™ Scotch-Weld™ Structural Plastic Adhesive DP-8005 bonds unique thermo-plastic composite in assembly of hollow railings that are stiffer than wood.



Refrigerant coil – 3M™ Scotch-Weld™ Epoxy Adhesive 2214 bonds and seals coils with overlap shear strength of 4500 psi. One part eliminates metering and mixing.



Retail store display columns – To maintain the quality wood-like appearance, 3M™ Scotch-Weld™ Structural Plastic Adhesive DP-8005 eliminates screws, nails, and related surface finishing in assembly of plastic composite components.



Aircraft entry steps – Brush-applied 2-part 3M™ Scotch-Weld™ Adhesive 2216 B/A provides a tough, flexible bond between honeycomb and the framework in entry step panels of commuter aircraft.



Bicycle frame assembly – 3M™ Scotch-Weld™ Epoxy Adhesive DP-420 bonds steel couplings into aluminum tubing of the frame. Couplings are threaded for easy assembly and disassembly. The toughened epoxy bonds for the long run in high stress areas.



Bonding magnets to steel rotor – Bonds made with 2-part 3M™ Scotch-Weld™ Epoxy Adhesive DP-460 cure at room temperature and reach 4500 psi in overlap shear strength. Void-filling properties secure loose fitting surfaces.

Product Information: 3M™ Scotch-Weld™ Adhesives in Duo-Pak Cartridges

Product (Color) ⁽¹⁾	Features	Mix Ratio (Volume) B:A	Approximate Viscosity 75°F (24°C) (CPS) ⁽²⁾	Approximate Worklife At 75°F (24°C) ⁽³⁾	Average T-Peel ⁽⁴⁾ At 75°F (24°C) PIW	Overlap Shear Strength ⁽⁵⁾ PSI			
						-67°F (-55°C)	75°F (24°C)	180°F (82°C)	250°F (121°C)
DP-100 Clear	• Fast cure adhesive • Rigid epoxy • 15-20 min. handling strength • Machinable product	1:1	13,000	4 Min.	2	900	1500	300	200
DP-100Plus Clear	• Water clear • Fast cure rigid epoxy • Good peel and shear strength	1:1	8,500	4 Min.	13	3000	3500	200	150
DP-100NS Translucent	• 25-30 min. handling strength • Translucent low flow version of DP-100 Adhesive	1:1	95,000	6 Min.	2	900	1500	300	200
DP-100 FR White	• 25-30 min. handling strength • Meets UL94V-0 rating • Self-extinguishing version of DP-100 Adhesive	1:1	50,000	6 Min.	2	800	1400	400	200
DP-105 Clear	• Water clear • Fast cure • Very flexible • Excellent peel strength	1:1	6,500	5 Min.	35	3500	2000	150	100
DP-110 Gray	• Fast cure adhesive • Flexible epoxy • 30 min. handling strength	1:1	55,000	9 Min.	15	2000	2500	200	150
DP-110 Translucent	• 30 min. handling strength • Translucent version of DP-110 Gray Adhesive	1:1	50,000	9 Min.	10	2000	2500	200	150
DP-125 Gray	• Medium worklife • Good peel strength	1:1	52,500	25 Min.	35	3400	4300	400	200
DP-125 Translucent	• Medium worklife • Good peel strength	1:1	15,000	25 Min.	35	4000	2500	150	100
DP-190 Gray	• Long worklife adhesive • Flexible epoxy • 8-12 hrs. handling strength • Can bond metals, plastics and many other dissimilar materials	1:1	80,000	90 Min.	20	1500	2500	400	300
DP-190 Translucent	• Long worklife • Good peel strength	1:1	10,000	90 Min.	30	3500	1700	160	100
DP-270 Black	• Long worklife potting compound • 8-12 hrs. handling strength • Rigid epoxy	1:1	19,000	70 Min.	2	1200	2500	300	200
DP-270 Clear	• Clear version of DP-270 Black • Many electronic applications	1:1	19,000	70 Min.	2	1200	2500	300	200
DP-420 Off-White	• Medium worklife toughened epoxy • 1-2 hrs. handling strength • High performance	2:1	45,000	20 Min.	50	4500	4500	450	200
DP-420 Black	• Black version of DP-420 Off-White • Tough, durable structural bonds	2:1	22,500	15 Min.	50	4500	4500	2980	570
DP-460 Off-White	• Long worklife toughened epoxy • 2-4 hrs. handling strength • Meets MIL-A-23941A	2:1	45,000	60 Min.	60	4500	4500	700	200
DP-460NS Off-White	• Non-sag version of DP-460 • Heat curable • High-performance	2:1	125,000	60 Min.	60	4900	4650	2630	420
DP-4XL Off-White	• Extra long worklife toughened epoxy for large assemblies • Handling strength in 5 minutes at 250°F	2:1	22,500	5-6 Hours	60	2800	4880	1240	280
DP-605NS Off-White	• Fast cure semi-rigid urethane • 15-20 min. handling strength • Gap filler • Non sag for wood and plastic	1:1	150,000	4 Min.	15	1000	1250	325	100
DP-640 Brown	• Non-sag • Long worklife • Tough flexible bonds	1:1	25,000	40 Min.	25	2500	2000	300	150
DP-805 Lt. Yellow	• High peel and shear strength • Bonds slightly oily material • High temperature performance • Excellent plastic adhesion	1:1	110,000	4 Min.	35	2500	3500	2200	200 ⁽⁶⁾
DP-810 Tan	• Bonds many metals and plastics without surface preparation • Extremely fast strength build up • Fully cured in 6 hours	1:1	20,000	8-10 Min.	30	1200	4200	500	300 ⁽⁶⁾
DP-820 Yellow	• High shear and peel strengths • Bonds slightly oily metals • Medium worklife	1:1	60,000	15-20 Min.	22	3100	3150	1900	1450 ⁽⁶⁾

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

(1) Color is mixed if two-part product.

(2) Brookfield viscometer viscosity values are typical values for the mixed product.

(3) The time during which an adhesive will adequately wet-out on a substrate.

(4) 180° peel tested on .030" aluminum per ASTM D 1876-61T.

(5) Tested per ASTM D 1002-64.

(6) Tested at 200°F (93°C).

Product Information: 3M™ Scotch-Weld™ Adhesives in Duo-Pak Cartridges (cont.)

Duo-Pak Cartridges	Product (Color) ⁽¹⁾	Features	Mix Ratio (Volume) B:A	Approximate Viscosity 75°F (24°C) (CPS) ⁽²⁾	Approximate Worklife At 75°F (24°C) ⁽³⁾	Average T-Peel At 75°F (24°C) PIW ⁽⁴⁾	Overlap Shear Strength ⁽⁵⁾ PSI			
							-67°F (-55°C)	75°F (24°C)	180°F (82°C)	250°F (121°C)
	DP-8005 Off-White, Black	<ul style="list-style-type: none"> Structurally bonds polyolefins without surface preparation Excellent environmental resistance 2-3 hour handling strength 	10:1	27,500	2.5-3 Min.	16	–	2000	340	–

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Product Information: 3M™ Scotch-Weld™ Two-Part Structural Adhesives

	Product (Color) ⁽¹⁾	Features	Mix Ratio (Volume) B:A	Approximate Viscosity 75°F (24°C) (CPS) ⁽²⁾	Approximate Worklife At 75°F (24°C) ⁽³⁾	Average T-Peel At 75°F (24°C) PIW ⁽⁴⁾	Overlap Shear Strength ⁽⁵⁾ PSI			
							-67°F (-55°C)	75°F (24°C)	180°F (82°C)	250°F (121°C)
Two-Part Epoxy Adhesives	1751 B/A Gray	<ul style="list-style-type: none"> Long worklife adhesive Rigid epoxy 8-12 hrs. handling strength Excellent void filler and machinable for many "Body Solder" applications 	3:2	700,000	45 Min.	4	1400	2000	500	300
	1838 B/A Green	<ul style="list-style-type: none"> Long worklife adhesive Rigid epoxy 8-12 hrs. handling strength Meets MIL-A-23941A Excellent Environmental Resistance 	4:5	400,000	60 Min.	4	1500	3000	500	300
	1838 B/A Tan	<ul style="list-style-type: none"> Long worklife adhesive Rigid epoxy 8-12 hrs. handling strength Tan version of B/A 1838 Green Adhesive 	6:5	250,000	60 Min.	5	1500	3000	500	300
	1838-L B/A Translucent	<ul style="list-style-type: none"> Long worklife adhesive Rigid epoxy 8-12 hrs. handling strength Translucent, low viscosity version of 1838 B/A Green Adhesive 	1:1	10,000	60 Min.	5	2000	3000	400	200
	2158 B/A Gray	<ul style="list-style-type: none"> Long worklife adhesive Rigid epoxy 8-12 hrs. handling strength General purpose product 	1:1	375,000	120 Min.	4	1700	2000	400	300
	2216 B/A Gray	<ul style="list-style-type: none"> Long worklife adhesive Flexible epoxy 8-12 hrs. handling strength Can bond plastic, metal and other dissimilar materials 	2:3	80,000	90 Min.	25	2000	2500	400	200
	2216 B/A Tan Non sag	<ul style="list-style-type: none"> Long worklife adhesive Flexible epoxy 8-12 hrs. handling strength Tan version of 2216 B/A Gray Adhesive 	2:3	350,000	90 Min.	25	2000	2500	400	200
	2216 B/A Translucent	<ul style="list-style-type: none"> Long worklife adhesive Flexible epoxy 16-20 hrs. handling strength Translucent version of 2216 B/A Gray Adhesive 	1:1	10,000	120 Min.	25	3000	2000	200	100
Two-Part Urethane Adhesives	3501 B/A Gray	<ul style="list-style-type: none"> Fast cure adhesive Rigid epoxy 20-30 minutes handling strength Rapid room temperature curing material that can bond metal, wood, most plastics and masonry products 	1:1	500,000	7 Min.	5	1500	2400	300	200
	3532 B/A Brown	<ul style="list-style-type: none"> Fast cure adhesive 20-30 min. handling strength Semi-rigid urethane Rapid cure for flexible bonds of many plastics, wood, and rubber 	1:1	30,000	7 Min.	25	2500	2000	300	150
	3535 B/A Off-White	<ul style="list-style-type: none"> Very fast cure adhesive 15-20 min. handling strength Semi-rigid urethane Faster setting version of 3532 B/A Adhesive 	1:1	30,000	3 Min.	25	2500	2000	300	150
	3549 B/A Brown	<ul style="list-style-type: none"> Long worklife adhesive 2-4 hrs. handling strength Semi-rigid urethane Longer worklife version of 3532 B/A Adhesive 	1:1	30,000	60 Min.	25	2500	2000	300	150

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(1) Color is mixed if two-part product.

(2) Brookfield viscometer viscosity values are typical values for the mixed product.

(3) The time during which an adhesive will adequately wet-out on a substrate.

(4) 180° peel tested on .030" aluminum per ASTM D 1876-61T.

(5) Tested per ASTM D 1002-64.

Product Information: 3M™ Scotch-Weld™ One-Part Epoxy Adhesives; Metal Primers

Product (Color)	Features	Viscosity	Optimum Cure			Average T-Peel At 75°F (24°C)	Overlap Shear Strength ⁽²⁾ PSI					
			Time (Min.)	Temp (°F/°C)	Pressure (PSI)		-67°F (-55°C)	75°F (24°C)	180°F (82°C)	250°F (121°C)	350°F (177°C)	
One-Part Epoxy Adhesives	1386 Cream	A 350°F (177°C) curing epoxy for metal to metal bonding provides exceptionally high strength, impact resistant bonds. Meets requirements of MMM-A-134 Type III.	150,000 cps	60	350/177	10	10 (Alum.)	3000	5500	4500	2500	400
	1469 Cream	A 350°F (177°C) curing epoxy with excellent performance at elevated temperatures. Meets requirements of MMM-A-132 Type II, Class 3, Group 4.	60,000 cps	120	350/177	10	2 (Alum.)	3150	3700	3700	3600	1000
	2086 Gray	A 350°F (177°C) curing epoxy similar to 1386 Adhesive but filled to provide excellent flow control.	Paste	60	350/177	10	5 (Alum.)	3000	5000	5000	2200	500
	2214 Regular Gray	Aluminum filled heat curing (250°F, 121°C) structural adhesive of paste consistency. Can bond metals, glass and many plastics.	Paste	60	250/121	10	5 (Alum.) 50 (Steel)	3000	4500	4500	1500	400
	2214 Hi-Density Gray	Similar to 2214 regular adhesive but deaerated and formulated to provide dense, void-free bond lines.	Paste	60	250/121	10	5 (Alum.) 50 (Steel)	3000	4500	4500	1700	400
	2214 Hi-Temp Original Gray	Formulated to provide outstanding performance at elevated temperatures and excellent sag control.	Paste	60	250/121	10	2 (Alum.) 5 (Steel)	2000	2000	3000	2500	900
	2214 Hi-Temp New Formula Gray	A version of 2214 Hi-Temp Adhesive with exceptional performance at elevated temperatures and excellent performance under high temperature and high humidity conditions. Resists attack by hot ethylene glycol.	Paste	60	250/121	10	5 (Alum.) 5 (Steel)	2800	2800	2500	2000	1200
	2214 Hi-Flex Gray	Similar to 2214 Regular Adhesive but deaerated and formulated to provide bonds featuring outstanding shock resistance.	Paste	60	250/121	10	10 (Alum.) 65 (Steel)	2500	4000	2000	450	250
	2214 Non-Metallic Filled Cream	A cream colored non-metallic version of 2214 Regular Adhesive suggested for electrical applications where insulating qualities are desired.	Paste	60	250/121	10	7 (Alum.) 12 (Steel)	3000	4000	4500	1500	400
	2290 Amber	A 21% solids liquid epoxy. B-stageable. Can be used in laminating steel cores for motor stators and rotors. Excellent for many thin metal stack laminations such as those used in magnetic tape heads.	60 cps	30	350/177	50	10 (Alum.)	5000	5000	3500	1200	200
Metal Primers	Product Color	Features	Viscosity	Comments								
	3901 Red	<ul style="list-style-type: none"> Adhesion promoter Organo-silane base Brush or spray application 	5 CPS	A primer for film and liquid adhesives in those applications where it is desired to obtain improved metal and glass adhesion or improved resistance to environmental exposure with epoxy and urethane adhesives. It can help simplify production scheduling by protecting the cleaned surfaces until the bonding operations can be completed and imparts improved corrosion protection to metal.								
	1945 B/A Green	<ul style="list-style-type: none"> 1:1 mix ratio 2-part epoxy primer 8 hour potlife Brush, spray or dip application 	500 CPS	It is a two-part chemically curing, corrosion resistant primer to improve adhesion of urethanes and epoxies to many metals as well as offering increased corrosion protection. It cures at room temperature and has excellent adhesion to many metals.								

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(1) Tested per ASTM D 1876-61T.

(2) Tested per ASTM D 1002-64.

3M™ Scotch-Weld™ Electronic Grade Epoxy Adhesives

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High-performance specifically for demanding electronics applications.

For assembly of sophisticated electronics where outgassing and corrosion of adhesive bonds are a concern, Scotch-Weld Electronic Grade (EG) epoxies are the advanced alternative to mechanical fasteners and lower-grade adhesives. These 2-part epoxies produce far lower contamination levels of ionic and outgassing impurities than typical epoxy adhesives. Chloride content is lower than standard industrial counterparts.

Targeted dispensing is easy with the 3M™ EPX™ Applicator System. Duo-Pak cartridges with long shelf life are stored at room temperature for added convenience in many operations.



Component rigidization – 3M™ Scotch-Weld™ Epoxy Adhesive DP-125EG reaches handling strength within 3 hours at room temperature. Stabilizes board components with 1500 psi shear strength and 20 piw.

Voice coil assembly – Controlled flow of 3M™ Scotch-Weld™ Epoxy Adhesive DP-460EG provides a clear, targeted application in bonding the coil into the head gimble assembly.

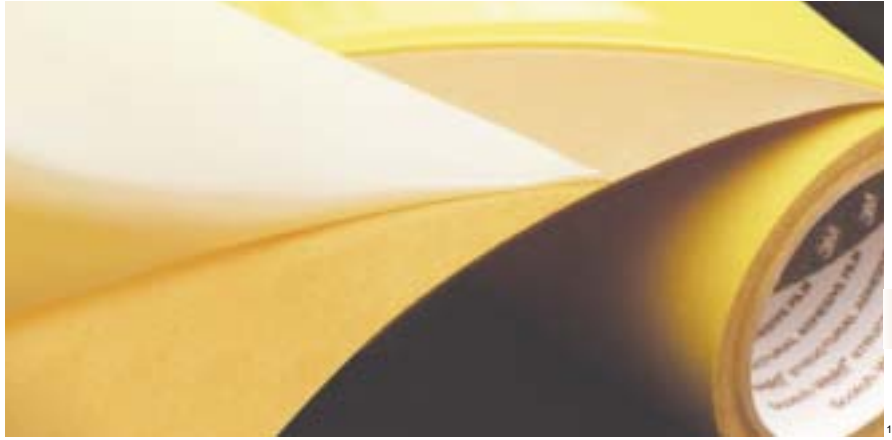
Product	Description	Volume Mix Ratio (B:A)	Viscosity (CPS)	Mixed Work Life @73°F (23°C)	Shear Strength (PSI)	180° Peel Strength (PIW)	Total Outgassing (µg/g)	Siloxane Outgassing (µg/g)	Extractable Chloride (µg/g)	Dielectric Constant (1 KHZ) @ 73°F (23°C)
Scotch-Weld EG Epoxy Adhesives	DP-125 EG Translucent	1:1	B-4,000 A-27,500 @ 27°C	25 min.	1500 Aluminum	20 Aluminum	–	–	69	5.1
	DP-190 EG Translucent	1:1	B-4,000 A-14,000 @ 27°C	90 min.	1200 Aluminum	20 Aluminum	–	–	4	5.2
	DP-460 EG Off-White	2:1	B-35,000 A-10,000 @ 23°C	60 min.	4600 Aluminum	50 Aluminum	64.25	1.22	77	4.6
	DP-4XL EG Off-White	2:1	B-35,000 A-12,000 @ 23°C	5-6 hr.	4500 Aluminum	30 Aluminum	142.5	0.4	2	3.9

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

Film adhesives for the best combination of fatigue resistance and highest performance.

Film adhesives can be formulated with the highest performance level of all structural strength adhesives available. Scotch-Weld Film Adhesives offer the best combination of shear and peel strength, plus shock and fatigue resistance. They also provide several other advantages:

- Uniform adhesive thickness throughout joints for an even, secure bond line.
- Adhesive confined to immediate bonding area for a clean operation and less waste.
- Simple application for fast assembly.
- Stability for extended usability and shelf life.



Precise fit – Available in various thicknesses and widths, 3M™ Scotch-Weld™ Film Adhesive can be die-cut into shapes to facilitate bonding of complex parts.

Simultaneously seal and bond – In metal-to-metal lamination 3M™ Scotch-Weld™ Film Adhesives bond with up to 4800 psi shear strength and provide a barrier against water, fuels, and oil.

Product/ Color	Features	Film Caliper (inches)	Overlap Shear Strength (PSI)				T-Peel Strength (PIW) @75°F (24°C)	Environmental Resistance of Cured Bonds–Overlap Shear (PSI)				Optimum Cure			
			-67°F (-55°C)	75°F (24°C)	180°F (82°C)	300°F (149°C)		Tap Water 30 Days @75°F (24°C)	20% Salt Spray 30 Days @95°F (32°C)	Hydraulic Oil 7 Days @75°F (24°C)	Aromatic Fuel 7 Days @75°F (24°C)	Time (min.)	Temp (°F)	Pressure (PSI)	
			Scotch-Weld Film Adhesives	AF-42 Transparent	Heat-curing film adhesive with outstanding “T” Peel strength for metal to metal and metal to glass or ceramic bonding.	.003		5500	4800	2500	1500	70	4800	4800	4800
	AF-111 Off-White	Heat-curing film adhesive with 250°F curing cycle. Bonds metal to metal and metal to honeycomb.	.010	3000	3500	3000	1000	6	3500	3500	3500	3500	60	250	10

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

3M™ Pronto™ Instant Adhesives

Fast bonding with the right combination of strength, cure time and viscosity.

For speed and performance, you'll likely find a product in this line with precisely the right combination of bond strength, cure time and viscosity.

These one-part cyanoacrylate adhesives rapidly reach handling strength at room temperature without a catalyst. On many applications, bonds reach handling strength in 5–10 seconds and 80% of full strength in an hour. A single drop per square inch can bond many plastics, rubber, metal and more with tensile strength up to 5000 PSI.

Depending on the specific formulation, you have the following features: resistance to fuels, lubricating oils and other chemicals from -40°F to 200°F (-40°C to 93°C); gap filling; extended cure rates for reposition-ability; high peel and impact strength; conformance to MIL-Spec A-46050C.



With 3M™ Pronto™ Instant Adhesives application is easy from their own containers or through intermediate manual dispensers or automated systems. Curing requires no expensive equipment or fixturing.



A single drop of 3M™ Pronto™ Instant Adhesive quickly bonds many plastics, rubber, metal and more.



To bond a flexible PVC mat into a high impact polystyrene turntable, 3M™ Pronto™ Instant Adhesive CA-40H provides high viscosity and a slower set time to meet handling requirements.



3M™ Pronto™ Instant Adhesive CA-8 is an excellent multi-purpose product for use in a variety of assembly applications.



Architectural pottery – For repair of fiberglass/concrete cast pottery, 3M™ Pronto™ Instant Adhesive CA-50 Gel bonds with high tensile and shear strength. Non-sagging formulation applies neatly when bonding curved surfaces.



3M™ Pronto™ Instant Adhesive CA-40 works on many problem surfaces where other adhesives may fail, such as bonding EPDM rubber.



Veneer and wood repair – 3M™ Pronto™ Instant Adhesive CA-40H is a high viscosity liquid for void filling between veneer and core. A light spray of 3M™ Pronto™ Surface Activator over the adhesive before assembly accelerates curing speed.

Product Information: 3M™ Pronto™ Instant Adhesives

Product	Features	Base	Time ⁽¹⁾ To Handling Strength (Sec.)	Viscosity (CPS)	Average ⁽²⁾ T-Peel At 75°F (24°C)	Overlap Shear Strength ⁽³⁾ @ 75°F (24°C) (PSI)					
						Steel	Alumi- num	Nitrile Rubber	Neoprene Rubber	ABS	Rigid PVC
CA-4	Fast setting multi-purpose cyanoacrylate adhesive for bonding a variety of plastics and rubbers. Meets MIL-A-46050C Type II, Class 2.	ethyl	5-40	60-120	1-2	1500	1500	35*	55*	900*	1000*
CA-5	A higher viscosity, slower setting version of CA-4 Adhesive. Better adapted for filling gaps and uneven surfaces. Meets MIL-A-46050C Type II, Class 3.	ethyl	20-70	2000-3000	1-2	2000	1100	35*	55*	900*	1000*
CA-7	Very fast setting product with excellent adhesion to a variety of metals, plastics and rubbers. Meets MIL-A-46050C Type I, Class 1.	methyl	1-30	15-40	2-4	2500	2400	35*	55*	900*	1000*
CA-8	Fast setting with excellent adhesion to many metals, plastics and rubbers. Slower setting than CA-7. Meets MIL-A-46050C Type II, Class 2.	ethyl	5-40	70-120	2-4	2000	2100	35*	55*	900*	1000*
CA-9	Slower setting version of CA-8 for wire tacking and coil terminating used with surface activator. Meets MIL-A-46050C Type II, Class 3.	ethyl	20-70	1000-1700	2-4	2000	2440	35*	55*	900*	1000*
CA-40	Very fast setting adhesive with excellent adhesion to many substrates including flexible vinyl and EPDM rubber. Meets MIL-A-46050C Type II, Class 1.	ethyl	1-30	2-10	1-2	1400	1400	35*	55*	900*	1000*
CA-40H	A higher viscosity, slower setting version of CA-40 Adhesive, with better void filling capabilities. Meets MIL-A-46050C Type II, Class 3.	ethyl	5-40	400-600	1-2	1500	1500	35*	55*	900*	1000*
CA-50 Gel	A high-viscosity gel consistency CA for many applications needing non-sag properties. Less sensitive to acidic surfaces.	ethyl	60-120	45,000-85,000	1-2	2000	900	105*	130*	850*	690*
CA-100	Toughened material that provides high peel and impact strength, thermal shock resistance and improved heat resistance.	ethyl	20-70	2500-4500	15	2000	2900	95*	120*	600*	710*
Surface Activator	A clear, colorless organic-based liquid. Bottle comes with brush in lid and spray pump.	Helps speed curing and primes surfaces. Also used for wire tacking and coil terminating with CA-5, CA-9, CA-50, or CA-100.									

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

(1) The time it takes assembled parts to reach a strength where further handling and processing can take place. Times will depend on surface to be bonded, temperature and humidity.

(2) Tested per ASTM D 1876-61T.
 (3) Tested per ASTM D 1002-64.
 * Substrate failure.

3M™ Jet-Weld™ Thermoset Adhesive System

Hot melt speed and structural strength performance in the palm of your hand.

This single system combines many production benefits typical of hot melt adhesives and bond performance usually associated with 2-part structural adhesives.

Fast initial set can help you reduce costs. Fast handling strength helps eliminate or minimize fixturing and speed assembly.

One-component, moisture-curing formulation eliminates metering, mixing and curing equipment. And 100% solids give you a low-VOC adhesive system with no drying equipment and no attack on plastics.

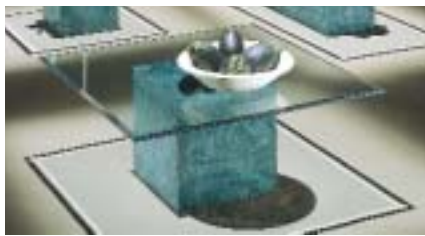
With the long bonding range and initial repositionability, assembly of complex parts is easier. Bond lines are thin, flexible and tough for improved part fit, appearance and rugged performance.

Combine this versatility with the applicator's portability, and you have a system that can adapt readily to many of your production requirements.

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The 3M™ Jet-Weld™ II Applicator and moisture-curing urethane adhesives put a powerful production capability in your assembly operation. Bond strength approaches the high end of the performance range, exceeding many conventional hot melts and PVA (polyvinyl acetate) adhesives. Bond wood, plastics, rubber, dissimilar materials, plasticized vinyls, and more.



Decorator tables – 3M™ Jet-Weld™ Adhesive performs multiple tasks including V-groove bonding at the table joints.

Photo courtesy of The Rose Hill Co., Inc.



Trade show booths – 3M™ Jet-Weld™ Adhesive bonds extruded aluminum bracket to laminate covering of honeycomb panel. Bracket is for hanging graphics.



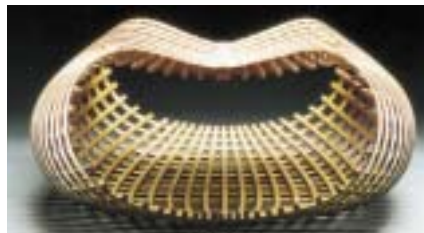
Speaker assemblies – Flexible, tough bond lines of 3M™ Jet-Weld™ Adhesive hold dissimilar materials and multiple components.

Photo courtesy of Bose®.



High performance gliding windows – With fast handling strength, 3M™ Jet-Weld™ Adhesive helps speed the bonding of interior wood trim to the vinyl sash.

Photo courtesy of Andersen Windows, Inc.



Bent wood furniture – With 100% solids 3M™ Jet-Weld™ Adhesive, a manufacturer holds the aesthetic contours of unique bentwood furniture.

Photo courtesy of David Trubridge, designer



Wood furniture – 3M™ Jet-Weld™ Adhesive is easily applied as a bead for bonding wood furniture and cabinet components. Fast handling strength helps speed production.

Product Information: 3M™ Jet-Weld™ Adhesives

Product	Description	Application temperature	Viscosity @250°F (CPS)	Color	Open time	Set time	Shore D	Tensile strength (PSI)	Elongation %	Modulus (PSI)	
Jet-Weld Adhesives	TE-015	Extrudable grade with very fast set time for bonding wood and selected plastics.	250°F (121°C)	7,000	White/Off-White	1.5 min.	15 sec.	65	3950	750%	2500
	TE-030	Extrudable grade with fast set time for bonding wood and selected plastics.	250°F (121°C)	16,000	White/Off-White	1 min.	30 sec.	60	3800	725%	11,200
	TE-031	Extrudable grade with fast set time for bonding a wide variety of plastics, including polystyrene and polyacrylic.	250°F (121°C)	13,000	White/Off-White	2 min.	30 sec.	50	3900	725%	5600
	TE-040	Extrudable grade with fast set time, low viscosity, and strong, flexible bonds. Bond a wide variety of plastics, as well as wood, aluminum and glass.	250°F (121°C)	7,000	White/Off-White	2 min.	40 sec.	35	2750	860%	2850
	TE-100	Extrudable grade with medium set time and low viscosity for bonding wood and selected plastics. Thin bond lines.	250°F (121°C)	7,000	White/Off-White	2 min.	1 min.	61	4200	675%	12,200
	TE-200	Extrudable grade with fast set time, low viscosity. For bonding wood and selected plastics. Thin bond lines.	250°F (121°C)	3,000	White/Off-White	4 min.	2 min.	60	4000	625%	9700
	TS-230	Sprayable/extrudable grade with long set time for bonding a wide variety of plastics, including polystyrene and polyacrylic. Bond aluminum and glass to plastic and wood.	250°F (121°C)	9,000	White/Off-White	4 min.	2.5 min.	45	3300	700%	5400
	TS-115 HGS	Sprayable/extrudable/roll coatable grade with fast set time, for bonding wood, fiber, reinforced plastic and other plastics to themselves, metal and glass.	250°F (121°C)	16,000	White/Off-White	10 min.	1 min.	47	3200	600%	3300

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



Job-matched tips –

- 1) Threaded cap for sealing tip after use.
- 2) Extension tip for improved sight line in hard-to-reach areas.
- 3) .062" tip for low flow applications.
- 4) .125" tip for high flow applications.

.090" tip standard on 3M™ Jet-Weld™ II Applicator.

Container sizes to meet your production volume –

- 10 fl.oz. cartridges
- 2k foil packs
- Gallon pail
- 5 gallon pail
- 55 gallon drum





Non-Structural Adhesives

3M non-structural strength adhesives bond substrates used in insulation applications, cushioning, decorative trim, packaging, paneling, sealing, gasketing, countertops, furniture, woodworking, and general assembly. Materials include rubber, plastics, fabric, leather, wood, metal, and glass. A range of bond strength is available to help meet specific requirements wherever structural strength is not required.

Each substrate has an individual bonding “profile” determined by the degree of porosity, absorbency, surface texture, strength, solvent sensitivity, and reaction to environmental conditions such as humidity.

With 3M adhesives, you have a wide selection to help find the best balance of end-use performance, application ease and cost effectiveness.

Non-structural adhesive forms can be liquid with different viscosities, solid hot melts, or supplied in a convenient aerosol.

The 3M non-structural adhesives product line includes the following:

- 3M Light Cure Adhesives
- 3M™ Fastbond™ and Scotch-Grip™ Contact Adhesives
- 3M™ Scotch-Grip™ Plastic and Rubber Adhesives
- 3M Insulation and Light Duty Adhesives
- 3M Solvents
- 3M Sealant Technologies
- 3M Aerosol Adhesives
- 3M™ Shipping-Mate™ Aerosols for Packaging
- 3M Maintenance Aerosols
- 3M™ Jet-melt™ Adhesives and Polygun™ Applicators
- 3M Spray-Bond Heat Applied Adhesive System
- 3M Thermo-Bond Films

3M Light Cure Adhesives

Precision bonding, potting, encapsulation, tacking, and more at the speed of light.

With cure speeds generally less than 5 seconds, you can raise the speed limit for many electronics assembly applications. These specialized acrylate formulations cure on demand when exposed to UV or visible light. And for precision targeting and placement, each adhesive in the line is available in 3, 5, 10, and 30ml EFD®-compatible syringes.

Use with manual, semi-automatic, or fully automatic dispensing systems to meet your production requirements for encapsulation, potting, fixturing, wire tacking, sealing, conformal coating, and lens bonding.

Select UV curing versions for thin films and coatings, and bonding heat-sensitive substrates. For curing through thicker sections, visible light formulations cure to depths of 2" to almost 4".

For visible light, the 3M Curing Light VL1 (at right) is a compact and convenient hand tool for spot curing.



Wire tacking – To reduce processing time, 3M™ Light Cure Adhesives cure on demand with exposure to UV or visible light.



Potting – All 3M™ Light Cure Adhesives feature superior depth of cure for potting applications.

Product	Features	Cure Mechanism	Viscosity @72°F (CPS)	Cured Color	Shore D Hardness	Tensile Strength (PSI) ¹	Overlap Shear Strength, PC-PC (PSI) ²
LC-1110	Semi-rigid bond.	UV	32,000	Colorless	80	3896	424
LC-1111	Flexible bond.	UV	645	Colorless	70	1616	539
LC-1112	Semi-rigid bond. Improved glass and metal adhesion.	UV	15,460	Colorless	83	4600	411
LC-1113	Flexible bond. Improved glass and metal adhesion.	UV	641	Colorless	71	2377	522
LC-1210	Semi-rigid bond.	Visible, UV	20,600	Light Yellow	78	3183	414
LC-1211	Flexible bond.	Visible, UV	488	Light Yellow	69	1426	436
LC-1212	Semi-rigid bond. Improved glass and metal adhesion.	Visible, UV	12,720	Light Yellow	83	4508	455
LC-1213	Flexible bond. Improved glass and metal adhesion.	Visible, UV	560	Light Yellow	69	1929	566
LC-1214	Very flexible bond. Color change indicator (red to light yellow).	Visible, UV	44,000	Yellow	40	1320	540

Note: The technical information and data on these pages should be considered representative or typical only, and should not be used for specification purposes.
 (1) Based on ASTM D 638 (2) ASTM D 1002
 EFD® is a registered trademark of EFD incorporated.

A tradition of 40 years and the performance you'll want for a long time to come.

This line offers a wide range of choices for contact adhesive applications. Select from bonding ranges, strengths, solids content, and solvent or water-based formulations to meet requirements for bonding laminate, foam, and more.

In the line, you'll find the water-based pioneer 3M™ Fastbond™ Contact Adhesive 30 NF – proven for almost 40 years in cabinet shops and still in compliance with current and currently proposed air quality regulations. Plus, there's the latest innovation – 3M™ Fastbond™ Contact Adhesive 2000-NF with handling speed exceeding most solvent-based systems and up to 350 psi in overlap shear.

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The Fastbond Water-Based Story

While competition pressures you to improve productivity, regulatory legislation demands that you move toward more environmentally-responsible technologies. Some local and regional regulations have made traditional solvent-based contact adhesives virtually obsolete.

Fastbond is the 3M trademark on a continually growing line of water-based adhesives that are helping many industries meet the challenge right now and aim for the foreseeable future. By replacing solvent-based adhesives, compliance is getting easier in more and more applications. At the same time, you have a choice of production and end-use characteristics as you can see in the chart at far right and on page 22.



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Buy only the quantity you need – Depending on the specific 3M™ Fastbond™ Adhesive, you can select quart or gallon jugs for convenient handling, or 5-gallon pails and 55-gallon drums for large bulk dispensing.



43

Tabletop lamination – With 3M™ Fastbond™ Contact Adhesive 2000-NF, you get three times the coverage of a typical solvent-based system. For production speed, you go from spray to trim in seconds.



44

Foam fabrication – In compound cushion assembly, high tack 3M™ Fastbond™ Foam Adhesive 100 holds curves in seconds. Lighter density foam is adhered around the higher density core with a smooth rounded edge.



45

Upholstered household furniture – 3M™ Fastbond™ Foam Adhesive 100 quickly bonds substrates throughout chairs and couches. Bond foam to foam and fiber fill, foam to wood, fiber fill to fabric, and more.



46

Cabinet assembly – 3M™ Fastbond™ Contact Adhesive 30-NF is a formulation proven in shops for four decades. Combines open time of up to 4 hours with high immediate bond strength. Apply with roller, brush, or spray gun.



47

Marine carpeting – In bonding carpet to fiberglass flooring and steps, 3M™ Fastbond™ Contact Adhesive 2000-NF helps withstand the foot traffic and moisture in boat cabins.

Product Information: 3M™ Fastbond™ Contact Adhesives, Water-Based

Product	Features	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color Dry Film	Application Method	Bonding Range	Overlap Shear Strength (PSI)		Peel Strength (PIW)
								75°F (24°C)	180°F (82°C)	75°F (24°C)
Fastbond Contact Adhesives, Water-Based	30-NF	50%	None	Thin liquid	Green, Clear	Spray, roller, brush	Up to 4 hours	480 ⁽¹⁾	60 ⁽¹⁾	5.9 ⁽²⁾
	30-H	50%	None	Medium liquid	Green	Spray, roller, brush, roll coat	Up to 4 hours	480 ⁽¹⁾	60 ⁽¹⁾	5.9 ⁽²⁾
	2000-NF	49%	None	Thin liquid	Blue, Light Orange, Clear	Co-Spray	Up to 2 hours	350 ⁽¹⁾	50 ⁽¹⁾	4.1 ⁽²⁾
	Foam Adhesive 100	47%	None	Very thin liquid	Lavender, Clear	Spray	Up to 20 minutes	N/A	N/A	1.1 ⁽²⁾

Product Information: 3M™ Scotch-Grip™ Contact Adhesives

Product	Features	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color Dry Film	Application Method	Bonding Range	Overlap Shear Strength (PSI)		Peel Strength (PIW)
								75°F (24°C)	180°F (82°C)	75°F (24°C)
Scotch-Grip Contact Adhesives	5	19%	-14°F (-26°C)	Thin liquid	Green, Light Yellow	Spray	30 minutes minimum	482 ⁽¹⁾	65 ⁽¹⁾	19 ⁽²⁾
	10	22%	-14°F (-26°C)	Thin liquid	Light Yellow	Brush, roller	30 minutes minimum	482 ⁽¹⁾	65 ⁽¹⁾	19 ⁽²⁾
	1357	25%	-14°F (-26°C)	Thin liquid	Gray-green, Light Yellow	Brush, spray	30 minutes minimum	536 ⁽¹⁾	199 ⁽¹⁾	42 ⁽²⁾
	1357-L	18%	-14°F (-26°C)	Thin liquid	Gray-green	Spray	30 minutes minimum	536 ⁽¹⁾	199 ⁽¹⁾	42 ⁽²⁾

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

- (1) Birch plywood to birch plywood @ 0.1 inches/minute separation rate.
- (2) Canvas to cold rolled steel @ 2.0 inches/minute separation rate.

Note: Flash Point (closed cup) in all Fastbond Adhesives: None.



Note: 3M™ Hi-Strength 90 Adhesive, a popular 3M aerosol adhesive (see page 25), is now also available in bulk form.

3M™ Fastbond™ and Scotch-Grip™ Adhesives

Innovative answers to a wide variety of non-structural bonding challenges.

3M™ Scotch-Grip™ Adhesives are industrial tools designed to provide innovative answers to a wide variety of non-structural bonding problems.

Some formulations are tailored to specific types of applications such as Scotch-Grip Plastic Adhesives. These high strength, fast drying elastomers bond polycarbonate, vinyl, and many other plastics to themselves and materials such as wood or metal. With Scotch-Grip Rubber and Gasket Adhesives you can easily bond neoprene, EPDM, and many more.

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Other Scotch-Grip Adhesives are multi-purpose and used worldwide in hundreds of different product assembly operations.

If you're looking for a reliable non-structural adhesive, you're likely to find just what you need in the Scotch-Grip Adhesives line backed with more than 50 years of 3M adhesives research and engineering.



49

Containers to meet your production requirements – Depending on the specific 3M™ Scotch-Grip™ Adhesive, you can select drums, cans, pails, or handy tubes. These collapsible tubes are self-contained lightweight applicators to give you “take-it-to-the-job” convenience for multi-station or low volume assembly and field repairs.



50

Pinball machine refurbishing – 3M™ Scotch-Grip™ Plastic Adhesive 4693H bonds and seals decorative translucent plastic inserts into the underside of the playing surface. Up to 60 minute bonding range with contact bond properties.



51

Light fixture assembly – To prevent moisture penetration, a pressure flow gun applies 3M™ Scotch-Grip™ Rubber and Gasket Adhesive to bond a rubber gasket into a commercial light fixture cover.



52

Chemical drum gasket – With excellent resistance to fuel and oil, 3M™ Scotch-Grip™ Rubber and Gasket Adhesive 847 bonds and seals drum gaskets in place. Very low VOC formulation.



53

Display board – 3M™ Scotch-Grip™ Plastic Adhesive 1099 bonds wood flooring samples to a plastic display board with overlap shear strength of more than 385 psi. Very low VOC formulation.



54

Washing machine repair – 3M™ Scotch-Grip™ Rubber and Gasket Adhesive 1300 bonds with high immediate strength and seals the doughnut ring seal in the outer tub. Bond line resists up to 300°F (149°C).



55

Sporting goods – In bonding plastic feathers and nocks onto arrow shafts, fast-tacking 3M™ Scotch-Grip™ Plastic Adhesive 4475 dries quickly to a firm bond. Resists plasticizers, water, and heat up 200°F (93°C).

Product Information: 3M™ Scotch-Grip™ Plastic Adhesives

Product	Features	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color Dry Film	Application Method	Bonding Range	Overlap Shear Strength (PSI)		Peel Strength (PIW)
								75°F (24°C)	180°F (82°C)	75°F (24°C)
826	Fast drying adhesive for many plastic films. Resists aromatic and aliphatic fuels, water, oil.	24%	35°F (3°C)	Thin liquid	Amber	Spray, brush	Up to 45 minutes	198 ⁽¹⁾	59 ⁽¹⁾	27 ⁽³⁾
1099	Fast drying and heat curable. Resists weathering, water, oil, plasticizer migration, aliphatic fuels. Meets MIL-A-13883B, Type I and MMM-A-189C, Class 2.	32%	0°F (-18°C)	Medium liquid	Light Tan	Brush, flow	Up to 40 minutes	1306 ⁽¹⁾⁽²⁾	643 ⁽¹⁾⁽²⁾	31 ⁽³⁾
1099-L	A sprayable version of 1099 Adhesive.	24%	0°F (-18°C)	Thin liquid	Tan	Spray, brush	Up to 20 minutes	1306 ⁽¹⁾⁽²⁾	643 ⁽¹⁾⁽²⁾	31 ⁽³⁾
2262	Quick tack, clear and non-staining. Resists plasticizer migration for bonding many flexible vinyls.	25%	0°F (-18°C)	Thin liquid	Clear	Brush, flow	Up to 20 minutes	N/A	N/A	17 ⁽⁴⁾
4475	Clear, fast tacking and dries quickly to a firm bond. Resists water, plasticizer migration, detergent, oils and grease.	42%	20°F (-7°C)	Medium liquid	Clear	Flow	Up to 10 minutes	N/A	N/A	44 ⁽³⁾
4693	Long tack range. Water and heat resistant bond for many plastics including polyethylene and polypropylene.	24%	1°F (-17°C)	Thin liquid	Clear	Spray, brush	Up to 60 minutes	N/A	N/A	22 ⁽³⁾
4693-H	High viscosity version of 4693 Adhesive for collapsible tubes.	36%	1°F (-17°C)	Medium liquid	Clear	Flow, brush	Up to 60 minutes	N/A	N/A	22 ⁽³⁾

(1) Aluminum to aluminum @ 0.1 inches/minute separation rate.

(2) Bonds heat cured for 15 minutes @ 325°F, 150 PSI

(3) Canvas to cold rolled steel @ 2.0 inches/minute separation rate.

(4) Unsupported vinyl to steel @ 2.0 inches/minute separation rate.

Product Information: 3M™ Scotch-Grip™ Rubber and Gasket Adhesives

Product	Features	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color Dry Film	Application Method	Bonding Range	Overlap Shear Strength (PSI)		Peel Strength (PIW)
								75°F (24°C)	180°F (82°C)	75°F (24°C)
847	Quick drying and flexible with fuel and oil resistance. Heat and solvent reactivatable. Curable with heat.	36%	0°F (-18°C)	Medium liquid	Brown	Flow, brush	Up to 15 minutes	200 ⁽¹⁾	9 ⁽¹⁾	40 ⁽²⁾
847-L	Lower viscosity version of 847 Adhesive for spray application.	24%	0°F (-18°C)	Thin syrup	Brown	Spray, brush	Up to 20 minutes	200 ⁽¹⁾	9 ⁽¹⁾	40 ⁽²⁾
847-H	Higher viscosity version of 847 Adhesive.	50%	0°F (-18°C)	Thick syrup	Brown	Flow, brush	Up to 10 minutes	200 ⁽¹⁾	9 ⁽¹⁾	40 ⁽²⁾
1300	High immediate strength, fast-drying, and heat resistant for rubber and metal.	37%	-14°F (-26°C)	Medium liquid	Yellow	Flow, brush	Up to 12 minutes	549 ⁽¹⁾	136 ⁽¹⁾	52 ⁽²⁾
1300-L	Lower viscosity version of 1300 Adhesive. Sprayable. Meets Mil Spec MMM-A-121.	29%	-14°F (-26°C)	Thin liquid	Yellow	Spray, brush	Up to 8 minutes	549 ⁽¹⁾	136 ⁽¹⁾	52 ⁽²⁾
2141	Easy-brushing general purpose rubber adhesive with excellent water resistance.	30%	-14°F (-26°C)	Medium liquid	Light Yellow	Flow, brush	Up to 15 minutes	377 ⁽¹⁾	68 ⁽¹⁾	32 ⁽²⁾
4799	Brushable paste consistency with low soak-in on porous surfaces. Can bond EPDM rubber.	36%	-14°F (-26°C)	Thin paste	Black	Brush, trowel	Up to 15 minutes	N/A	N/A	28 ⁽²⁾

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

(1) Birch plywood to birch plywood @ 0.1 inches/minute separation rate.

(2) Canvas to cold rolled steel @ 2.0 inches/minute separation rate.

Product Information: 3M Insulation and Light Duty Adhesives

	Product	Features	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color Dry Film	Application Method	Bonding Range	Peel Strength (PIW) ^{75°F (24°C)}
3M™ Fastbond™ Adhesives	Insulation Adhesive 42-NF Plus NV	Fast tacking. Resists high temperature, humidity. No VOCs. UL component recognition category MAGW2 (adhesives, insulation), file no. MH 6288(N).	63%	None	Thixotropic liquid	Black	Spray	Up to 15 minutes	19.9 ⁽¹⁾
	Insulation Adhesive 49	Fast tacking, high performance pressure sensitive adhesive for bonding insulation and other lightweight materials. No VOCs, UL component recognition category MAGW2 (adhesives, insulation) file number MH 6288.	55%	None	Thin liquid	Clear	Spray, brush, roller	30 days plus	3.0 ⁽³⁾
	Pressure Sensitive Adhesive 4213-NF	Resists staining and discoloration. Dries clear. No VOC content. Not recommended for exterior applications.	54%	None	Medium liquid	Clear	Brush, roller, trowel	5 minutes	12.0 ⁽²⁾
	Industrial Adhesive 4224-NF	Permanently pressure sensitive with aggressive tack. Plasticizer resistant. Low VOC content.	40%	None	Thick liquid	Blue, Clear	Spray, brush, roller, trowel, coater	30 days plus	4.4 ⁽³⁾
	Industrial Adhesive 4268-NF	High-coverage pressure-sensitive adhesive with repositionability. Low VOC content and low odor.	48%	None	Medium liquid	Clear	Spray, brush, roller, trowel, coater	30 days plus	6.3 ⁽³⁾
	Industrial Mastic 4289-NF	High strength bonds for styrene and beadboard without cavitation. Non-sag on vertical surfaces. Freeze-thaw stable. Low VOC content.	69%	None	Mastic	Black	Caulk, flow, trowel	30 minutes	N/A
3M™ Scotch-Grip™ Adhesives	Industrial Adhesive 1870	Single surface application with very long tack range. Resists bleed through. Flexible bond.	26%	-7°F (-22°C)	Thin liquid	Tan	Spray, brush	Up to 40 minutes	7 ⁽⁴⁾
	Construction Mastic 4323	Resistant to wear, heat and dead load creep.	66% (-17°C)	1°F	Mastic	Gray	Caulk, flow, trowel	Up to 20 minutes	N/A
	Industrial Adhesive 4550	Fast tacking, long bonding range. UL component recognition category MAGW2 (adhesives, insulation), file no. MH 6288(N).	35%	Less than -20°F (-29°C)	Medium liquid	Clear/translucent	Low pressure spray	Up to 60 minutes	23 ⁽¹⁾

Product Information: 3M Solvents

	Product	Features	Base	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color	Application Method
Solvents	Scotch-Grip™ Solvent No. 2	Removes many oil-soluble adhesives, coatings and sealers. Not recommended for surface preparation.	Toluene aliphatic blend	0%	-14°F (-26°C)	Very thin liquid	Clear	Brush, dip, spray
	Scotch-Grip™ Solvent No. 3	Removes many oil-resistant adhesives, coatings and sealers. Cleans surfaces prior to bonding.	Methyl ethyl ketone	0%	-20°F (-7°C)	Very thin liquid	Clear	Brush, dip, spray
	Citrus Base Cleaner	Multi-purpose cleaner removes grease, dirt, oil, and adhesive overspray from equipment.	Citrus oil	4-6%	112°F (44°C)	Very thin liquid	Clear	Brush, dip, spray

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

- (1) Canvas to cold rolled steel @ 2.0 inches/minute separation rate.
- (2) Supported vinyl to wood @ 2.0 inches/minute separation rate.
- (3) Primed polyester to steel @ 2.0 inches/minute separation rate.
- (4) Maple to itself @ 50% R.H. Test at 0.1 inches/minute separation rate.

Note: Flash Point (closed cup) in all Fastbond Adhesives: None.



HVAC duct insulation – Easy and economical to apply, 3M™ Fastbond™ Insulation Adhesive 49 is a single-component water-based pressure sensitive formulation with instant tack to speed assembly.



Note: 3M™ Super 77™ Adhesive, a popular aerosol adhesive (see page 25), is now available in bulk form for high volume applications on many lightweight materials.

3M Sealant Technologies

Solutions for the elements from windows to ductwork.

Air, water, dirt, fuel, cold, heat – keeping these or other elements in or out is a challenge in applications as varied as windows and doors, truck lap seams, HVAC ductwork, vinyl siding, and livestock troughs. With 3M™ Scotch-Seal™ and Weatherban™ Sealants, you have a wide selection of solutions based on more than 50 years of development and innovation. To meet your requirements, you'll find formulations from acrylic to polyurethane, and forms from liquids to tapes.



Meeting your volume requirements –

Depending on the formulation, 3M sealants are available in caulking cartridges, collapsible self-applicator tubes, pails, drums, or rolls.

Ductwork – 3M™ Scotch-Seal™ Duct Sealer 900 fills gaps and cures quickly to a firm rubbery seal on medium and high pressure ductwork for heating, ventilating, and air conditioning.

Product Information: 3M™ Scotch-Seal™ and Weatherban™ Sealants

	Product	Features	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color (Dry)	Application Method	Cure or Dry Time	Service Temperature Range
Scotch-Seal Sealants	Adhesive Sealant 540	Polyurethane. Moisture cures rapidly to seal/bond many plastics, metal, wood, and more. Elastic to flex between materials with different coefficients of expansion. 250 psi tensile strength.	90%	136°F (58°C)	Mastic	Black & Gray	Hand or pressure caulk	24 hours (3/16" dia. bead)	-40° to 194°F (-40° to 90°C)
	Adhesive Sealant 560	Similar to 540 but with higher tensile strength of 580 psi and faster tack-free time. May replace mechanical fasteners.	90%	136°F (58°C)	Mastic	Black & Gray	Hand or pressure caulk	24 hours (3/16" dia. bead)	-40° to 194°F (-40° to 90°C)
	Industrial Sealant 800	Air dries. Flexible, rubbery for aluminum, steel, glass, many plastics and more. Resists weather, water, oils, fuel, detergent.	51.5%	20°F (-7°C)	Heavy liquid	Reddish brown	Brush or flow	1-3 days	-65° to 200°F (-54° to 93°C)
	Duct Sealer 900	Firm, rubbery with gap filling properties for aluminum, steel, and more. Economical for medium and high pressure HVAC ducts.	66%	1°F (-17°C)	Mastic	Gray	Hand or pressure caulk	1-2 days	0° to 180°F (-18° to 82°C)
	Tamper-proof Sealant 1252	Fire retardant seal for aluminum, glass, galvanized steel, cold rolled steel, and most plastics. Resists oil, gasoline, water, jet fuel and fungus. Will not corrode metal. Tack free in 20 seconds.	70%	20°F (-7°C)	Thin paste	White	Pressure flow gun	24 hours (1/8" dia. bead)	-20° to 250°F (-29° to 121°C)
	Metal Sealant 2084	Adheres to metal, wood and glass. Seals metal to glass in windows and doors. Resists weather, water, oil and gasoline.	46%	0°F (-18°C)	Heavy liquid	Aluminum	Brush or flow	24 hours (1/8" dia. bead)	-30° to 250°F (-34° to 121°C)
Weatherban Sealants	Sealant Tape 5354	High tack butyl adheres aggressively to porous and non-porous surfaces. Easy to compress and resists cold flow.	100%	None	Solid tape	Black	Apply by hand	Non-drying or curing	-65° to 190°F (-54° to 88°C)
	Ribbon Sealant PF-5422	Thread reinforced butyl. Dimensional stability, die-cutting. Repositionable with virtually no cleanup. Weather resistant adhesion to glass, metal and other non-porous surfaces.	100%	None	Solid tape	Black	Apply by hand	Non-drying or curing	-40° to 200°F (-40° to 93°C)
	Ribbon Sealant PF-5423	Nonreinforced thinner product similar to PF 5422 Ribbon Sealant.	100%	None	Solid tape	Black	Apply by hand	Non-drying or curing	-40° to 200°F (-40° to 93°C)
	Sealant 606-NF	Smooth, weather resistant acrylic for metal, wood, painted or primed surfaces and some abraded plastics. Skins over in 20-40 minutes. Low shrinkage. Weld-through.	78%	None	Non-stringing pumpable paste	White	Hand or pressure caulk	7 days (1/4" dia. bead)	-20° to 180°F (-29° to 82°C)

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

3M Aerosol Adhesives

At the touch of a finger – bonding power for substrates from paper to metal.

3M aerosol adhesives go to the job and are always ready when needed. Only a finger's touch puts a job-matched formulation to work on paper, plastic, cardboard, foam, metal, and more.

3M introduced the first industrial-grade aerosol adhesive over 35 years ago, and now you can select from a wide range of performance and application characteristics for production and maintenance jobs. Most 3M aerosol adhesives also have a controlled spray pattern to help minimize overspray, clean-up, and unused adhesive.

3M aerosol adhesives contain no methylene chloride, chlorofluorocarbons (CFCs), or 1,1,1-trichloroethane (methyl chloroform).



Handy, self-contained applicators – No matter what adhesive you need, you save the expense of complex application systems. The compact size helps reduce storage space and cost.

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Headliner attachment – 3M™ Headliner Spray Adhesive is specially formulated for fast tack and high heat resistance. Fast tack holds the headliner in place for easy assembly. The bond holds under the heat of the summer sun on the roof.



Trade show booth – Expanded polystyrene panels used for decorative facings are easily bonded to plywood panels with 3M™ Insulation 78 Spray Adhesive. After assembly, the panels are textured and painted to resemble stone.



Assembly of many lightweight materials – With fast tack, long bonding range, and little or no soak-in, 3M™ Super 77™ Spray Adhesive is a versatile tool for bonding fabrics, plastics, foams, paper, cardboard, and metals.



Low misting – Lace spray pattern of 3M 72, 74, 76, 80 and 90 Spray Adhesives target adhesive where you want it for clean, precise application.



General upholstery foam bonding – 3M™ FoamFast 74 Spray Adhesive quickly bonds flexible urethane or latex foams to themselves and many other lightweight materials. Bond reaches foam-tearing strength with a soft, non-dimpling bond line.



Edge banding – 3M™ Hi-Strength 90 Spray Adhesive typically bonds in 60 seconds compared to 15-20 minutes for many typical bulk contact adhesives. Strength increases to an ultimate 230 psi in shear and 25 piw in peel.

Product Information: 3M Aerosol Adhesives

Product	Features	Spray Width	Bonding Range Surfaces One/Both	Shear ⁽¹⁾ (PSI) Initial/Ultimate	Relative Adhesion		Coverage Sq. Ft./ Container ⁽⁵⁾ (Typical)
					Peel Strength (PIW) ⁽²⁾	Temperature Resistance ⁽³⁾	
Blue 72 Spray Adhesive	Repositionable with aggressive tack for bonding polyethylene film and foam; also carpet bonding. Blue color.	1" - 3" variable	8 hr./7 days	20/85	8	120°F (49°C)	100
FoamFast 74 Spray Adhesive	Fast tack with foam-tearing strength and soft, non-dimpling glue line. General upholstery foam bonding. Plus knife edge bonding, boxing, edge turning.	1" - 3" variable	N/R / 15 min.	40/205	20	120°F (49°C)	260
Repositionable 75 Spray Adhesive	Clear "tape-like" adhesive holds badges during stitching and patterns prior to cutting. No bleed, stain or wrinkle.	1½"	1 hr./3 hrs.	15/65	5	120°F (49°C)	100*
Hi-Tack 76 Spray Adhesive	Multi-purpose with high temperature resistance and strong one-surface bonds.	1" - 3" variable	10 min./1 hr.	25/100	25	160°F (71°C)	100
Super 77™ Spray Adhesive	Fast, aggressive tack for bonding many lightweight materials. Choice of round or fan pattern nozzle.	1½" - 4" fan	15 min./30 min.	25/160	15	110°F (43°C)	220
Insulation 78 Spray Adhesive	Bonds most insulation including expanded polystyrene and extruded polystyrene. Fast-drying formula will not attack foam board.	1" - 3" variable	5 min./15 min.	7/67	15-20	140°F (60°C)	100
Contact 80 Neoprene Adhesive	Neoprene-based contact adhesive with plasticizer resistance. Can bond supported vinyl, leather, most rubber. Adheres to most plastics, laminate and wood. Resists over 200°F (93°C).	3"	N/R / 1 hr.	50/400	35	200°F (93°C)	75/30 ⁽⁴⁾
Hi-Strength 90 Spray Adhesive	High contact bond strength for decorative laminate. Adheres polyethylene and polypropylene to wood, metal, and more. One minute dry time.	1" - 3" variable	N/R / 15 min.	45/230	25	160°F (71°C)	100
Headliner Spray Adhesive	Specially designed to permanently bond new or damaged automotive headliners. Fast-drying formula does not dissolve polyurethane foam; will not discolor most headliner fabrics.	1" - 3" variable	N/R/ 1-15 min.	14/72	10	170°F (77°C)	50

(1) AdhD T.M. C-700: 1/8" birch veneer bonded to 1/8" birch veneer.

(2) AdhD T.M. C-449.

(3) AdhD T.M. C-483; 500 g load for 1 hr. at noted temp.

(4) Plastic laminate bonding @ 3-5 g/sq. ft. coverage

(5) Coverage based on container sizes 24 ounce or *16 ounce size cans.

N/R = Not Recommended

Product Information: 3M™ Hi-Strength 90 and Super 77™ Adhesives in Bulk



3M's most popular aerosol adhesives are now available in bulk form. The following characteristics of interest to higher volume users supplement the chart above.

	Product	Features	% Solids	VOCs (g/liter)
Bulk Adhesives	Super 77™ Bulk Adhesive	<ul style="list-style-type: none"> High coverage Low soak-in for long lasting bonds Meets performance requirements of MMM-A-1058A 	36–38%	495
	Hi-Strength 90 Bulk Adhesive	<ul style="list-style-type: none"> High temperature resistance 	22–24%	507
Cylinder	Hi-Strength 90 Adhesive Cylinder	<ul style="list-style-type: none"> Convenient No methylene chlorides or CFCs Temperature resistance up to 160°F (71°C) 	13%	571

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

3M™ Shipping-Mate™ Aerosols for Packaging

The convenient system to help your package do its full job.

A package performs three functions – containment, protection, and communication. The Shipping-Mate aerosol family can help you save time and effort for the full job.

For containment in shipping and handling, rely on Shipping-Mate case sealing adhesive for neat, clean bonds with carton-tearing strength. For protection, you have fewer worries with Shipping-Mate palletizing adhesive stabilizing coated cartons or bags. For communications, Shipping-Mate labeling adhesive bonds to even difficult surfaces, and Shipping-Mate Box Re-nu covers unwanted printing to provide a new looking surface.

3M aerosol chemicals contain no methylene chloride, chlorofluorocarbons (CFCs), or 1,1,1-trichloroethane (methyl chloroform).



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69



70



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3M™ Shipping-Mate™ Case Sealing Adhesive – Helps save time and money if you fill miscellaneous orders, have cartons that come unglued, fill by hand, or open and close for inspection. Quick drying to keep pace with your operation.

3M™ Shipping-Mate™ Labeling Adhesive – Clear spray adhesive permanently bonds labels to many problem surfaces such as glass, rubber, or metal where other adhesives or gummed labels may fail. Moisture-resistant formulation.

3M™ Shipping-Mate™ Box Re-nu Coating – To save the cost of new corrugated cartons, this easy-to-use aerosol covers most printing and labels with permanent tan color for carton reuse. Quick drying and long lasting.

Product	Features	Spray Width	Bonding Range Surfaces One/Both	Relative Adhesion		Temp. Resist. (3)	Coverage Sq. Ft./ Cont. (4)
				Shear ⁽¹⁾ (PSI) Initial/ Ultimate	Peel Strength ⁽²⁾		
Case Sealing Adhesive	Ten-second holding strength with carton-tearing strength in 5 minutes. Convenient for shipping room carton closure and warehouse reclosure after inspection.	3"	N/R/15 min.	40/160	N/A	160°F (71°C)	100
Labeling Adhesive	Clear, fast-tacking. Holds labels to many corrugated cartons and problem surfaces such as glass, plastic and more. Moisture-resistant bond.	2.5"	10 min. / N/R	15/120	N/A	130°F (54°C)	90
Palletizing Adhesive	Nearly immediate tack permits bags to be stacked on pallets without slipping. Easy separation after shipment. Clear color.	1.5"	10 min. / N/R	10/10	N/A	120°F (49°C)	300
Box Re-nu Coating	Covers most printing and labels with permanent tan color for reuse of corrugated cartons.	3"	N/A / N/A	N/A / N/A	N/A	250°F (121°C)	25

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

N/R = Not recommended
N/A = Not applicable

(1) AdhD T.M. C-700: 1/8" birch veneer bonded to 1/8" birch veneer.
(2) AdhD T.M. C-449.

(3) AdhD T.M. C-483; 500 g load for 1 hr. at noted temp.
(4) All container sizes 24-fl. oz. except Box Re-nu Coating.

3M Maintenance Aerosols

Convenience and a fistful of work power for maintenance and production.

In thousands of factories and plants, these aerosol chemicals are proven daily to save time and effort in maintenance and production. Lubricating, cleaning, inhibiting rust, and other tough jobs become finger-touch easy.

Compact container fits in a tool box to go readily to any job site and can help you reduce storage space and cost. With targeted application you get more useable product for your money.

3M aerosol chemicals contain no methylene chloride, chlorofluorocarbons (CFCs), or 1,1,1-trichloroethane (methyl chloroform).



3M™ Silicone Lubricant – Lubricates cutting tools and tables. Fast, easy application helps prevent build-up of adhesive, wax, inks, and paints. Won't stain or become gummy.

3M™ Citrus Base Cleaner – For fast, easy clean-up of gears, this heavy-duty degreaser/cleaner helps soften and loosen grease, oil and grime. Just wipe away with a shop towel.

3M™ 5-Way Penetrant – A tapping liquid for stainless steel or aluminum is only one of many applications for this versatile chemical.

	Product	Features	Temperature Resistance
Aerosol Chemicals	Silicone Lubricant	Lubricates cutting tools and tables. Helps prevent build-up of glues, wax, inks, paints. Won't stain or become gummy. FDA listed ingredients.	350°F (177°C)
	5-Way Penetrant	Penetrates, lubricates, demotes, cleans and helps prevent rust. Frees rusted, frozen nuts. "Dries out" electrical apparatus. Inhibits corrosion and pitting of moulding dies and extension screws.	N/A
	Citrus Base Cleaner	Multi-purpose, citrus-scented cleaner removes grease, dirt, oil and adhesive overspray from equipment. Softens liquid adhesive and tape residue.	N/A
	Adhesive Remover	Solvent-free. Specifically formulated to remove adhesive from many substrates with no residue. Citrus-scented.	N/A

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

3M™ Jet-melt™ Adhesives and Polygun™ Applicators

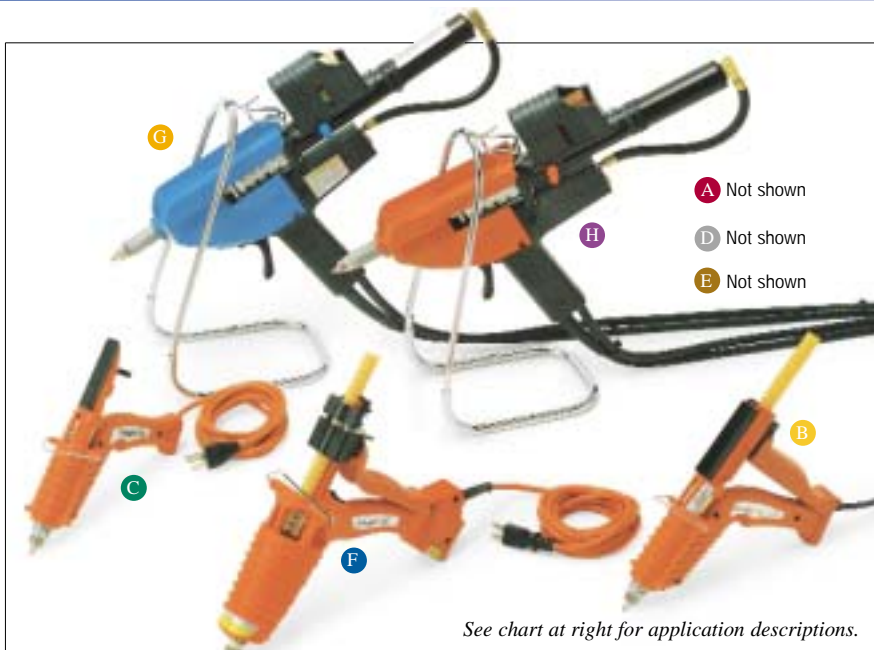
The 3M systems approach to help you improve productivity and lower costs.

3M™ Jet-melt™ Adhesives and 3M™ Polygun™ Applicators are engineered to be advanced systems to help you improve productivity, lower cost and minimize waste.

Jet-melt adhesives are 100% solids thermoplastic resins. When heated, they become fluid and quickly wet the bonding surface. Upon cooling, they harden and reach bond strength in seconds.

You can move assemblies immediately to keep production flowing. This helps eliminate clamps, fixturing and drying, and saves time, energy and space.

Each adhesive is designed and precisely manufactured for efficient use in one of the Polygun Applicators. To meet your equipment and handling requirements, Jet-melt Adhesives are also available as pellets, discs, and bricks for bulk application systems.



See chart at right for application descriptions.



3M™ Polygun™ Applicators are lightweight, easy-to-use units using 3M's innovative melt-on-demand or progressive feed technology. 3M™ Jet-melt™ Adhesives provide a versatile line of high performance formulations for fast, strong bonds on a variety of surfaces – wood, plastic, foam, fabric, cardboard, rubber, and more. Adhesives are available in stick, cartridges, and bulk form.



For bonding the guide to a drawer bottom, 3M™ Jet-melt™ Adhesive 3738 provides high delivery rate and long bonding range to meet production requirements.



In electronic applications, 3M™ Polygun™ TC Applicator delivers high performance and control for tacking, mounting, unitizing, potting, coil termination, and more.



For economical package sealing 3M™ Jet-melt™ Adhesive 3762LM is a versatile formulation with 25-second bonding range for production speed.



3M™ Polygun™ EC Applicator can be used with 3M low-melt adhesive to effectively bond heat-sensitive substrates such as styrene foam.



For versatility in P.O.P. assembly, 3M™ Jet-melt™ Adhesives are available for bonding a variety of plastics, woods, and light gauge metals. Selection includes low-melt formulations applied at only 250°-270°F (127°-132°C).



3M™ Polygun™ LT Applicator and 3M™ Jet-melt™ Adhesives make an ideal system for wetting and gimping, bonding fabric to wood.

Product Information: 3M™ Polygun™ Applicators

Photo	Polygun Applicator	Weight ⁽¹⁾	Output ⁽²⁾ lb/hr	Temperature ⁽³⁾	Adhesive		Accessories Available ⁽⁴⁾ (see keyed photos below)
					Type	Size dia. x length, inches	
Polygun Applicators	A Polygun LT	10.0 oz.	2.6	265°F (129°C)	LM TC	5/8 x 2	Tips ① ⁽⁴⁾ , Benchstand ⑥, Quadrack Converter ②, Palm Trigger ③
	B Polygun LT with Quadrack	13.8 oz.	2.6	265°F (129°C)	LM Q	5/8 x 8	Tips ①, Benchstand ⑥
	C Polygun TC	10.0 oz.	3.5	385°F (196°C)	TC	5/8 x 2	Tips ①, Benchstand ⑥, Quadrack Converter ②, Palm Trigger ③
	D Polygun TC with Quadrack	13.8 oz.	3.5	385°F (196°C)	Q	5/8 x 8	Tips ①, Benchstand ⑥
	E Polygun AE	17.5 oz.	2.0	350°F (177°C)	AE	1/2 x 12	Tips ①
	F Polygun EC	24.0 oz.	5.5	260F-450°F (127°-232°C)	Q and LMQ	5/8 x 8	Tips ①, Benchstand ⑥
	G Polygun II LT with Speedloader	4.3 lbs.	6.0	265°F (129°C)	LM PG	1 x 3	Tips ①, Magazine Feeder ⑦, Heavy Duty Benchstand ⑤, Benchmount ⑧, Foot Pedal ④, Pneumatic Timer (not shown)
	H Polygun II with Speedloader	4.3 lbs.	7.5	385°F (196°C)	PG	1 x 3	Tips ①, Magazine Feeder ⑦, Heavy Duty Benchstand ⑤, Benchmount ⑧, Foot Pedal ④, Pneumatic Timer (not shown)

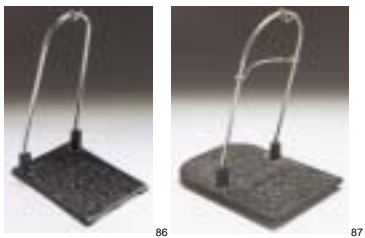
(1) Weight shown is for applicator only — does not include adhesive capacity.
 (2) Adhesive output will vary with conditions and the adhesive used. Values are approximate and are based on maximum steady-state flow.
 (3) Temperatures shown are nominal control values. Actual temperature will range slightly above and below this value.
 (4) Accessory tips used will depend on applicator selected and adhesive used.

NOTE: The technical information and data provided above should be considered representative or typical only, and should not be used for specification purposes.

Accessories to improve your productivity



Tip No.	Description
9913	2 Hole Spreader (1/4" hole span)
9916	3 Hole Spreader
9917	3 Hole 1" Spreader for Polygun II Applicator only
9921	.090" Fluted Tip
9922	.063" Fluted Tip
9940	.125" Fluted Tip
9946	.072" Brass Extension for Polygun II Applicator only
9725	Mini Extension Tip .072" Opening for all Polygun Applicators
9726	"T" Tip (shown with valve and adapter) for all Polygun Applicators
9727	"L" Tip (shown with adapter and valve) for all Polygun Applicators
9729	High Viscosity Valve (TC, EC, PG-II)
9785	.070" Tapered Aluminum Extension for all Polygun Applicators
9777	1/4" Slotted Spreader (3755-LM adhesive only)
9782	1/2" Slotted Spreader (3755-LM adhesive only)
9764	3/4" Slotted Spreader (3755-LM adhesive only)
9768	1" Slotted Spreader (3755-LM adhesive only)



5 **6**
Heavy Duty Benchstands
 provide added convenience.

Accessories (4, 7, 8) can provide high capacity, hands-free operation for Polygun II and Polygun II LT.

1
 A general purpose tip (.090) is supplied with each Polygun. To increase productivity, optional tips can provide multiple beads, flat ribbons, guided beads for carton sealing, and extended reach.



2 **3** **4**
Foot Pedal



7 **8**
Magazine Feeder
Benchmount

Product Information: 3M™ Jet-melt™ Adhesives

	Product (Color)	FDA Listed Components ⁽¹⁾	UL 94 Listing	Features Application Ideas	Sizes	EC Temp Control Modules	Flash Point (°F/°C)	
Low Melt Technology: Applied 250°–270°F (127°–132°C)	3755-LM Clear	Y	N/A	“Delayed-tack” applied in thin-glue-line ribbon for bonding paper, corrugated, chipboard, P.O.P. displays and exhibits.	5/8" x 2"TC	N/A	509/265	
	3762-LM* Lt. Amber	Y	N/A	Excellent “hot tack”, fast setting. Bonds to a variety of corrugated packaging, beadboard, recoupage, repacking area. Economical, general purpose. Can bond chipboard and wood.	5/8" x 8"Q 1" x 3"PG 5/8" x 2"TC	1	509/265	
	3776-LM Tan	N/A	N/A	Bonds to a variety of plastics, woods and light gauge metals.	5/8" x 8"Q 1" x 3"PG	1	460/238	
	3792-LM* Clear	Y	V2	Clear, multi-purpose product for wood, coated paper, polyolefins and other heat-sensitive materials. POP displays.	5/8" x 8"Q 1" x 3"PG 5/8" x 2"TC	1	550/288	
	3798-LM Clear	Y	N/A	Gummy Glue Removable Adhesive, strength in seconds, removes easily. Can be used on a wide variety of substrates. No residual tack.	5/8" x 2"TC	N/A	474/246	
Hot Melt Technology: Applied 350°–385°F (177°–196°C)	3738* Tan	y	V2	High delivery rate and long bonding range. General purpose for foundry sand cores, wood bonding, corrugated, selected plastics and chipboard.	5/8" x 8"Q 1" x 3"PG 5/8" x 2"TC 1/2" x 12"AE	4	550/288	
	3747 Tan	Y	N/A	General purpose adhesive. Bonds to a wide variety of plastics, wood and lightweight metals.	5/8" x 8"Q 1" x 3"PG 5/8" x 2"TC 1/2" x 12"AE	4	509/265	
	3748* Off-white	Y	V2	Good thermal shock resistance. Good for many electronic applications. Non-corrosive to copper. Bonds polyolefins.	5/8" x 8"Q 1" x 3"PG 5/8" x 2"TC	4	536/280	
	3748 VO Light Yellow	N	VO	Self-extinguishing version of 3748. Adhesive meets UL 1410 requirements.	5/8" x 8"Q 1" x 3"PG 5/8" x 2"TC	4	536/280	
	3762 Tan	Y	V2	Excellent “hot tack”, fast-setting. Bonds to a variety of corrugated packaging, beadboard, recoupage, repacking area. Economical, general purpose. Can bond chipboard and wood.	5/8" x 8"Q 1" x 3"PG 5/8" x 2"TC 1/2" x 12"AE	3	500/260	
	3764* Clear	Y	V2	Bonds to a variety of plastics including polycarbonate, polyethylene and polypropylene. Flexible at low temperatures.	5/8" x 8"Q 1" x 3"PG 5/8" x 2"TC 1/2" x 12"AE	4	514/267	
	3779* Amber	Y	VO	High heat resistance. High strength. Good fuel and oil resistance. Electronics.	5/8" x 8"Q 1" x 3"PG 5/8" x 2"TC	5	550/288	
	3789* Brown	Y	V2	High performance for plastics. Impact resistant. Also bonds vinyl and wood. Good fuel and oil resistance.	5/8" x 8"Q 1" x 3"PG	5	635/335	
	3792 Clear	Y	V2	Clear, multi-purpose product for wood, corrugated, lightweight substrates. Furniture, upholstery, novelties. Can bond fabric and other lightweight materials.	5/8" x 8"Q 1" x 3"PG 5/8" x 2"TC 1/2" x 12"AE	4	450/232	
	3796 Lt. Tan	N	N/A	High performance for plastics and light gauge metals.	1" x 3"PG 5/8" x 2"TC	N/A	480/249	
3797 Off-white	Y	V2	High ball and ring. Low viscosity. Good for electrical potting applications.	1" x 3"PG 5/8" x 2"TC	N/A	570/299		
Bulk	3791 Clear	Y	N/A	Gummy Glue Removable Adhesive, tacky after applied. Can be used on a wide variety of substrates.	2 lb. bricks	N/A	455/235	
	3794 Hi Tack PSA Lt. Tan	Y	N/A	Sprayable for plastic bonding, paper, metals, die-cut labels. Transportation, P.O.P.	2 lb. bricks	N/A	515/268	
	3795 Hi Perform PSA Lt. Tan	N	N/A	Sprayable, high temperature resistance. Transportation market.	2 lb. bricks	N/A	510/266	

NOTE: The technical information and data provided on these pages should be considered representative or typical only and should not be used for specification purposes.

(1) Made from components listed as indirect food additives under FDA regulations for adhesives (21 CFR 175.105). (2) Brookfield Thermosel Viscometer in Centipoise. (3) ASTM E-28-6-7 (4) On canvas (5) On Douglas Fir (6) 1/8" semicircular bead, Douglas Fir to Douglas Fir.

	Viscosity CPS ⁽²⁾	Delivery Time (sec) for 1" x 3" Cartridge**	Ball & Ring Soft Point ⁽³⁾ (°F/°C)	Heat Resistance (°F/°C)	Impact Resistance (in. -lbs.) 72°F (22°C)	Peel Strength PIW ⁽⁴⁾ 72°F (22°C)	Shear Strength PSI ⁽⁵⁾ 72°F (22°C)	Tensile Strength PSI 72°F (22°C)	Elongation %	Bonding Range 1/8" Bead (sec) ⁽⁶⁾
	13,000 @250°F	N/A	157/70	120/49	14	13	500	380	400	120
	4000 @250°F	45	205/96	130/54	13	6	480	600	300	25
	8250 @250°F	47	184/84	140/60	13	9	600	270	600	40
	10,500 @250°F	57	178/81	140/60	62	13	350	547	125	40
	9500 @250°F	N/A	191/88	120/49	N/A	N/A	N/A	62	250	30
	2875 @375°F	35	186/86	130/54	36	13	375	360	1000	50
	4100 @375°F	45	220/104	145/63	25	20	430	750	1300	45
	5000 @375°F	65	292/144	175/79	24	18	250	375	1100	45
	5500 @375°F	65	305/152	175/79	50	15	275	200	1850	30
	1870 @375°F	30	201/94	130/54	20	7	545	450	400	35
	6000 @375°F	55	190/88	140/60	58	14	390	650	625	40
	7000 @375°F	75	325/163	300/149	22	18	700	2100	300	25
	5200 @375°F	70	270/132	220/104	40	16	570	520	600	50
	5000 @375°F	45	179/81	140/60	42	13	250	400	750	50
	23,000 @375°F	120	240/116	200/93	29	29	550	363	930	40
	2650 @375°F	55	304/151	170/77	19	10	350	283	98	30
	3500 @300°F	57	196/91	<100/38	N/A	N/A	N/A	N/A	N/A	50
	15,000 @325°F	N/A	224/107	120/49	N/A	16	N/A	N/A	N/A	> 60
	18,000 @325°F	N/A	260/127	170/77	N/A	14	N/A	N/A	N/A	> 60

* Also available in bulk.

** Time to deliver the third consecutive cartridge through PG II or PG II LT @ 80 PSI.

N/A = Not available

3M Spray-Bond Heat-Applied Adhesive System

Solventless fast track for immediate bonding of foam and other lightweight materials.

Spray-Bond Adhesive System is a fast, neat alternative to solvent-based systems for bonding most foams, fabrics, plastics, particle board, and light gauge metals. Applications range from furniture cushions to cushioning inserts, modular office panels to gym floor pads, and more. You simply spray a neat track of 100% solids adhesive right where you want it. Apply to one or both surfaces and bond substrates immediately.

Self-contained applicator heats adhesive slug to the proper temperature and viscosity for spraying. No pumps and hoses to plug or replace. **Simply dial a spray pattern**, track width, and flow rate on the control unit to suit the size and shape of the part to be bonded and to meet your production requirements.

Other features include:

- Up to 10-minute open time for handling convenience and bonding larger areas.
- One part to eliminate the fuss of mixed systems.



Display case – In display cases for jewelry and other retail items, foam is bonded to foam and fabric. Low temperature spray will not damage heat sensitive substrates.



Carrying case – In carrying case assembly, 3M Spray-Bond Adhesive bonds foam to foam, plywood, metal or plastic. Controlled spray minimizes overspray even on smaller foam shapes.

Adhesives Characteristics and Suggested Coverage			
	6111/6111 Green	6111 HT/6111 HT Blue	6114
Adhesive Characteristics	Description	Standard product	Higher heat resistance
	Color	Tan/Green	Tan/Blue
	Open Time ⁽¹⁾ One surface (Foam/PVC)	1 minute	3 minutes
	Open Time ⁽¹⁾ Two surface (Foam/Foam)	6 minutes	8 minutes
	Heat Resistance ⁽²⁾	145°F (63°C)	175°F (79°C)
	Peel Adhesion PIW ⁽³⁾		
	Fir	34.4	25.6
	ABS	12.1	16.5
	Polypropylene	46.3	14.4
	PVC	9.9	16.3
Cold Rolled Steel	16.5	29.9	
High Density Polyethylene	8.2	2.3	
Coverage		Smooth Surface	Textured Surface
	2 Surface Application	1-2 grams per square foot	2-3 grams per square foot
	1 Surface Application	3-5 grams per square foot	5-7 grams per square foot

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

(1) Bonds were made by spraying adhesive onto 3/4 in. thick, 2 lb. density polyester urethane foam. Open time will vary depending on substrate.

(2) Tested per 3M AdhD test method C-3093 using 2 lb. dead load.

(3) According to 3M AdhD test method C-3012. 180° peel strength was determined at a cross head speed of 2 inches/minute at 73°F (23°C).

3M Thermo-Bond Films

Precision of film, speed of a hot melt, and the strength for demanding applications.

3M Thermo-Bond Films combine some of the best features of several proven 3M adhesive technologies:

Benefits of a 3M film –

- Precise uniform thickness for consistent bond lines.
- Precise die-cut shapes and sizes for neat manual or automated application.

Benefits of a 3M hot melt adhesive –

- Bonds in seconds with heat to help eliminate fixturing and speed assembly.
- Solvent-free adhesive system.

Unique strength and performance properties –

- Choice of overlap shear strength on aluminum as high as 2500 psi.
- Formulations for substrates that range from fabrics, polyolefin, and LCP (Liquid Crystal Polymers) to temperature sensitive materials and metal.



Personal Computer Memory Cards – For a bond stronger than high strength pressure sensitive tapes, Thermo-Bond Film bonds stainless steel lids to the connectors and plastic frames.



Guitar assembly – Lexan® face plate is silk screened and then laminated to mahogany or other decorative wood with precisely die-cut 3M Thermo-Bond Film.

	Product	Features	Base Resin	Color	Standard Thickness* (mils)	Overlap Shear Strength (PSI)	180° Peel Strength	2 Lb. Dead load Heat Resistance (°F/°C)
Thermo-Bond Films	TBF406	Good adhesion to metal. Clear.	EAA	Clear	3	2500 on al	3.4 on ss	200/93
	TBF557	Good adhesion to plastics and metal.	EVA	Translucent	4	600 on al	3.6 on al	140/60
	TBF560	Low bonding temperature. 180°F (82°C). Clear.	EVA	Clear	4	260 on al	5 on al	140/60
	TBF615	Good adhesion to a variety of substrates.	Polyester	Tan	4	810 on al	15 on al	215/102
	TBF620	Three layers, 2 mils each. One is dielectric.	Polyester	Tan	6	825 on al	16 on ss	215/102
	TBF644	Medium tack	Polyester	Translucent	1.5, 4, 10	170 on al	6 on al	200/93
	TBF668	High temperature resistance. Slight tack.	Polyester	Tan	4	860 on al	20 on ss	260/127
	TBF669	One side tacky.	Polyester/Acrylic	Translucent	6	275 on al	4.5 on al	130/54
	TBF695	Bonds many porous substrates, including fabrics.	Polyester	White	10	800 on FR4	7 fabric	235/113
	TBF845	Good adhesion to polypropylene and polyethylene.	Polyolefin	Translucent	4	750 on crs	21 on crs	160/71

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

* Custom thickness available up to 40 mils.

Lexan® is a registered trademark of GE.

Using this Guide

This guide can be used to assist in choosing a product or products to evaluate for a given application. The substrates that may be involved are listed in the first column. The 3M products that you may want to evaluate are grouped by type in the next

eight columns. For example, you want to bond metal to ceramic and have structural strength. First, select the substrate heading “Metal to:” shown in the green area upper left of page 35. Then move down four lines to “Glass and Ceramics” and look across the

columns under the heading “Structurals”. There are several candidate products in this example available in the Scotch-Weld product line.

Wood and Hardboard to:	Structurals			Non-Structurals				
	Scotch-Weld Adhesives	Pronto Instant Adhesives	Jet-Weld Adhesives	Light Curing Adhesives	Scotch-Grip and Fastbond Adhesives	Aerosols	Jet-melt/Spray-Bond Adhesives	Thermo-Bond Films
Wood and Hardboard	2-Part Epoxies and Urethanes	CA-50, CA-100	TE-015, TE-100, TE-030, TE-031, TS-115, TS-230	–	F/B 30-NF, 959, 1357 (All), 4323, F/B 2000-NF	80, 90	3738, 3747, 3778-LM, 3789	615, 668, 695
Metal	Flexible 2-Part Epoxies, 2-Part Urethanes	CA-50, CA-100	TS-115, TS-230, TE-040	–	1357 (All), 5, 10, F/B 2000-NF	80, 90	3747, 3776-LM, 3796	615, 668, 695
Rubber (except EPDM)	Flexible 2-Part Epoxies, 2-Part Urethanes	CA-50, CA-100	TS-115, TS-230, TE-040	–	1357 (All), 1300 (All), 2141, F/B 2000-NF	80, 90*	3747, 3796	–
EPDM Rubber	–	CA-40 [®] , CA-40H	–	–	4799	–	–	–
Glass and Ceramics	Flexible 2-Part Epoxies	CA-50, CA-100	TS-115, TS-230, TE-040	–	1357 (All), 1300 (All), 2141	80, 90*	3747, 3796, 3764	615, 668, 695
Leather	Flexible 2-Part Epoxies	CA-50, CA-100	TE-015, TE-100, TE-030, TE-031, TS-115	–	847 (All), F/B 30-NF, F/B 2000-NF	80, 90	–	–
Plastics (Polyolefins)	DP-8005	–	–	–	4693, F/B 2000-NF	72, 76, 90	3748, 3764, 3796, 3792-LM	845
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies	–	TE-031, TS-230, TS-115, TE-040	–	4693, 1099 (All), F/B 2000-NF	72, 77, 80, 90	3748, 3764, 3796, 3792-LM	557, 560, 615, 668, 695
Plastics (High Performance Nylon)	Flexible 2-Part Epoxies	CA-50, CA-100	–	–	1099 (All), 4693	77, 80, 90	3796	557, 560, 615, 668, 695, 845
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA-50, CA-100	TE-100, TE-030, TE-031, TS-115, TS-230, TE-040	–	1099 (All), 2262, 4475, F/B 2000-NF	80	3789, 3796	–
Paper and Cardboard	2-Part Epoxies and Urethanes	–	All Products	–	F/B 30-NF, F/B 100, 4550, F/B 4268-NF, F/B 2000-NF	72, 75*, 76, 77, 80, 90	3762-LM, 3762, 3792-LM, 3755-LM, 6111	615, 668, 695
Fabric, Felt, Cork and Fibrous Glass	–	–	All Products	–	4550, F/B 49, F/B 2000-NF, F/B 4268-NF	72, 74, 75*, 76, 77, 80, 90	3738, 3747, 3792-LM, 3778LM	615, 668, 695
Flexible Foam (Latex, Urethane)	–	–	All Products	–	F/B 100, F/B 2000-NF	74	3738, 3747, 3764, 3792, 6111	–
Rigid Foam (Beadboard, Styrene)	2-Part Urethanes, Flexible 2-Part Epoxies	–	All Products	–	F/B 30-NF, F/B 4289-NF, F/B 2000-NF, F/B 49	77, 78	3762-LM, 3792-LM, 3776-LM, 3778-LM, 3755-LM, 6111	–
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	–	F/B 30-NF, 1357(All), 5, F/B 2000-NF	74, 80	3747, 3764, 3792, 3776-LM, 6111	–

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

Metal to:	Structurals			Non-Structurals				
	Scotch-Weld Adhesives	Pronto Instant Adhesives	Jet-Weld Adhesives	Light Curing Adhesives	Scotch-Grip and Fastbond Adhesives	Aerosols	Jet-melt/Spray-Bond Adhesives	Thermo-Bond Films
Metal	Acrylics, Epoxies	CA's (All)	–	–	1357 (All), 1099 (All), 1300 (All)	80, 90	3747 ⁽¹⁾ , 3796, 3776-LM ⁽²⁾	406, 615, 668
EPDM Rubber	–	CA-40, CA-40H	–	–	4799	–	–	–
Rubber (except EPDM)	Flexible 2-Part Epoxies	CA's (All)	TS-115, TS-230, TE-040	–	2141, 1300 (All), 847 (All), F/B 2000-NF ⁽³⁾	80, 90*	3747, 3796, 6111	–
Glass and Ceramics	Flexible 2-Part Epoxies	–	–	All	959, 1357 (All)	80, 90	3747, 3764, 3796	406, 615, 668
Leather	Flexible 2-Part Epoxies	CA-50, CA-100	TS-115, TS-230, TE-040	–	847 (All), F/B 2000-NF	80	3789, 3796	–
Plastics (Polyolefins)	DP-8005	–	–	–	4693, F/B 2000-NF ⁽³⁾	72, 76, 90	3796, 6111, 6114	845
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, Acrylics	CA's (All)	TS-115, TS-230, TE-040	All	4693, 4475, 1357 (All), F/B 2000-NF ⁽³⁾	72, 77, 80, 90	3747, 3776-LM, 3796, 6114	557, 560, 615, 668
Plastics (High Performance Nylon)	Flexible 2-Part Epoxies, DP-420, DP-460, Acrylics	CA's (All)	–	–	1099 (All), 4693	77, 80, 90	3796	557, 560, 615, 668, 845
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA-40, CA-40H, CA-50, CA-100	TS-115, TS-230, TE-040	–	1099 (All), 2262, 4475	80	3789, 3796	–
Paper and Cardboard	Epoxies	–	TS-115, TS-230, TE-040	–	10, F/B 49, F/B 100, 4550, F/B 2000-NF	72, 75*, 76, 77, 80, 90	3747, 3776-LM, 3796, 6111	615, 668, 695
Fabric, Felt, Cork and Fibrous Glass	–	–	TS-115, TS-230, TE-040	–	F/B 42-NF (All), F/B 100, 4550, F/B 49, F/B 2000-NF	72, 74, 75*, 76, 77, 80, 90	3747, 3776-LM, 6111	615, 668, 695
Flexible Foam (Latex, Urethane)	–	–	TS-115, TS-230, TE-040	–	F/B 2000-NF, F/B 100	74	3747, 3796, 6111, 6114	–
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies	–	TS-115, TS-230, TE-040	–	F/B 30-NF, F/B 4289-NF, F/B 2000-NF ⁽³⁾ , F/B 49	77, 78	3776-LM, 6111, 6114	–
Rigid Foam (Urethane)	–	CA's (All)	TS-115, TS-230, TE-040	–	1357 (All), 5, 10, F/B 2000-NF ⁽³⁾	74, 80	3747, 3796, 3776-LM, 6111, 6114	–
Rubber (except EPDM) to:								
Rubber (except EPDM)	Flexible 2-Part Epoxies, 2-Part Urethanes	CA's (All)	TS-115, TS-230, TE-031, TE-040	–	2141, 1300 (All), 847 (All)	80, 90*	3747, 3796	–
EPDM Rubber	–	CA-40, CA-40H	–	–	4799	–	3796	–
Glass and Ceramics	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS-115, TS-230, TE-040	–	1300 (All), 2141	80, 90	3747, 3796	–
Leather	Flexible 2-Part Epoxies	CA-50, CA-100	All Products	–	847 (All), 2141, 1300, F/B 2000-NF	80	3796	–
Plastics (Polyolefins)	DP-8005	–	–	–	4693	90	3796, 6111	–
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, 2-Part Urethanes	CA's (All)	TE-031, TS-230, TS-115, TE-040	–	1099 (All), 847 (All), 1300 (All), 959	80, 90	3747, 3796	–
Plastics (High Performance Nylon)	Flexible 2-Part Epoxies, 2-Part Urethanes	CA's (All)	–	–	1099 (All)	80, 90	3796	–
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA-40, CA-40H, CA-50, CA-100	All Products	–	1099 (All)	80	3796	–
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	–	1300 (All), 2141, F/B 2000-NF, F/B 100	80, 90	3747, 3796, 6111	–

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

(1) Adhesives must be forced dried and bonded while warm.

(2) For best results, preheat the substrate to a minimum of 120°F (49°C).

(3) Evaluate using surface activator.

*Produces a temporary bond on these materials.

Rubber (except EPDM): Continued	Structurals			Non-Structurals				
	Scotch-Weld Adhesives	Pronto Instant Adhesives	Jet-Weld Adhesives	Light Curing Adhesives	Scotch-Grip and Fastbond Adhesives	Aerosols	Jet-melt/Spray- Bond Adhesives	Thermo- Bond Film
Fabric, Felt, Cork and Fibrous Glass	–	–	All Products	–	847, 1300 (All), 2141, F/B 2000-NF	80, 90	3747, 3796, 6111, 3794, 3795	–
Flexible Foam (Latex, Urethane)	–	–	All Products	–	F/B 2000-NF, F/B 100	74, 80	3747, 3796	–
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	–	F/B 2000-NF	–	3794, 3795	–
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	–	1300 (All), 1357(All), 2141	74, 80	3747, 3796	–
EPDM Rubber to:								
EPDM Rubber	–	CA-40, CA-40H	–	–	4799	–	3796	–
Glass and Ceramics	–	–	–	–	4799	–	3796	–
Leather	–	–	–	–	–	–	3796	–
Plastics (Polyolefins)	–	–	–	–	–	–	3796	–
Plastics (ABS, PVC, Acrylic, etc.)	–	CA-40, CA-40H	–	–	4799	–	3796	–
Plastics (High Performance Nylon)	–	CA-40, CA-40H	–	–	4799	–	–	–
Plastics (Flexible Vinyl)	–	CA-40, CA-40H	–	–	–	–	–	–
Paper and Cardboard	–	–	–	–	4799	–	3796	–
Fabric, Felt, Cork and Fibrous Glass	–	–	–	–	4799	–	3796	–
Flexible Foam (Latex, Urethane)	–	–	–	–	–	–	3796	–
Rigid Foam (Beadboard, Styrene)	–	–	–	–	–	–	–	–
Rigid Foam (Urethane)	–	–	–	–	4799	–	3796	–
Glass and Ceramics to:								
Glass and Ceramics	Flexible 2-Part Epoxies, 2-Part Urethanes	–	–	All	959, 4475	80, 90	–	615, 668
Leather	Flexible 2-Part Epoxies	–	TS-115, TS-230, TE-040	–	847 (All), 1099 (All), F/B 2000-NF	80, 90	3796	–
Plastics (Polyolefins)	–	–	–	–	4693	72, 76, 90	3764, 3796, 3792-LM	845
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS-115, TS-230, TE-040	All	959, 4475	72, 77, 80, 90	3764, 3796	557, 560, 615, 668
Plastics (High Performance Nylon)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	–	–	1099 (All), 4693	72, 77, 80, 90	3796	557, 560, 615, 668, 845
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	–	TS-115, TS-230, TE-040	–	2262, 4475	80	3796	–
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS-115, TS-230, TE-040	–	F/B 4268-NF, 4550, F/B 42-NF PLUS NV, F/B 2000-NF, F/B 49	72, 75*, 76, 77, 90	3764, 3796, 3792-LM, 3794, 3795	615, 668, 695

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

Glass and Ceramics to: Continued	Structurals			Non-Structurals				
	Scotch-Weld Adhesives	Pronto Instant Adhesives	Jet-Weld Adhesives	Light Curing Adhesives	Scotch-Grip and Fastbond Adhesives	Aerosols	Jet-melt/Spray-Bond Adhesives	Thermo-Bond Films
Fabric, Felt, Cork and Fibrous Glass	-	-	TS-115, TS-230, TE-031, TE-040	-	F/B 4268-NF, 4550, F/B 42-NF Plus NV, F/B 49, F/B 2000-NF	72, 74, 75*, 77, 90	3764, 3796, 3794, 3795	615, 668, 695
Flexible Foam (Latex, Urethane)	-	-	TS-115, TS-230, TE-031, TE-040	-	F/B 2000-NF	74	3764, 3796, All Spray-Bond products	-
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	-	TS-115, TS-230, TE-031, TE-040	-	F/B 30-NF, F/B 4213-NF	77, 78	6111, 3794, 3795	-
Rigid Foam (Urethane)	-	-	TS-115, TS-230, TE-031, TE-040	-	1357 (All), 10, F/B 30-NF	74, 80	3764, 3796, 6111	-
Leather to:								
Leather	Flexible 2-Part Epoxies, 2-Part Urethanes	CA-50	All Products	-	847, F/B 30-NF, F/B 2000-NF	80, 90	3789, 3796, 3779	-
Plastic (Polyolefins)	-	-	-	-	F/B 2000-NF	76, 90	3796	-
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, 2-Part Urethanes	CA-100	TE-031, TS-230, TE-040	-	847 (All), 1099 (All), F/B 2000-NF	80, 90	3789, 3796	-
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA-50, CA-100	All Products	-	4475, 1099 (All), F/B 2000-NF	80	3789, 3796, 3779	-
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	-	All Products	-	F/B 4213-NF, F/B 30-NF, F/B 2000-NF, F/B 100	80, 90	3789, 3796, 3779	-
Fabric, Felt, Cork and Fibrous Glass	-	-	All Products	-	F/B 4213-NF, F/B 30-NF, F/B 100, F/B 2000-NF, F/B 49	90	3789, 3796, 3779	-
Flexible Foam (Latex, Urethane)	-	-	All Products	-	F/B 2000-NF, F/B 100	80	3789, 3796, 3779	-
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	-	All Products	-	F/B 4213-NF, F/B 30-NF, F/B 2000-NF	-	-	-
Rigid Foam (Urethane)	2-Part Urethanes	-	All Products	-	F/B 30-NF, F/B 2000-NF	80	3789, 3796, 3779	-
Plastics (Polyolefins) to:								
Plastics (Polyolefins)	DP-8005	-	-	-	4693, F/B 2000-NF ⁽¹⁾	72, 76, 90	3748, 3764, 3792-LM, 3796, 6111	845
Plastics (ABS, PVC, Acrylic, etc.)	DP-8005	-	-	-	4693, F/B 2000-NF ⁽¹⁾	72, 90	3748, 3764, 6111, 3792-LM, 3796	845
Plastics (High Performance Nylon)	DP-8005	-	-	-	4693	90	3796	845
Plastics (Flexible Vinyl)	DP-8005	-	-	-	-	-	3796	-
Paper and Cardboard	-	-	-	-	4693, F/B 100, F/B 2000-NF	72, 75*, 76, 90	3748, 3764, 6111	845
Fabric, Felt, Cork, and Fibrous Glass	-	-	-	-	4693, F/B 49, F/B 2000-NF	72, 76, 90	3748, 3764, 6111, 3792-LM, 3796	845
Flexible Foam (Latex, Urethane)	-	-	-	-	F/B 2000-NF, F/B 100	-	3748, 3764, 3796, 6111	-
Rigid Foam (Beadboard, Styrene)	DP-8005	-	-	-	F/B 2000-NF ⁽¹⁾	-	3792-LM, 6111	-
Rigid Foam (Urethane)	DP-8005	-	-	-	4693, F/B 2000-NF ⁽¹⁾	74	3748, 3764, 6111, 3792-LM, 3794	-

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

(1) Adhesive *must* be force dried and bonded while warm.

* Produces a temporary bond on these materials.

Plastics (ABS, PVC, Acrylic) to:	Structurals			Non-Structurals				
	Scotch-Weld Adhesives	Pronto Instant Adhesives	Jet-Weld Adhesives	Light Curing Adhesives	Scotch-Grip and Fastbond Adhesives	Aerosols	Jet-melt/Spray-Bond Adhesives	Thermo-Bond Films
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, 2-Part Urethanes, Acrylics	CA's (All)	TE-031, TS-115, TS-230, TE-040	All	1099 (All), 4475, F/B 2000-NF ⁽¹⁾	72, 77, 90	3747, 3764, 3796, 3776-LM, 3792-LM	557, 560, 615, 668
Plastics (High Performance Nylon)	Flexible 2-Part Epoxies, 2-Part Urethanes, Acrylics	CA's (All)	–	–	1099, 4693	72, 77, 90	3796	557, 560, 615, 668, 845
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA-40, CA-50, CA-100	TE-031, TS-115, TS-230, TE-040	–	1099 (All), 2262, 4475	80*	3789, 3796	–
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	CA-40H ⁽²⁾	TE-031, TS-115, TS-230, TE-040	–	4550, F/B 100, F/B 49, F/B 2000-NF, F/B 42-NF Plus NV	72, 77	3764, 3792, 3792-LM, 3776-LM	615, 668
Fabric, Felt, Cork and Fibrous Glass	–	–	TE-031, TS-115, TS-230, TE-040	–	4550, F/B 100, F/B 49, F/B 2000-NF, F/B 42-NF Plus NV	72, 76, 77, 90	3747, 3764, 3792, 3792-LM, 3776-LM	615, 668, 695
Flexible Foam (Latex, Urethane)	–	–	TE-031, TS-115, TS-230, TE-040	–	F/B 2000-NF, F/B 100	–	3747, 3764, 3792, 3792-LM, 3776-LM, 6111	–
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TE-031, TS-115, TS-230, TE-040	–	F/B 2000-NF ⁽¹⁾ , F/B 100, F/B 49	77, 78	3792-LM, 3776-LM, 6111	–
Rigid Foam (Urethane)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TE-031, TS-115, TS-230, TE-040	–	1099, 4693, 4475, F/B 2000-NF ⁽¹⁾	–	3747, 3764, 3792, 3792-LM, 3776-LM	–
Plastics (High Performance Nylon) to:								
Plastics (High Performance Nylon)	Flexible 2-Part Epoxies, 2-Part Urethanes, DP-420, DP-460	CA's (All)	–	–	1099 (All), 4693	72, 77, 80, 90	3764, 3796	557, 560, 615, 668, 845
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA-40, CA-50, CA-100	–	–	1099 (All)	80	3789, 3796	–
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	–	–	–	4550, F/B 100, F/B 42-NF Plus NV	72, 77, 90	3747, 3764, 3796	557, 560, 615, 668, 845
Fabric, Felt, Cork and Fibrous Glass	–	–	–	–	4550, 4693, F/B 49	72, 77, 80, 90	3747, 3764, 3796	557, 560, 845
Flexible Foam (Latex, Urethane)	–	–	–	–	F/B 2000-NF, F/B 100	80, 90	3747, 3764, 3796	–
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	–	–	F/B 2000-NF	77, 78	–	–
Rigid Foam (Urethane)	2-Part Urethanes	–	–	–	1099 (All), 4693	80	3747, 3764, 3796	–
Plastic (Flexible Vinyl) to:								
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA-40, CA-50, CA-100	All Products	–	1099 (All), 2262, 4475	80	3789, 3796, 3779	–
Paper and Cardboard	Flexible 2-Part Epoxies	–	All Products	–	1099 (All), 2262, 4475, F/B 2000-NF	80	3789, 3796, 3779	–
Fabric, Felt, Cork and Fibrous Glass	–	–	All Products	–	1099 (All), 2262, 4475, F/B 2000-NF	80	3789, 3796, 3779	–
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	–	–	–	–	–
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	–	1099 (All), 2262, 4475	80	3789, 3796	–

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

Paper and Cardboard to:	Structurals			Non-Structurals				
	Scotch-Weld Adhesives	Pronto Instant Adhesives	Jet-Weld Adhesives	Light Curing Adhesives	Scotch-Grip and Fastbond Adhesives	Aerosols	Jet-melt/Spray-Bond Adhesives	Thermo-Bond Films
Paper and Cardboard	2-Part Epoxies, 2-Part Urethanes	–	All Products	–	4550, F/B 100, F/B 4213-NF, F/B 30-NF, F/B 49, F/B 2000-NF	72, 75*, 76, 77	3762, 3762-LM, 3792-LM, 3778-LM, 6111, 3794, 3795	557, 560, 615, 668, 695
Fabric, Felt, Cork and Fibrous Glass	–	–	All Products	–	4550, F/B 100, F/B 4213-NF, F/B 42-NF Plus NV, F/B 49, F/B 2000-NF	72, 75*, 76, 77	3762, 3762-LM, 3792-LM, 3778-LM, 6111, 3794, 3795	557, 560, 615, 668, 695
Flexible Foam (Latex, Urethane)	–	–	All Products	–	F/B 2000-NF, F/B 100	80, 90	3762, 3762-LM, 3792-LM, 3778-LM, 6111	–
Rigid Foam (Beadboard, Styrene)	2-Part Epoxies, 2-Part Urethanes	–	All Products	–	F/B 30-NF, F/B 4213-NF, F/B 2000-NF	77	3755-LM, 3762-LM, 3792-LM, 3778-LM, 6111, 3794, 3795	–
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	–	4550, F/B 42-NF Plus NV, F/B 2000-NF	80	3762, 3762-LM, 3792-LM, 3776-LM, 6111	–
Fabric, Felt, Cork and Fibrous Glass to:								
Fabric, Felt, Cork and Fibrous Glass	–	–	All Products	–	4550, F/B 100, F/B 42-NF Plus NV, F/B 49, F/B 2000-NF	72, 74, 75*, 76, 77, 90	3755-LM, 3762-LM, 3792-LM, 3776-LM, 6111, 3794, 3795	557, 560, 615, 668, 695
Flexible Foam (Latex, Urethane)	–	–	All Products	–	F/B 2000-NF, F/B 100	74	3755-LM, 3762-LM, 3792-LM, 3776-LM, 6111	–
Rigid Foam (Beadboard, Styrene)	–	–	All Products	–	F/B 30-NF, F/B 42-NF Plus NV, F/B 2000-NF	77, 78	3755-LM, 3762-LM, 3792-LM, 3778-LM, 6111, 3794, 3795	–
Rigid Foam (Urethane)	–	–	All Products	–	F/B 30-NF, F/B 42-NF Plus NV, F/B 2000-NF	80	3755-LM, 3762-LM, 3792-LM, 6111, 3776-LM, 3778-LM, 3794, 3795	–
Flexible Foam (Latex Urethane) to:								
Flexible Foam (Latex, Urethane)	–	–	All Products	–	F/B 2000-NF, F/B 100	74, 80	3747, 3792, 3792-LM, 6111, 3776-LM, 6114	–
Rigid Foam (Beadboard, Styrene)	–	–	All Products	–	F/B 2000-NF, F/B 100	–	3762-LM, 6111, 3792-LM, 6114, 3778-LM	–
Rigid Foam (Urethane)	–	–	All Products	–	F/B 2000-NF, F/B 100	74, 80	3792, 3792-LM, 3776-LM, 6111, 6114	–
Rigid Foam (Beadboard, Styrene) to:								
Rigid Foam (Beadboard, Styrene)	2-Part Epoxies, 2-Part Urethanes	–	All Products	–	F/B 30-NF, F/B 4289-NF, F/B 42-NF Plus NV, F/B 49, F/B 2000-NF	77, 78	3762-LM, 6111, 3792-LM, 3778-LM, 3794, 3795, 6114	–
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	–	F/B 30-NF, F/B 4289-NF, F/B 42-NF Plus NV, F/B 2000-NF	–	3762-LM, 3792-LM, 3776-LM, 6111, 3778-LM, 6114, 3794, 3795	–
Rigid Foam (Urethane) to:								
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	–	1357 (All), F/B 30-NF, F/B 4289-NF, F/B 2000-NF ⁽¹⁾	80	3747, 3792, 6111, 3792-LM, 6114, 3794, 3795	–

Note: This chart is intended only to indicate possible product candidates for your particular application requirements. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

(1) Adhesive *must* be force dried and bonded while warm.

(2) Evaluate using surface activator.

* Produces a temporary bond on these materials.

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