

3M™ Bonding Tapes



171

172

173

174

175

Enhanced appearance, improved performance, improved process...if you think these benefits can help you bring a better, more competitive product to market, you'll want to evaluate the many pressure sensitive adhesive bonding tapes from 3M.

Bonding tapes have pressure sensitive adhesive on two sides to bond mating surfaces with strength that ranges from permanent to permanently repositionable. Substrates range from metal to paper. Each tape represents more than 50 years of 3M leadership in providing design and production engineers with innovative adhesive formulations.

The line includes all of the following:

- 3M™ VHB™ Tapes
- 3M™ Double Coated Foam Tapes
- 3M™ Double Coated Tapes
- 3M™ Removable/Repositionable Tapes
- 3M™ Adhesive Transfer Tapes
- 3M™ Extended Liner Tapes
- 3M™ Membrane Switch Adhesives
- Scotch® ATG Adhesive Systems

3M™ VHB™ Tapes

Replace rivets, screws and other mechanical fasteners

For more than 25 years, industries worldwide have been using 3M™ VHB™ Tapes for high holding power in static and dynamic loads. Viscoelastic properties absorb shock and distribute stress evenly for bonding power that helps eliminate mechanical fastening in many jobs.

In the ever growing product line, there are 3M™ VHB™ Tapes for bonding and sealing aluminum, steel, glass, painted and powder coated surfaces, and plastics such as acrylic and polycarbonate. Flexibility compensates for differential thermal expansion so you can even bond many dissimilar materials with confidence.



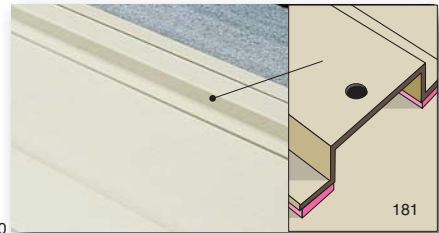
3M™ VHB™ Tapes bond the lens on contact in a fish finder and seal against water, moisture, salt, and more. Bonding power eliminates mechanical fasteners for a smooth, clean surface. Viscoelastic properties help absorb shock and vibration for bond reliability. 178



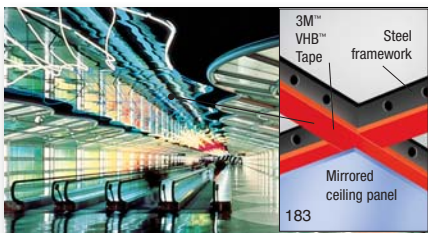
To join a variety of materials for high impact visual combinations throughout a refrigerator, 3M™ VHB™ Tape bonds painted and unpainted metal, HSE and LSE plastics, ceramics, and more 179



For assembly efficiency, die-cut pieces of 3M™ VHB™ Tapes bond components in a water-resistant video camera case. The foam conforms to help seal the unit. 180



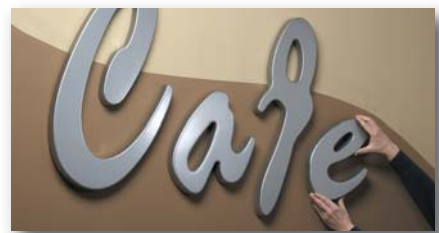
3M™ VHB™ Tapes bond panel stiffeners on contact to pre-painted metal cabinetry. Unlike welding, applying the tape does not damage the finish. 181



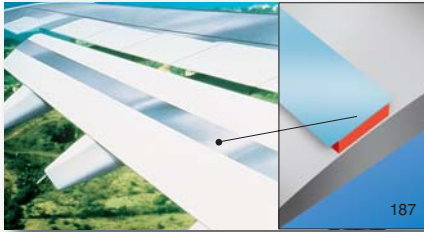
Mirrored ceiling panels are held in place with 3M™ VHB™ Tapes rather than screws. This helps maintain a clean, smooth appearance without distorting the reflective surfaces. 184



For a heat resistant bond, 3M™ VHB™ Tapes bond and seal stainless steel trim to the glass oven door with strength enough to replace mechanical fasteners. Door surface is smooth and attractive. 185



With high holding power and long-term reliability, 3M™ VHB™ Tape bonds dimensional letters to a painted wall for indoor or outdoor signage. 186



187
3M™ VHB™ Tapes securely bond stainless steel scuff strips to aluminum wing flaps despite extreme ground-to-air temperature swings of 150°F to -40°F (65°C to -40°C).



188
Perforated stainless steel plates are bonded to I-beams with 3M™ VHB™ Tapes as they replace rivets or screws for a smooth surface envisioned by the architect.



189
For ease of assembly and precise fit, die-cut 3M™ VHB™ Tapes bond and seal components throughout a GPS unit.



191
In assembling this sign with 3M™ VHB™ Tapes, lighter, thinner materials were used for easier installation, helping reduce labor and materials cost.



192
For assembly of an interstate highway sign in the mountains, sheets of 3M™ VHB™ Tapes were drilled and used to attach a precision mask to the LED array. The bond resists cold and extreme weather conditions.



193
3M™ VHB™ Tape bonds on contact with no drying time or fixturing and saves processing steps such as drilling, screwing, welding, cleanup, and refinishing.

3M™ Primers

Product	Solvent	Active Ingredients	VOC's	Color	Flashpoint	Coverage	Application Ideas
AP 111	Isopropyl alcohol (IPA)	Less than 5% by weight	5.91 lbs. / gallon (708 g/l)	Clear	52°F (11°C)	19 m ² /l (800 ft ² /gal) based on .002" wet coating thickness depending on method of application.	Promote better adhesion for bare metals and painted surfaces.

Product	Solvent	Active Ingredients	VOC's	Color	Flashpoint	Coverage	Application Temp.	Application Ideas
AP 115	Isopropyl alcohol and water	Less than 1% by weight	6.08 lbs./gallon (728 g/l)	Clear	53°F (12°C)	20 - 25 sq. ft. per 4 fl. oz. bottle (1.8 - 2.3 sq. m per 118 ml bottle)	50°F - 100°F (10°C - 38°C)	Promote better adhesion for glass.

Product	Solids	VOC's	Color	Flashpoint	Coverage	Viscosity	Application Ideas
Primer 94	6%	Approx. 6.3 lbs./gal. (755 g/l) less H ₂ O and exempt solvents	Clear light yellow-clear dark orange	-4°F (-20°C) O.C.	600 sq. ft.(211 sq. m/l) per gallon	35 +/- 5 cps	Promote better adhesion for a variety of plastic surfaces such as polyethylene, polypropylene, ABS, PET/PBT blends.

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

3M™ VHB™ Tapes

Product Number	Tape Thickness w/o liner (mm)	Liner Type	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas		
					Minutes Hours	Days Weeks		HSE	LSE			
Conformable Foam Tapes	4926	15 (0.4)	A	<ul style="list-style-type: none"> Gray, closed-cell acrylic foam carrier Conformable Good adhesion to many painted metals Plasticizer resistant UL 746C 	Multi-purpose acrylic	300°F (149°C)	200°F (93°C)	High	High	Med.	Bond and seal polycarbonate lens over LCD. Bond and seal plastic windows to pre-painted control panels/switch gear. Mount vinyl wiring ducts and conduit channels. Seam vinyl banners.	
	4936	25 (0.64)	A									
	4936F	25 (0.64)	F									
	4941	45 (1.1)	A									
	4941F	45 (1.1)	D									
	4956	62 (1.6)	A									
	4956F	62 (1.6)	F									
	4991	90 (2.3)	F									
	4919F	25 (0.64)	F									<ul style="list-style-type: none"> Black version of 4936F tape
	4947F	45 (1.1)	F									<ul style="list-style-type: none"> Black version of 4941F tape
4979F	62 (1.6)	F	<ul style="list-style-type: none"> Black version of 4956F tape 									
Conformable Foam Tapes	5915	16 (0.4)	D	<ul style="list-style-type: none"> Black, closed-cell acrylic foam carrier Very conformable Good adhesion to many painted surfaces, including powder coated paint UL 746C 	Modified acrylic	300°F (149°C)	250°F (121°C)	High	High	Med.	Bonds to a variety of plastics and paint systems. Various bonding applications for back-lit signs. Bond architectural signs to frames. Bond powder painted metal stiffeners to office desks and file cabinets.	
	5925	25 (0.64)	D									
	5930	32 (0.8)	D									
	5952	45 (1.1)	D									
	5958FR*	40 (1.0)	D									
	5962	62 (1.6)	D									
	4943F	45 (1.1)	C									<ul style="list-style-type: none"> Gray conformable foam
	4957F	62 (1.6)	C									<ul style="list-style-type: none"> Apply as low as 32°F (0°C)
Firm Foam Tapes	4611	45 (1.1)	D	<ul style="list-style-type: none"> Dark gray, closed-cell acrylic foam carrier High temperature resistance UL 746C 	General purpose acrylic	450°F (232°C)	300°F (149°C)	High	High	Low	Pre-powder coat paint applications: hat channels and stiffeners.	
	4646	25 (0.64)	D									
	4655	62 (1.6)	D									
	4914	10 (0.25)	A	<ul style="list-style-type: none"> White, closed-cell acrylic foam carrier All-purpose adhesive UL 746C 	General purpose acrylic	300°F (149°C)	200°F (93°C)	High	High	Low	Attach stiffeners in air conditioners, office furniture and telecommunications equipment.	
	4920	15 (0.4)	A									
	4930	25 (0.64)	A									
	4950	45 (1.1)	A									
	4929	25 (0.64)	C									<ul style="list-style-type: none"> Black version of 4930
	4949	45 (1.1)	C									<ul style="list-style-type: none"> Black version of 4950
	4955	80 (2.0)	C									<ul style="list-style-type: none"> White, closed-cell acrylic foam carrier All-purpose adhesive UL 746C
	4959	120 (3.0)	C	<ul style="list-style-type: none"> White, closed-cell acrylic foam carrier All-purpose adhesive UL 746C 								
	4945	45 (1.1)	A	<ul style="list-style-type: none"> White, closed-cell acrylic foam carrier Plasticizer resistant UL 746C 	Multi-purpose acrylic	300°F (149°C)	200°F (93°C)	High	High	Low	Attach vinyl trim. Bond vinyl extrusions.	
	4946	45 (1.1)	B									<ul style="list-style-type: none"> Film liner version of 4945 UL 746C
	4951	45 (1.1)	C	<ul style="list-style-type: none"> White, closed-cell acrylic foam carrier Apply as low as 32°F (0°C) 	Low-temp acrylic	300°F (149°C)	200°F (93°C)	High	High	Low	Low temperature installed products.	
4932	25 (0.64)	A	<ul style="list-style-type: none"> White, closed-cell acrylic foam carrier Good adhesion to polypropylene and many powder paints 	LSE	200°F (93°C)	160°F (71°C)	High	High	High	Bond powder painted metal stiffeners to office desks and file cabinets. Bond polypropylene and polystyrene.		
4952	45 (1.1)	A										
Clear	4905	20 (0.5)	D	<ul style="list-style-type: none"> Clear, acrylic construction for joining transparent material 	General purpose acrylic	300°F (149°C)	200°F (93°C)	High	High	Low	Mount backlit translucent signs. Edge-bond resin filled glass.	
	4910	40 (1.0)	D									
Transfer	F9460 PC	2 (0.05)	E	<ul style="list-style-type: none"> Clear adhesive transfer tape High shear strength adhesive UL 746C 	100MP	500°F (260°C)	300°F (149°C)	High	High	Low	Bond decorative metal trim. Bond flexible circuits to aluminum rigidizers or heat sinks.	
	F9469 PC	5 (0.13)	E									
	F9473 PC	10 (0.25)	E									

Liner Types:

- A – 3 mil 54# Densified Kraft Paper
- B – 5 mil Clear Polyethylene Film
- C – 2 mil Polyester Film
- D – 5 mil Red Polyethylene Film
- E – 4 mil 58# Polycoated Kraft Paper
- F – 5 mil Red Printed Polyethylene Film

Relative Adhesion:

- HSE – High Surface Energy
- LSE – Low Surface Energy

Multi Purpose Acrylic: Bonds to a wide range of materials including metals, glass, and high and medium surface energy plastics and paints. Resists migration of plasticizers in vinyl substrates.

Modified Acrylic: Bonds to medium low surface energy paints and plastics, including many powder coated paints in addition to the substrates listed with the multi-purpose acrylic adhesive (except plasticized vinyl).

General Purpose Acrylic: Bonds to most higher surface energy substrates including metal, glass, and high surface energy plastics.

Low Temperature Acrylic: Bonds down to 32° F (0°C) compared to 50°F (10°C) for most acrylic adhesives. Bonds most high surface energy substrates including metal, glass, and high surface energy plastics.

Low Surface Energy: High performance synthetic adhesive bonds to many lower surface energy substrates, including many plastics and powder coated paints, plus smooth general purpose substrates.

100MP: Bonds with higher peel strength than most other acrylic formulations. Up to 500°F (260°C) short term heat resistance.

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

* 5958FR meets FAR 25.853 (a) 12 sec – vertical burn, Appendix F, Part 1 (a) (ic).

3M™ VHB™ Tapes for Commercial Vehicles and Trailers

Built tough with smooth sides to look good for the long haul

For durability and smooth sides on trailers, trucks, busses, and other commercial vehicles, 3M™ VHB™ Tapes are proven to go the distance.

3M sent two trailers to the Bosch Automotive Proving Grounds for independent testing to compare mechanically-fastened side panels to those attached with 3M™ VHB™ Tape.

After 36,000 simulated road miles, 31% of mechanical fasteners were loose. Without use of sealants, these mechanically-fastened seams leaked with water sprayed at less than 75 psi.

After 100,000 simulated road miles, 3M™ VHB™ Tape in an unconstrained panel design held securely without leaks at up to 3,200 psi. And even with extreme thermal cycling testing, the panels with 3M™ VHB™ Tape were water tight and aesthetically smooth.

With 3M™ VHB™, manufacturers also bond and seal panels in one step – helping build a better trailer faster.



For less fatigue and stress on horses, a trailer assembled with 3M™ VHB™ Tape is up to 41% quieter with up to 30% less vibration at highway speeds. Results based on independent testing.



Surfaces of truck panels assembled with 3M™ VHB™ Tape are aesthetically smooth. Graphics apply easily without the added effort of applying over rivets or screw heads.



3M™ VHB™ Tape permanently bonds and seals dissimilar metals while separating the surfaces to reduce potential for galvanic corrosion. Viscoelastic properties also resist vibration.

3M™ VHB™ Commercial Vehicle Tapes

Product Number	Tape Thickness w/o liner (mm)	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Application Ideas
				Minutes Hour	Days Weeks		
CV45F	45 (1.1)	<ul style="list-style-type: none"> Gray, closed-cell acrylic foam carrier Conformable Good adhesion to many painted metals 	Acrylic	300°F (149°C)	200°F (93°C)	High	Bond overlap seams on vehicle side panels
CV62F	62 (1.6)						Bond vehicle side panels to posts

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™ VHB™ Tapes for Commercial Vehicles and Trailers are only available through authorized distributors and a warranty may be available on pre-approved applications.

www.3M.com/specialtyvehicle

3M™ VHB™ Structural Glazing Tapes

Application ease and immediate handling strength for increased productivity

3M™ VHB™ Structural Glazing Tapes have been proven in thousands of buildings worldwide since 1990 as an alternative to structural silicone and spacer tapes/gaskets.

Immediate handling strength results in faster throughput and delivery. No mixing or curing simplifies manufacturing.

A proven technology with over a 25-year history in construction, an application warranty is available for qualifying applications.



Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Description	Adhesive Type	Temperature Resistance		Solvent Resistance
					Minutes Hours	Days Weeks	
G23F	90 (2.3)	5 mil Red, Printed Polyethylene Film	<ul style="list-style-type: none"> Gray conformable acrylic closed-cell foam carrier Black conformable acrylic closed-cell foam carrier 	High Performance Acrylic	300°F (149°C)	200°F (93°C)	High
B23F							

3M™ VHB™ Structural Glazing Tapes are only available for structural glazing applications approved by 3M Technical Service through select distributors.

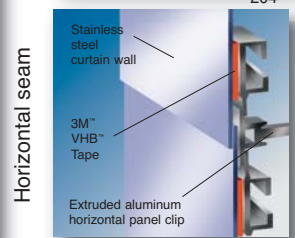
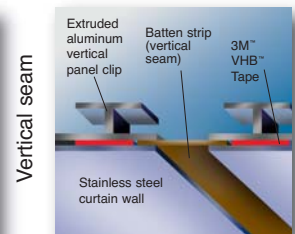
3M™ VHB™ Tapes for Architectural Panels

Proven for more than 25 years in applications from Denver to Dubai

For quick permanent assembly of cladding and curtain wall panels, 3M™ VHB™ Tapes provide an ideal combination of performance, durability and application ease.

Bond to a wide range of architectural panel substrates including dissimilar materials. With design flexibility, create visibly stunning facades.

Application warranty available for qualifying applications.



Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Relative Adhesion	
					Minutes Hours	Days Weeks		HSE	LSE
4941	45 (1.1)	3 mil 54# DK	<ul style="list-style-type: none"> Gray conformable acrylic closed-cell foam carrier 	Multi-purpose Acrylic	300°F (149°C)	200°F (93°C)	High	High	Med.
4956	62 (1.6)				250°F (121°C)	200°F (93°C)			
4991	90 (2.3)								
5952	45 (1.1)	5 mil Red, Polyethylene Film	<ul style="list-style-type: none"> Black conformable acrylic closed-cell foam carrier 	Modified Acrylic	300°F (149°C)	250°F (121°C)	High	High	Med.
5962	62 (1.6)								

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

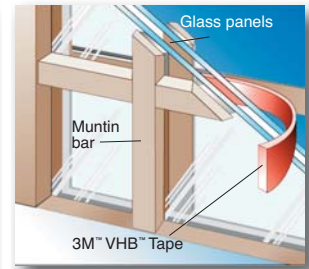
3M™ VHB™ Tapes for Windows and Doors

Attach wood, vinyl, composite or painted metal muntin bars to windows

These high strength tapes conform to glass with good wet-out and resistance to UV light, thermal expansion and contraction, solvents and cleaners. Tapes below are available only for approved window and door customers. Pre-approved applications may be eligible for a 10-year warranty. See primers on page 57.



206



207

Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Relative Adhesion	
					Minutes Hours	Days Weeks		HSE	LSE
G45P	45 (1.1)	3 mil White Paper	• Gray conformable acrylic closed-cell foam carrier	High Performance Acrylic	300°F (149°C)	200°F (93°C)	High	High	Med
G45F		5 mil Red PE							
B45F		5 mil Red PE	• Black conformable acrylic closed-cell foam carrier						

3M™ VHB™ Tapes for Signs

Reliable and immediate bonding

For indoor and outdoor signage, 3M™ VHB™ Tapes hold immediately without the work of screws and the mess and curing time of liquid adhesives.

- Bond metals, plastics, glass, foam board, and more
- Invisible fastening for smooth, attractive surfaces



208



209

3M™ VHB™ Tape provides durable bonding in outdoor applications.

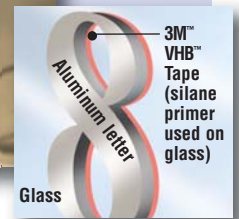


210

Clear 3M™ VHB™ Tape permanently bonds aluminum letters to glass and appears almost invisible from behind the pane.



211



212

	Unpainted Aluminum and Steel	Acrylic, Polycarbonate	Expanded Rigid PVC Board	Flexible Vinyl
Unpainted Aluminum and Steel	5952	5952	5952	4941
Painted Surfaces (drywall, metal, wood, concrete)	5952	5952	5952	4941
Acrylic, Polycarbonate	5952	5952	5952	4941
Glass	5952	5952	5952	4941
Transparent Applications	4910	4910	-	-

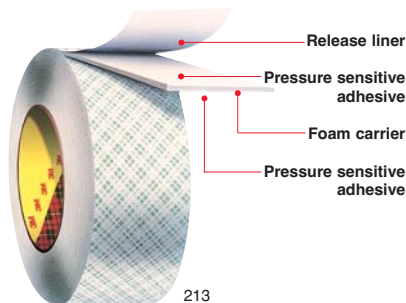
Note: This technical information and data should be considered representative or typical only and should not be used for specification purposes.

www.3M.com/vhb

3M™ Double Coated Foam Tapes for Mounting

Flexible foam carriers fill gaps and help bond irregular surfaces

In bonding rough or irregular surfaces, 3M™ Double Coated Foam Tapes fill gaps and distribute stress uniformly over the bonded area. Depending on the specific tape, the result is a bond line that seals, cushions and damps vibration, resists impact, withstands a wide temperature range, and provides good insulating qualities. To meet your requirements, select from rubber or acrylic adhesive, and a choice of different foam carriers: urethane, vinyl, elastomeric, polyethylene, or acrylic.



To replace screws and liquid adhesives, 3M™ Multipurpose Mounting Tape 4016 bonds immediately to many indoor surfaces, even permanently mounting a plastic soap dispenser to a mirror.



To install plastic soap dispensers on tile, or other surfaces, 3M™ Double Coated Urethane Foam Tapes eliminate the need to drill holes and attach screws.



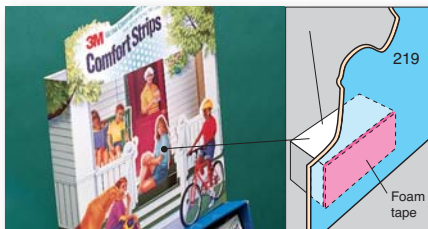
3M™ Double Coated Foam Tapes can be precisely die-cut and pre-applied to the back of any shape hook. Ready to mount to a variety of surfaces.



To permanently mount a coat rack to a textured wall, 3M™ Extra Thick Multipurpose Mounting Tape 4008 bonds on contact and fills gaps between the surfaces.



3M™ Double Coated Urethane Foam Tapes bond plastic signs to painted cinder block. The foam fills gaps between irregular surfaces. Various foam thicknesses are available for surface conformance based on the degree of roughness.



3M™ Double Coated Polyethylene Foam Tapes with high tack adhesive bond foam spacers between the planes of a 3-dimensional P.O.P. display.



3M™ Double Coated Polyethylene Foam Tapes effectively bond plastic extrusion price channels to grocery shelves.

3M™ Double Coated Foam Tapes for mounting

	Product Number	Tape Thickness Mils (mm)	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas	Liner Type
					Minutes Hours	Days Weeks		HSE	LSE		
Urethane	4004	250 (6.4)	<ul style="list-style-type: none"> Off-white, open-cell urethane foam carrier High shear adhesive with high temperature resistance 	100	380°F (193°C)	220°F (104°C)	Medium	High	Low	Bond acoustic panels to walls. Mount air fresheners. Mount soap dispensers. Mount interior signs and nameplates. Attach wire clips to various surfaces. Mount electrical channel to wall.	A
	4008	125 (3.2)									
	4016	62 (1.6)									
	4026	62 (1.6)									
	4032	31 (0.8)									
	4052	31 (0.8)	<ul style="list-style-type: none"> Black version of 4032 tape 	100	380°F (193°C)	220°F (104°C)	Medium	High	Low		
	4056	62 (1.6)	<ul style="list-style-type: none"> Black version of 4016 and 4026 tapes 								
4085	45 (1.1)	<ul style="list-style-type: none"> Off-white, open-cell urethane foam carrier High tack adhesive 	740	200°F (93°C)	125°F (52°C)	Medium	High	High	E		
Vinyl	4408	125 (3.2)	<ul style="list-style-type: none"> Black, closed-cell vinyl foam carrier 	430	200°F (93°C)	150°F (66°C)	Medium	High	Low	Mount indoor signs, nameplates and wall corner protectors to irregular surfaces.	A
	4416	62 (1.6)	<ul style="list-style-type: none"> White or black, closed-cell vinyl foam carrier 								
	4432	31 (0.8)									
Polyethylene	4462	31 (0.8)	<ul style="list-style-type: none"> White or black, closed-cell polyethylene foam carrier High tack adhesive 	745	158°F (70°C)	120°F (49°C)	Medium	High	High	Attach hooks, wire clips and racks. Mount retail shelf price channels. Mount pen holders.	B
	4466	62 (1.6)									
	4492	31 (0.8)	<ul style="list-style-type: none"> White or black, closed-cell polyethylene foam carrier High shear adhesive with high temperature resistance 	430	180°F (82°C)	158°F (70°C)	Medium	High	Low		
	4496	62 (1.6)									
Acrylic	4658F	31 (0.8)	<ul style="list-style-type: none"> Clear closed foam acrylic removable foam tape Clean removability from many substrates 	100	212°F (100°C)	175°F (80°C)	High	High	Low	Removable P.O.P. displays. Signs. Exhibits and trade shows. Nameplates.	D

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

Liner Types:

- A – 3 mil 62# Densified Kraft paper – Green plaid
- B – 3 mil Densified Kraft paper – White
- C – 4 mil 58# Polycoated Kraft paper – Tan
- D – 2 mil Polyester film – Clear
- E – 3 mil Densified Kraft paper – Tan

Relative Adhesion:

- HSE – High Surface Energy
- LSE – Low Surface Energy



With a wide choice of adhesives and carrier types you can permanently mount on contact dispensers and signs made of a variety of materials.

3M™ Double Coated Tapes

A variety of carriers for easy handling and dispensing

3M™ Double Coated Tapes are engineered with adhesive on both sides of paper, film or tissue. This increases the dimensional stability of the adhesive for easy handling and application.

Depending on your production volume, you can apply tape by hand or with automatic high-volume dispensers. Select paper, polyester film or other synthetic carriers to help meet your special needs. Different adhesives – rubber, silicone or acrylic – can be on opposite sides of the carrier to join different materials. Your choice of properties include high temperature resistance, conformability to irregular surfaces, high initial adhesion, high shear strength, and more.



223

Simply roll on a strip or band of 3M™ Double Coated Tape 9832 for quick edge banding with no special equipment. Pressure sensitive adhesive tape grabs with immediate handling strength for improved productivity.



224

With differential adhesive, the silicone adhesive side of 3M™ Double Coated Tape adheres to a silicone rubber keypad. Acrylic adhesive side adheres to a plastic base.



225

3M™ Double Coated Tape 410M is the quick, convenient way to bond golf club grips to shafts. Adhesive sets up fast and bonds firmly for long-lasting performance.



226

For precise fit, 3M™ Double Coated Tape is pre-applied to foam gasketing materials and then die-cut to size. This helps increase dimensional stability of the part to facilitate assembly.

Adhesive Family ¹	Product Number	Tape Thickness w/o liner Mills (mm)	Carrier Type ²	Liner Type ²	Description	Temperature Resistance			Solvent Resistance	Relative Adhesion		Application Ideas
						Minutes	Hours	Days		Weeks	HSE	
200MP High Perf	9492MP	2.5 (0.06)	PET	58# PCK	• 2.5 mil version of 9495MP	300°F (149°C)	250°F (121°C)	High	High	Low	Automotive decorative trim attachment.	
	9495MP	5.7 (0.14)	PET	58# PCK	• Excellent peel strength on high surface energy plastics and metals						Graphic attachment. High-pressure laminate bonding.	
	9495MPF	5.7 (0.14)	PET	PET	• Film lined version of 9495MP						LED lens attachment for cell phones.	
	9495FL	5 (0.11)	PET	HDPE/ 58# PCK	• Double Lined version of 9495MP	300°F (149°C)	200°F (93°C)				LED lens attachment for cell phones.	
	9495B	5.7 (0.14)	PET	58# PCK	• 9495MP with a 0.5 mil black polyester carrier	300°F (149°C)	250°F (121°C)					LED lens attachment for cellular phones and pagers.

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

3M™ Double Coated Tapes

Adhesive Family ¹	Product Number	Tape Thickness w/o liner Mils (mm)	Carrier Type*	Liner Type ²	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
						Minutes Hours	Days Weeks		HSE	LSE	
300 High Strength	444	3.8 (0.10)	PET	55# DK	• High tack acrylic adhesive with densified kraft liner	250°F 121°C	150°F (65°C)	Low	High	High	Gasket attachment. Good adhesion to most plastics.
	444PC	3.8 (0.10)	PET	58# PCK	• High tack acrylic adhesive with polycoated kraft liner						Gasket attachment.
	9009	1.9 (0.05)	PET	55# DK	• Thin double coat for applications where thickness is critical	250°F (121°C)	180°F (82°C)	Low	Med.	Med.	Gasket attachment in hand-held devices and laptops.
	9019	1.1 (0.03)	PET	55# DK	• Ultra-thin double coat for applications where thickness is critical						Plastic film lamination/bonding.
	9039	3.5 (0.09)	PET	55# DK	• Thin double coat where application thickness is critical						
300LSE High Strength	9490LE	6.7 (0.17)	PET	58# PCK	• 300MP adhesive on face side, 300LSE adhesive on the other	300°F (149°C)	200°F (93°C)	Medium	High	High	Gasket attachment to low surface energy surfaces.
	9495LE	6.7 (0.17)	PET	58# PCK	• 300LSE adhesive on both sides for low surface energy surfaces						Plastic extrusion attachment.
300MP High Strength	9609	9 (0.23)	PET	83# PCK	• Thick double coat. Provided on 6" core only	300°F (149°C)	150°F (65°C)	Medium	High	Med.	Foam lamination.
	9687	12 (0.30)	PET	PET	• Thick double coat for bonding to foam with clear polyester carrier						Gasket attachment.
	9690	5.6 (0.14)	PET	83# PCK	• Excellent adhesion to most plastics and foams						Foam lamination. Gasket attachment.
	9690B	5.6 (0.14)	PET	83# PCK	• 9690 with a 0.5 mil black polyester carrier						LED lens attachment for cellular phones and pagers.
	9786	5.5 (0.14)	Non-woven	58# PCK printed	• Thin non woven carrier for dimensional stability and improved handling						LED lens attachment for cell phones.
	9786NP	5.5 (0.14)	Non-woven	58# PCK unprinted	• Same as 9786 except an unprinted liner						LED lens attachment for cell phones.
	9832	4.8 (0.10)	PET	58# PCK	• Excellent adhesion to most foams • Immediate handling strength for edge banding, veneering, refacing, and laminating • Excellent adhesion to most foams						Permanent bonds for many materials fused in woodworking and furniture.
	9832HL	4.8 (0.10)	PET	83# PCK	• Same as 9832 except with a heavier liner						
340 High Strength	469	5.5 (0.14)	Tissue	72# DK	• High temp, high tack, light red	350°F (177°C)	200°F (93°C)	Medium	High	Med.	High speed flying splices.
	9456	5 (0.11)	Tissue	55# DK	• Tissue carrier with high tack adhesive	180°F (82°C)	150°F (65°C)				Bond fabric to window blind valances. General purpose laminating. Foam lamination. Gasket attachment.
	9824	3.1 (0.08)	PET	55# DK	• High tack, general purpose acrylic adhesive	150°F (65°C)	120°F (49°C)				Foam lamination. Gasket attachment.
	9828	4 (0.10)	PET	55# DK	• High tack, acrylic adhesive with good adhesion to many foams						
	9828HL	4 (.10)	PET	132# Kraft	• Same as 9828 with a heavier liner						
	9828PC	4 (.10)	PET	74# PCK	• Same as 9828 with PCK liner	Foam lamination. Gasket attachment.					
350 High Holding	9500PC	5.6 (0.14)	PET	61.5# PCK	• High performance on a wide array of surfaces	350°F (177°C)	250°F (121°C)	High	High	High	LED lens attachment for cellular phones and pagers.
375 High Performance	9086	7.5 (0.17)	Tissue	Glassine Paper	• Good initial tack	248°F (120°C)	185°F (85°C)	Medium	High	High	POP displays. Metal fabrication. Sports equipment. Indoor/outdoor signs.
	9087	10.2 (0.22)	PVC	Glassine Paper		185°F (85°C)	158°F (70°C)				
	9088	8.3 (0.22)	PET	Glassine Paper		300°F (150°C)	200°F (93°C)				
	9088FL	8.3 (0.22)	PET	PP							

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

Relative Adhesion: HSE – High Surface Energy, LSE – Low Surface Energy

*PET is polyester, PP is polypropylene. ¹ More information on pages 80-81. ² More information on page 71.

3M™ Double Coated Tapes (continued)

Adhesive Family ¹	Product Number	Tape Thickness w/o liner Mils (mm)	Carrier Type ²	Liner Type ²	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas				
						Minutes Hours	Days Weeks		HSE	LSE					
400 Acrylic	415	4 (0.1)	PET	60# DK	• High tack adhesion to paper and many other surfaces	180°F (82°C)	150°F (65°C)	Medium	Med.	Low	Splice papers, films and foils.				
	9420	4 (0.1)	PET	60# DK	• 415 with a 0.5 mil red carrier										
	9576	4 (0.1)	PP	60# DK	• Transparent carrier	165°F (75°C)	125°F (52°C)	Medium	Med.	Low	Splicing, core starting, miscellaneous joint and bonding, hand tearable.				
	9576B	4 (0.1)	PP	60# DK	• Black carrier										
	9576R	4 (0.1)	PP	60# DK	• Red carrier										
	9576Y	4 (0.1)	PP	60# DK	• Yellow carrier										
	9578	4 (0.1)	PP	60# DK	• Transparent carrier										
420 Acrylic	9795	5.6 (0.14)	PET	83# PCK	• Double coated version of 3M Tape 9695 for foam lamination and graphic attachment	300°F (149°C)	250°F (121°C)	Medium	Med.	Low	LED lens attachment for cell phones.				
	9795B	5.6 (0.14)	PET	83# PCK	• Thin black polyester carrier for improved handling, die-cutting										
700 Synthetic Rubber	9377	11 (0.25)	PP	58# PCK	• Flame retardant with specially formulated black acrylic based adhesive on one side and rubber based adhesive on the other.	250°F (121°C)	180°F (82°C)	Medium	N/A	N/A	Carpet installation bonding carpet to interior floor boards.				
	760 9443NP	6 (0.15)	HDPE	62# DK	• High tack with good adhesion to most plastics	180°F (82°C)	150°F (65°C)	Medium	High	High	Assemble computer ink cartridges. Bonding polyethylene. Core starting on metal cores.				
	760 9579	9 (0.23)	HDPE	62# DK	• General purpose, high tack, hand-tearable film tape	150°F (65°C)	120°F (49°C)				Carpet attachment.				
	760 9589	9 (0.23)	HDPE	62# DK	• Aggressive high initial tack										
800 Natural Rubber	860 401M	9 (0.23)	Paper	54# DK	• Thick flatstock paper carrier	180°F (82°C)	150°F (65°C)	Medium	High	Med.	Mount printing plates.				
	850 410M	6 (0.06)	Paper	54# DK	• Smooth adhesive on both sides	200°F (93°C)	150°F (65°C)				Core starting/end tabbing of papers, films and foils.				
	830 442F	4 (0.1)	PET	PET	• Same as 442KW with film liner	180°F (82°C)	150°F (65°C)				Mount polishing pads.				
	442KW	4 (0.1)	PET	72# PCK	• Removes from metals										
	456CR	4 (0.1)	PET	PET	• Easy release blue adhesive										
900 Misc.	9737	4 (0.1)	PET	55# DK	• Aggressive and versatile for many surfaces	300°F (149°C)	260°F (127°C)	High	Med.	Low	Double coated splicing tape.				
	9737R	4 (0.1)	PET	55# DK	• Same as 9737 in Red										
	9738	5.6 (0.14)	Non-Woven Tissue	55# DK	• Aggressive and versatile for many surfaces										
	9738R				• Same as 9738 in Red										
	9740	4 (0.1)	PET	55# DK	• High temperature performance with high peel, tack, and shear for splicing applications	425°F (218°C)	N/A	Medium	Med.	Low	Double coated splicing tape.				
	9741	7 (0.18)	PET	55# Glassine	• Thick, adheres to a wide variety of substrates	200°F (93°C)									
	9816L	3.5 (0.09)		60#	• General purpose, high tack, rubber-based adhesive.	150°F (65°C)	120°F (49°C)	Medium	High	Med					
	9816M			74# Kraft											
	9816H			14 pt board											
	9817L	3.3 (0.08)		60#	• Exposed side is acrylic, liner side is rubber-based. Excellent quick stick and adhesion to high and low energy surfaces.	Acrylic: 220°F (105°C) Rubber: 175°F (80°C)	Acrylic: 175°F (80°C) Rubber: 120°F (49°C)	Medium	High	Med					
9817M	74# Kraft														
9817H	14 pt board														
Silicone	9731	5.5 (0.14)	PET	PET/PCK	• High performance acrylic adhesive/silicone adhesive, double lined	350°F (177°C)	250°F (121°C)	Medium	High	High	Silicone keypad attachment. Printer toner cartridge refurbishing.				
Misc.	9599	5 (0.2)	PP	DK White	• High adhesion to a variety of materials • Low VOC	200°F (93°C)	180°F (82°C)	Medium	High	High	Suitable for automotive interior applications.				

Relative Adhesion: HSE – High Surface Energy, LSE – Low Surface Energy

¹PET is polyester, PP is polypropylene.

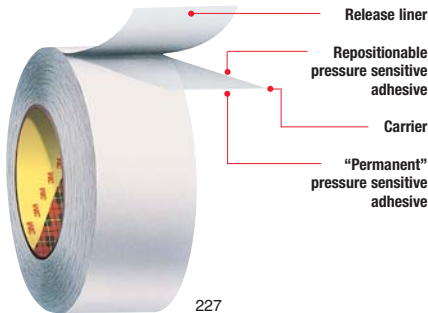
² More information on pages 80-81. ² More information on page 73.

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

3M™ Removable/Repositionable Tapes

Versatility for many substrates on on-off and open-close applications

Some 3M™ Removable/Repositionable Tapes feature a “permanent” adhesive on one side of a film or tissue carrier and a removable/repositionable adhesive on the other side.



227

Other tapes in the line offer different levels of adhesion on each side. And others feature equal adhesive strength on each side for reliable attachment but with easy separation for repositioning or multiple openings and closings. You can join substrates that include glass, metals, wood, paper, painted surfaces, and many plastics.

With lined versions, you can initially join one side to a surface while the other side is covered with the liner, ready to be joined later to the second surface. Linerless versions are used for bonding both surfaces at the same time.



228

3M™ Removable/Repositionable Tape seals hosiery bags for shipment and display but also lets the customer open and reclose the bag as necessary.



229

High tack side of 3M™ Removable/Repositionable Tape 9415 “permanently” adheres to cores for winding up paper or film. Low tack side releases the paper or film when unwinding.

3M™ Removable/Repositionable Tapes

	Product Number	Adhesive Type	Tape Thickness w/o liner MILS (mm)	Liner Type ²	Description	Temperature Resistance		Solvent Resistance	HSE	LSE	Application Ideas
						Minutes Hours	Days Weeks				
Removable/Repositionable	665	1070	3.5 (0.09)	Linerless	<ul style="list-style-type: none"> • Clear UPVC film carrier • Slight differential tack 	125°F (52°C)	100°F (38°C)	Medium	Med.	Med.	Close polybags. Attach bottle outserts. Attach microscope slides to holder.
	666	1070	3.5 (0.09)	LDPE	<ul style="list-style-type: none"> • Clear UPVC film carrier • Slight differential tack 	125°F (52°C)	100°F (38°C)	Medium	Med.	Med.	Attach chemically sensitive film to test sticks.
	4451	700	32 (0.8)	60# PCK	<ul style="list-style-type: none"> • Polyethylene foam with synthetic rubber adhesive 	150°F (66°C)	120°F (49°C)	Medium	High	Med.	Option of foam if you want removability. Temporary sign.
	4658F	100	31 (0.8)	PET	<ul style="list-style-type: none"> • Clear, closed foam acrylic foam tape 	212°F (100°C)	175°F (80°C)	High	High	Low	Removable P.O.P. displays, signs, exhibitions, and nameplates.
	9415PC	400/1000*	2 (0.05)	78# PCK	<ul style="list-style-type: none"> • 1 mil polyester film carrier • High tack/low tack 	180°F (82°C)	150°F (65°C)	Low	Med/Low	Low	Core starting/end tabbing. Hold credit cards in mailers. Close envelopes.
	9416	400/1000*	1.5 (0.04)	78# PCK	<ul style="list-style-type: none"> • Translucent white tissue carrier • High tack/low tack 	180°F (82°C)	150°F (65°C)	Low	Med/Low	Low	Removable labels and photos.
	9425	420/1050*	5.5 (0.14)	58# PCK	<ul style="list-style-type: none"> • Clear UPVC film carrier • High tack/medium tack 	125°F (52°C)	100°F (38°C)	Low	Med/Low	Low/Low	Close polybags and envelopes. Core starting/end tabbing. Backlit signs. Attach labels, novelties, posters, P.O.P. displays.
	9425HT	420/1050*	5.0 (0.13)	58# PCK	<ul style="list-style-type: none"> • High tack/medium tack • PET film carrier 	250°F (121°C)	200°F (93°C)	High	Med.	Med.	Same as 9425 but with higher temperature performance.
	9449S**	1000	0.4 (0.01)	55# DK	<ul style="list-style-type: none"> • Laminates to various substrates to make them repositionable 	150°F (65°C)	120°F (49°C)	Low	Low	Low	Easy removal with little or no residue.

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

* Second number reflects removable/repositionable adhesive side.

**3M™ Adhesive Transfer Tape

² More information on page 71.

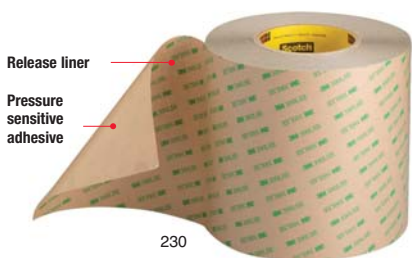
3M™ Adhesive Transfer Tapes

Neat, precise application and high performance in a variety of applications

3M™ Adhesive Transfer Tapes are rolls of pressure sensitive adhesive pre-applied to a special release liner.

For application, the tape is simply pressed, adhesive side down, to a surface and the liner is peeled off.

A variety of adhesive properties and liners are available to meet requirements for applications such as nameplate attachment to high and low surface energy plastics, appliance graphic overlays that perform in high temperatures, foam gasketing, web splicing, and more.



With high cohesive strength, 3M™ Adhesive 200MP bonds aggressively with excellent temperature resistance. Meets the non-fogging specifications of the automotive industry.

231



For bonding flexible vinyl in such applications as door gaskets, 3M™ Adhesive Transfer Tape F9465PC resists the effect of plasticizers that tend to migrate from the vinyl.

232



3M™ Laminating Adhesive 300LSE is the solution for low energy surfaces such as polyolefins and powder coat paint. Graphics hold securely and stand up to tough environmental conditions.

233



3M™ Adhesive Transfer Tapes provide conformability in a variety of foam laminating applications. The acrylic adhesive also provides high shear strength and good environmental aging properties.

234



3M™ Adhesive Transfer Tape 465 has the grab strength for many printing splices, including flying splices, zero speed and manual overlap. Can be used with a variety of paper grades.

235



3M™ Adhesive Transfer Tape 467MP is used to laminate metal foil to a circuit board to reduce interference on electronic circuitry.

236



For graphic beauty, 3M™ Acrylic Adhesive 100 attaches graphics in closed environments. With low odor, reduced outgassing and low fogging, it is used extensively in the automotive, aerospace, and appliance industries.

237

3M™ Adhesive Transfer Tapes

Adhesive Family ¹	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type ²	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
					Minutes Hours	Days Weeks		HSE	LSE	
100 High Temp	941	2 (0.05)	58# PCK	<ul style="list-style-type: none"> High temperature, low outgassing 	450°F (232°C)	300°F (149°C)	High	High	Low	Graphic attachment for appliances. Flex circuit attachment. Aerospace fuel line labeling. Meets NASA low volatility specs.
	965	2 (0.05)	55# DK							
	966	2 (0.05)	62# DK							
	9461P	1 (0.025)	55# DK							
	9462P	2 (0.05)								
100MP	9437	2 (0.05)	PET/58# PCK	<ul style="list-style-type: none"> Designed for harsh environments and outdoors High shear strength, high temperature resistance UL listing 746C 	450°F (232°C)	300°F (149°C)	High	High	Low	Automotive and aerospace applications.
	F9460PC	2 (0.05)	58# PCK							
	F9469PC	5 (0.13)			500°F (260°C)	300°F (149°C)	High	High	Low	Industrial joining and metal fabrication.
	F9473PC	10 (0.25)								
100HT	9082	2 (0.05)	White DK	<ul style="list-style-type: none"> Excellent heat resistance in high temperature environments 	530°F (277°C)	350°F (177°C)	High	High	Low	For applications that require both higher processing and operating temperatures such as lead-free solder reflow processes.
	9085	5 (0.13)								
200MP High Perf	467MP	2 (0.05)	58# PCK	<ul style="list-style-type: none"> High performance, high temperature formulation Rotary die-cuttable liner 	400°F (204°C)	300°F (149°C)	High	High	Low	General industrial joining. Industry standard for graphic attachment and die-cut parts.
	468MP	5 (0.13)								
	467MPF	2 (0.05)	PET							
	468MPF	5 (0.13)								
	9172MP	2 (0.06)	HDPE/58# PCK							
	9185MP	5 (0.13)	HDPE/58# PCK							
	9667MP	2 (0.06)	83# PCK							
	9668MP	5 (0.13)	83# PCK							
220 Industrial Acrylic	9502	2 (0.05)	58# PCK	<ul style="list-style-type: none"> Economical acrylic formulation 	350°F (177°C)	250°F (121°C)	Medium	High	Low	Attachment of graphics and industrial joining.
	9505	5 (0.12)								
290 Low Outgassing	501FL	1 (0.025)	PET	<ul style="list-style-type: none"> Very low outgassing 	450°F (232°C)	300°F (149°C)	High	High	Low	Hard disc drive seals, low odor and outgassing applications.
	502FL	2 (0.05)								
300FR Flame Retardant	9372DKW	2 (0.05)	55# DK	<ul style="list-style-type: none"> Flame retardant transfer tape with rotary die-cuttable liner Flame retardant transfer tape with moisture-stable liner 	180°F (82°C)	150°F (65°C)	Medium	High	High	Automotive, aerospace, and building construction.
	9372W	5 (0.12)	83# PCK							
	9375W									
300 High Strength	927	2 (0.05)	60# DK	<ul style="list-style-type: none"> High tack, excellent adhesion to LSE plastics and foams 	250°F (121°C)	150°F (65°C)	Medium	High	High	High adhesion custom labels. Attach gaskets and a variety of industrial foam materials. Foam lamination to various surfaces.
	950	5 (0.13)	60# DK							
	950EK	5 (0.13)	78# EK							
	992U	2 (0.05)	55# DK							
	9458	1 (0.025)	55# DK							
	9459W	1.5 (0.04)	55# DK	<ul style="list-style-type: none"> White adhesive High opacity 	250°F (121°C)	150°F (65°C)	Low	High	High	Gasket attachment, foam fabric and/or coated papers.
	9471	2 (0.05)	60# DK	<ul style="list-style-type: none"> For smooth LSE plastics 						
	9471PC	2 (0.05)	61# PCK	<ul style="list-style-type: none"> Same as 9471 on moisture-stable liner 						
	9472	5 (0.13)	60# DK	<ul style="list-style-type: none"> 5.0 mil version of 9471 for textured surfaces 						
	9671	2 (0.05)	83# PCK	<ul style="list-style-type: none"> Heavy lined version of 9471 						
9672	5 (0.13)	83# PCK	<ul style="list-style-type: none"> Heavy lined version of 9472 							

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

Relative Adhesion:

HSE – High Surface Energy LSE – Low Surface Energy

¹ More information on pages 80-81. ² More information on page 71.

3M™ Adhesive Transfer Tapes (continued)

Adhesive Family ¹	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type ²	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas				
					Minutes Hours	Days Weeks		HSE	LSE					
300 High Strength (cont.)	9673	2 (0.05)	83# PCK	<ul style="list-style-type: none"> Same as 9671 with unprinted liner Same as 9673 but for textured surfaces 	250°F (121°C)	150°F (65°C)	Low	High	High	Gasket attachment, foam fabric and/or coated papers.				
	9674	5 (0.13)												
300LSE High Strength	8132LE	2 (0.05)	83#/58# PCK	<ul style="list-style-type: none"> High bond to plastics with high temperature holding 	300°F (149°C)	200°F (93°C)	High	High	High	Bond graphics to powder coatings, LSE plastics and oily metal. General industrial bonding of LSE materials.				
	8153LE	3.5 (0.09)												
	9453LE	3.5 (0.09)	58# PCK											
	9471LE	2 (0.05)												
	9472LE	5 (0.13)												
	9453FL	3.5 (0.09)	PET	<ul style="list-style-type: none"> Film lined version of 9453LE for rotary processing 										
	9471FL	2 (0.05)	PET	<ul style="list-style-type: none"> Film lined version of 9471LE for rotary processing 										
	9472FL	5 (0.13)	PET	<ul style="list-style-type: none"> 5.0 mil version of 9471LE with liner for textured surfaces 										
	9653LE	3.5 (0.09)	83# PCK	<ul style="list-style-type: none"> High bond to plastics with high temperature holding 										
9671LE	2 (0.05)													
9672LE	5 (0.13)													
300MP High Strength	6035PC	5 (0.13)	58# PCK	<ul style="list-style-type: none"> Low fogging for automotive interior applications 	250°F (121°C)	180°F (82°C)	Medium	High	Med.	Bond anti-squeak fabric and foam. For automotive interior.				
	6035PL	5 (0.13)	83# PCK	<ul style="list-style-type: none"> Heavy lined version of 6035PC for easy handling, lay-flat properties 							High	Med.	High	Automotive, low fogging adhesive for fabric carpet.
	6038PC	8 (0.2)	58# PCK	<ul style="list-style-type: none"> Low fogging for automotive interior applications 										
	6038PL	8 (0.20)	83# PCK	<ul style="list-style-type: none"> Low fogging For rough embossed surfaces with heavy liner for steel rule die-cutting 							High	Med.	High	Automotive, low fogging adhesive for fabric carpet.
	9772WL	2 (0.05)	96# PCK	<ul style="list-style-type: none"> Provides excellent bond to various fabricated foams, fabrics and substrates 										
	9773WL	3 (0.075)												
	9774WL	4 (0.10)												
	9775WL	5 (0.13)												
9784	4 (0.1)	HDPE/58# PCK												
350 High Holding	9442	2 (0.05)	55# DK	<ul style="list-style-type: none"> High tack, high shear and high temperature performance 	450°F (232°C)	300°F (149°C)	High	High	High	Laminate high performance plastics and difficult substrates. Splice metal coils.				
	9445	5 (0.13)												
	9482PC	2 (0.05)	62# PCK	<ul style="list-style-type: none"> Excellent adhesion to LSE plastics and foams 										
	9485EK	5 (0.13)	78# EK											
	9485PC	5 (0.13)	62# PCK											
	9675	5 (0.13)	83# PCK	<ul style="list-style-type: none"> Heavy lined version of 9485PC for easy handling, lay-flat properties 							High	High	High	LED lens attachment for cellular phones and pagers.
400 Acrylic	463	2 (0.05)	60# DK	<ul style="list-style-type: none"> High tack Excellent adhesion to most paper stocks Flexible to -60°F 	250°F (121°C)	180°F (82°C)	Medium	Med.	Low	Paper splicing and general office and commercial joining. Validation labels and parking permits on car windows. Splicing tape.				
	465													
	9457	1 (0.025)	55# DK											
	9464	2 (0.05)	60# DK	<ul style="list-style-type: none"> Pink tinted adhesive Industrial-grade adhesive transfer tape 										
	9498													
9665	2 (0.05)	58# PCK	<ul style="list-style-type: none"> Thicker liner than 465 for moisture stability in kiss-cutting 											

Relative Adhesion:

HSE – High Surface Energy

LSE – Low Surface Energy

¹ More information on pages 80-81.

² More information on page 71.

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

3M™ Adhesive Transfer Tapes (continued)

Adhesive Family ¹	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type ²	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
					Minutes Hours	Days Weeks		HSE	LSE	
420	F9752PC	2 (0.05)	58# PCK	<ul style="list-style-type: none"> • High tack • Can be applied as low as 32°F (0°C) 	300°F (149°C)	250°F (121°C)	High	Med.	Low	Bond gaskets and foams. Bond polycarbonate instrument panels.
	F9755PC	5 (0.13)	58# PCK							
430	9497	2 (0.05)	60# DK	• Pink • High temperature splicing	350°F (177°C)	250°F (121°C)	Medium	Med.	Low	High temperature, zero speed splicing.
	9499			• Clear version of 9497						
Specialty	F9465PC	5 (0.13)	58# PCK	<ul style="list-style-type: none"> • Medium tack • Plasticizer resistant 	200°F (93°C)	160°F (71°C)	Medium	Med.	Low	Bonding plasticized vinyl gaskets, decals and moldings.
	8056	5 (0.13)	58# PCK	• High tack, for hard to bond surfaces	150°F (65°C)	120°F (49°C)	Low	High	Med.	Splicing photographic papers.
	909	1.5 (0.04)	60# DK	• Assembly aid tape	180°F (82°C)	150°F (65°C)	Medium	Med.	Med.	Assembly aid for pick and place.

Relative Adhesion:

HSE – High Surface Energy

LSE – Low Surface Energy

¹ More information on pages 80-81.

² More information below.

Liner Characteristics

Description	Caliper (mils)	Use
43# Densified Kraft paper (DK)	2.5	Inexpensive secondary liner, protects from humidity extremes.
55# Densified Kraft paper (DK)	3.2	Excellent liner for rotary die-cutting; reduces edge roll on metal parts, protects from humidity extremes.
58# Polycoated Kraft paper (PCK)	4.2	Excellent liner for steel rule die-cutting, resists moisture.
60# Densified Kraft paper (DK)	3.5	Hard dense liner reduces edge burr in hard tool processing of metal plates.
62# Densified Kraft paper (DK)	3.7	General purpose liner, rotary or steel rule, protects from humidity extremes.
78# Extensible Polycoated Kraft paper (EK)	6	Extra tough liner for increased tear resistance.
83# Polycoated Kraft paper (PCK)	6.2	Improved handling (lay-flat), steel rule die-cutting, kiss-cutting, resists moisture.
94# PCK	7	Excellent for lay-flat processing.
Polyester film (PET)	2, 3, 4	Rotary die-cuttable, cleanroom, clear for inspection of parts, humidity stable.
Clear, High Density Polyethylene film (HDPE)	3	Clear for inspection of parts, thermo-formable, tear-resistant.
White Polypropylene film (PP)	3.5	Can be thermo-formed.

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

3M™ Release Liners and Printable Films

Product Group	Product	Description/Application Ideas	Construction		Master Size
			Caliper Mils	Liner	
Release Liners <i>Non-silicone</i>	4935	3M proprietary fluoropolymer release coat one side.	3.0	Polyester, Clear	40" x 360 yd
	5932	3M proprietary fluoropolymer release coat one side.	2.0	Polyester, Clear	54" x 360 yd
Release Liners <i>Silicone</i>	4986	High-density polyethylene is transparent for graphic inspection. Release coat one side. For delamination/relamination only.	3.0	HDPE Film, Clear	48" x 360 yd
	4988	Neutral-colored, polycoated lay-flat kraft liner. Release coat one side.	6.2	83# Polycoated Kraft, Neutral color	48" x 360 yd
	4994	Caliper controlled liner for rotary die-cutting. Release coated two sides. Very low release for double lining #300 high-strength adhesive.	3.2	55# Densified Kraft, White	54" x 360 yd
	4996	Clear film is ideal for graphics inspection of backlit panels. Release coat one side.	1.4	Polyester Film, Clear	54" x 360 yd
	4997	Heavy liner ideal for kiss-cutting and lay-flat applications. Release coat one side.	4.0	70# Densified Kraft, Clear	54" x 360 yd
	4998	Release coat two sides (matte).	4.2	58# Polycoated Kraft, Tan	48" x 360 yd
	4999	Caliper controlled liner for rotary die-cutting. Release coat one side.	3.2	55# Densified Kraft, White	54" x 360 yd
	5002	Clear polyester film for rotary cutting. Release coat one side.	2.0	Polyester Film, Clear	60" x 360 yd
	5002D	Clear polyester film for rotary cutting. Release coat two sides.	2.0	Polyester Film, Clear	60" x 360 yd
	5004	Thick, clear polyester film for rotary cutting. Release coat one side.	4.0	Polyester Film, Clear	50" x 360 yd
	5051	Special PCK liner for double lining 300LSE tapes. Release coat one side.	4.2	58# Polycoated Kraft	48" x 180 yd
	7526L	Tan polycoated kraft. Release coat two sides (matte).	4.2	58# Polycoated Kraft	48" x 360 yd
7527L	Cloudy high-density polyethylene. Release coat one side.	3.0	HDPE Film	48" x 360 yd	

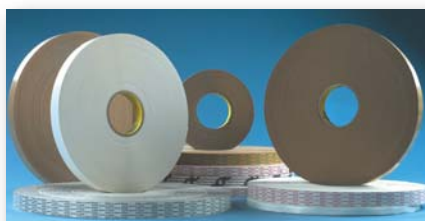
Product Group	Product	Description/Application Ideas	Construction		Master Size	Print Method	Specs
			Caliper Mils	Liner			
Printable Polyester Films - <i>Label Component Films</i>	8038	Top-coated film for use with standard printing inks. Top-coat is wound inside. Clear film allows for subsurface printing. Used for automotive, electronics, and other durable goods applications.	2.0	Polyester, Gloss Clear	48" x 720 yd	Press	
	8039	Non top-coated. Clear film allows for subsurface printing for protection of inks. Typical use in over-the-counter and pharmaceutical applications.	2.0	Polyester, Matte Clear (NTC)	48" x 720 yd	Press	UL
	8049	Matte top-coat for dot-matrix printing. Clear film allows for subsurface printing of inks.	2.5	Polyester, Matte Clear	54" x 720 yd	Dot Matrix	UL
	8050	Matte top-coat for dot-matrix printing. Excellent abrasion and chemical resistance.	2.5	Polyester, Matte White	54" x 720 yd	Dot Matrix	UL
	8053	Same as 8050, except matte silver.	2.5	Polyester, Matte Silver	54" x 720 yd	Dot Matrix	UL
	8057	Provides excellent durability. Used for automotive, electronic, and other durable goods applications.	2.0	Polyester, Gloss White	54" x 720 yd	Thermal Transfer	
	8058NT	Same as 8057, except bright silver. Top-coat is wound inside.	2.0	Polyester, Bright Silver	54" x 720 yd	Thermal Transfer	

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

3M™ Extended Liner Tapes

Versatile pressure sensitive adhesive on easy-to-remove liners

3M™ Extended Liner Tapes offer the adhesive versatility of 3M tapes but with liners wider than the adhesive. This leaves an easy-to-lift edge for convenient and easy liner removal. With the variety of adhesives, you have a selection of performance characteristics such as high tack for coated papers and plastics, low tack for temporary attachment, high temperature resistance, and more. Apply manually or with equipment matched to your production volume requirements.



238



239 3M™ Extended Liner Tapes are available with a release liner wider than the adhesive. This provides an easy-to-grab edge for convenient liner removal.



240 Depending on adhesive type, 3M™ Extended Liner Tapes are applied to envelopes, polybags, boxes, or tubes. User simply peels off liner to expose the adhesive for an immediate, secure closure.



241 A variety of automatic and semi-automatic equipment is available for higher volume applications. For example, apply tape to business forms, literature, bounce back and business reply cards.



242 3M™ Extended Liner Tapes 450XL, 450EK and 465XL immediately bond product information "outserts" to polyethylene bottles. Holds tightly but can be cleanly removed.

3M™ Extended Liner Tapes

Adhesive Type ¹	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type ²	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
					Minutes Hours	Days Weeks		HSE	LSE	
340	466XL	2 (0.05)	62# DK white with black print	<ul style="list-style-type: none"> High tack Permanent 	180°F (82°C)	150°F (65°C)	Medium	High	High	Coated papers and low surface energy (LSE) plastics. Overnight envelopes. Features an end-of-roll indicator tab for automated dispensing.
400	450EK	1 (0.025)	78# Extensible Kraft white without print	<ul style="list-style-type: none"> General purpose 	250°F (121°C)	180°F (82°C)	Medium	Med.	Low	Pharmaceutical outsert attachment. For applications requiring a more tear resistant liner.
	450XL	1 (0.025)	60# DK tan with green print							Pharmaceutical outsert attachment. General paper attachment.
	920XL	1 (0.025)	40# DK white with red print							Seal flaps on poly-bags and envelopes. Pressure sensitive edging on business forms, literature, photos, posters, and labels.
	9926XL	1 (0.025)	40# DK white with red print							Economical alternative for general paper-to-paper applications.
	465XL	2 (0.05)	60# DK tan with green print							Seal flaps on overnight envelopes. Pressure sensitive edging on business forms. General commercial joining applications. For attaching materials that require more adhesive thickness. Larger outsert attachments.
600	9934XL	4 (0.10)	60# DK tan without print	<ul style="list-style-type: none"> High tack to LSE materials 	150°F (65°C)	120°F (49°C)	Medium	High	High	P.O.P. displays. Difficult splicing applications, shelf talkers, price tags, polyethylene foam bonding. Indirect food-contact applications. ³ High tack to LSE materials.
760	476XL	6 (0.16)	62# DK white with red print	<ul style="list-style-type: none"> High tack, double coated film 	150°F (65°C)	120°F (49°C)	Medium	High	High	Heavy-duty sealing. Mounting of promotional items. Core starting. Closure of overnight boxes, tubes and envelopes. Indirect food-contact applications. ³
770	9925XL ⁴	2.5 (0.065)	43# DK white with black print	<ul style="list-style-type: none"> Tissue reinforced High initial adhesion to a wide variety of materials 	150°F (65°C)	100°F (41°C)	Low	Med.	Med.	General mounting, P.O.P. items. Attaching tags and labels. Core starting. Permanent bonding paper-to-paper, business forms, traffic tickets, novelty items and literature. Indirect food-contact applications. ³

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

¹ More information on pages 80-81.

² More information on page 71.

³ FDA acceptable dry ingredients listed as indirect food-contact additives when used in food packing with minimal opportunity for exposure.

⁴ Non-liner side is adhesive coated full width.

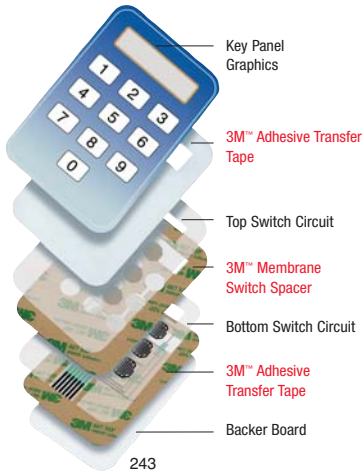
Relative Adhesion:
HSE – High Surface Energy,
LSE – Low Surface Energy

3M™ Membrane Switch Adhesives

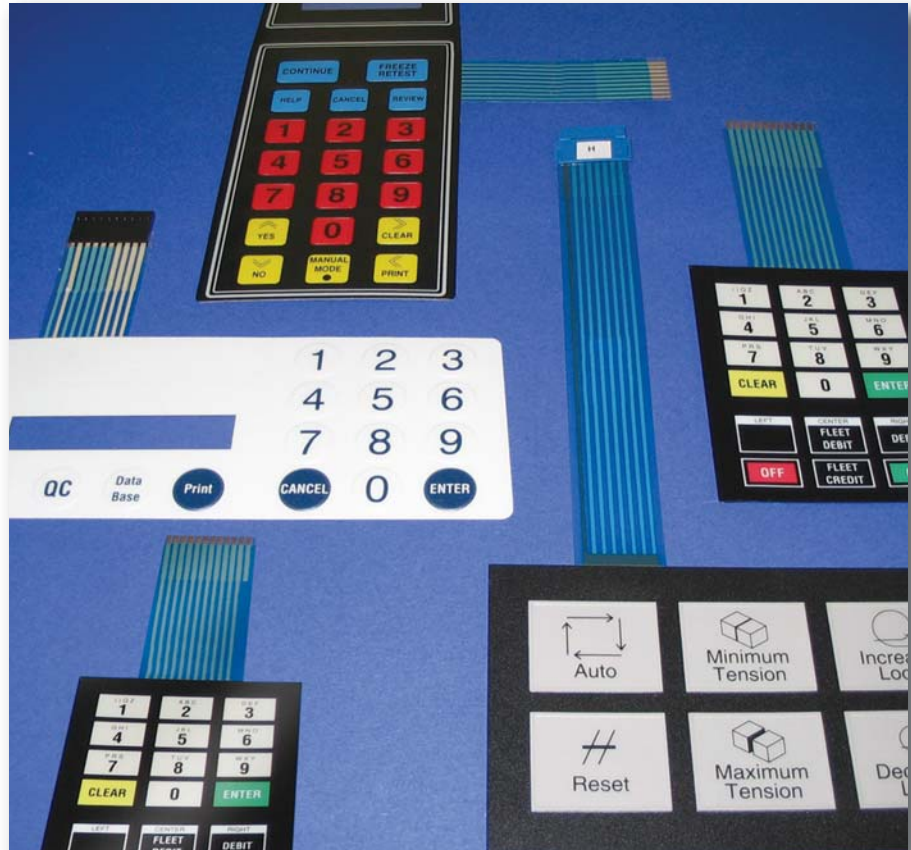
Long life formulations for top to bottom reliability

3M offers a full range of adhesives with application-specific configurations for die-cut laminations, circuit layer assembly, switch spacers, metal dome placement, lead protection, and switch mounting.

With exceptionally high cohesive strength, 3M adhesives resist slippage, oozing, lifting, channeling, and buckling for long-term resistance to the stresses of switch activation. Adhesives also reliably resist high humidity, chemicals, and other challenging conditions.

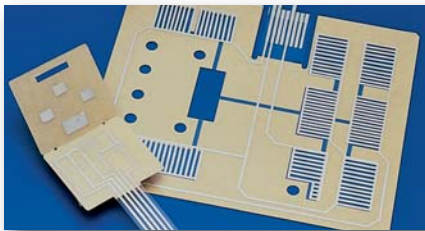


243



244

3M™ Membrane Switch Adhesives have been proven for over 20 years to resist high humidity and moisture, extreme temperature ranges, UV light, chemicals, household cleaners, and detergents.



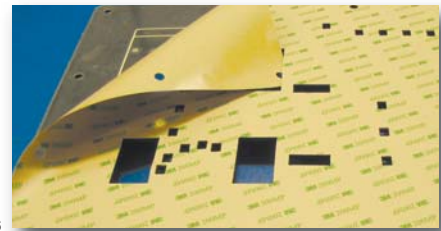
245

3M single coated spacer materials perform reliably for lead protection and dome retainer layers in applications ranging from medical test systems to fish finders.



246

3M™ Membrane Switch Products withstand heavy repetitive activations on keyboards.



247

With die-cut 3M™ Double-Liner Adhesive Transfer Tapes, adhesive transfers easily and precisely from the liner to the graphic or circuit.



248

3M™ Adhesive Transfer Tapes ensure strong attachment of switches to rough or textured surfaces, and low or high energy surfaces.



249

Durable 3M™ Membrane Switch Products perform reliably even with repeated heat cycle stresses in ovens and dishwashers.



250

With resistance to high temperatures and humidity, 3M single coated spacer materials effectively maintain registration of metal and polyester domes.

3M™ Membrane Switch Adhesives

	Product Number	Adhesive Family ¹	Tape or Spacer Thickness	Liner Type ²	Layer thickness (mils) Adhesive/Carrier/Adhesive	Description
Double-lined Adhesive Transfer Tapes	7951	300MP	2 mils	58# PCK/58# PCK	2/0/0	Double-lined 300MP. High bond to low surface energy plastics.
	7952MP	200MP	2 mils	58# PCK/58# PCK	2/0/0	Double-lined 467MP.
	7955MP		5 mils	58# PCK/58# PCK	5/0/0	Double-lined 468MP.
	7962MP		2 mils	83# PCK/58# PCK	2/0/0	Double-lined 467MP with heavy lay-flat liner for added stiffness and ease of handling.
	7965MP		5 mils	83# PCK/58# PCK	5/0/0	Double-lined 468MP with heavy lay-flat liner for added stiffness, controlled kiss-cutting and ease of handling.
Double Coated Spacers	7945MP	200MP	5 mils	58# PCK/58# PCK	2/1/2	Meets requirements of most keyboards and flex circuit laminations.
	7953MP		3.5 mils	58# PCK/58# PCK	1.5/0.5/1.5	Same as 7945MP but with printed primary liner.
	7953HL		3.5 mils	83# PCK	1.5/0.5/1.5	Same as 7953MS except with heavy liner.
	7956MP		6 mils	58# PCK/58# PCK	2/2/2	Meet requirements of most keyboards and flex circuit laminations.
	7956MWS		6 mils	58# PCK	2/2/2	Metallized vapor coat and white color to eliminate floodcoats.
	7956WDL		6 mils	58# PCK/58# PCK	2/2/2	Sheet form of 7956MWS.
	7957MP		7 mils	58# PCK/58# PCK	2/3/2	Meet requirements of most keyboards and flex circuit laminations.
	7959MP		9 mils	58# PCK/58# PCK	2/5/2	
	7961MP		11 mils	58# PCK/58# PCK	2/7/2	
	7966MWS		9 mils	58# PCK	2/2/5	Thicker version of 7956MWS.
	7966WDL		9 mils	58# PCK/58# PCK	2/2/5	Sheet form of 7966MWS.
	9045MP		5 mils	94# PCK/94# PCK	2/1/2	The 9000 series of products has a lay-flat liner on each side which improves die-cutting and handling of intricate die-cut parts.
	9056MP		6 mils	94# PCK/94# PCK	2/2/2	
	9057MP		7 mils	94# PCK/94# PCK	2/3/2	
	9059MP		9 mils	94# PCK/94# PCK	2/5/2	
9061MP	11 mils	94# PCK/94# PCK	2/7/2			
Single Coated Spacers	7991MPW	200MP	2 mils	94# PCK	1/1/0	Adhesive on one side; white polyester carrier for light management.
	7992MP		4 mils	94# PCK	2/2/0	Adhesive on one side of clear polyester carrier.
	7992MPW		4 mils	94# PCK	2/2/0	Thick version of 7991MPW.
	7993MP		3 mils	94# PCK	2/1/0	Single side spacers aid in the construction of membranes with circuitry, i.e. to protect leads, hold domes in place, or build custom spacers.
	7995MP		5 mils	94# PCK	2/3/0	
	7997MP		7 mils	94# PCK	2/5/0	Single side spacers aid in the construction of membranes with circuitry, i.e. to protect leads, hold domes in place, or build custom spacers.

¹ More information on pages 80-81.

² More information on page 71.

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

Scotch® ATG Adhesive Systems

Finger touch application of pressure sensitive adhesive

Versatility, convenience and speed. That's what you get with the Scotch® ATG Adhesive System for assembly operations in businesses ranging from appliance and printing to P.O.P. and electronics. Readily bond, join, mount, or laminate materials such as paper, plastics, metal, foam and more.

With Scotch® ATG Adhesive Applicators, a touch of the finger triggers a quick, controlled application of Scotch® ATG Tape at the same time as the liner rewinds into the applicator. There is no mess and no cleanup. 3M advanced acrylic adhesive bonds on contact and is formulated with a choice of properties such as high temperature resistance, differential tack, adhesion to low surface energy plastic, and more.



251 Save time and effort with the Scotch® ATG Adhesive System. You apply a precise strip of adhesive at the same time as the liner rewinds into the applicator.



252 Scotch® ATG 700 Applicator with Scotch® ATG Tape 924 makes fast work of folder assembly. Pressure sensitive adhesive bonds immediately and the folder pocket is ready to hold contents.



253 High performance Scotch® ATG Tape 926 bonds foam cushioning inside a portable power tool carrying case.



- 1 Scotch® ATG Applicator 700 for 3/4", 1/2", and 1/4" wide tape (1/4" adapter purchased separately).
- 2 Scotch® ATG Applicator 714 for 1/4" wide tape.
- 3 Scotch® ATG Applicator 752 for 3/4", 1/2", and 1/4" wide tape (1/4" adapter purchased separately).
- 4 Scotch® ATG Applicator 3662 for 2" wide tape.

Scotch® ATG Adhesive Systems

Adhesive Type ¹	Product Number	Tape Thickness w/o liner Mils (mm)	Description	Temperature Resistance		Resistance	Solvent Adhesion		Application Ideas	Adhesive Transfer Tape Equivalent	
				Minutes Hours	Days Weeks		HSE	LSE			
300 High Tack	976	2 (0.05)	<ul style="list-style-type: none"> High tack Excellent adhesion to most plastics 	250°F (121°C)	150°F (65°C)	Med.	High	High	Attach fabric swatches in sample books.	927	
	969	5 (0.13)								Assemble point-of-purchase displays. Bond trim strips to furniture or luggage. Bond labels to plastic toys. Attach gaskets or foams.	950
350 High Performance	926	5 (0.13)	<ul style="list-style-type: none"> High performance Excellent temperature and solvent resistance 	450°F (232°C)	300°F (149°C)	High	High	High	Bond fabric or trim to window blinds. Splice aluminum coils. Bond foam insulation. Mount nameplates on award plaques.	F9485PC	
400 General Purpose	970XL	1 (0.025)	<ul style="list-style-type: none"> General purpose Excellent adhesion to most paper stocks 	250°F (121°C)	180°F (82°C)	Med.	Med.	Low	Attach photos to layouts. Attach labels.	920XL	
	924	2 (0.05)								Seal pocket in folders. Bond mat board in picture frames. Splice paper, films, foils. General purpose bindery attaching.	465
	987*	1.7 (0.040)								Attach credit card in mailer. Core start/end tab paper, films and foils. Attach temporary labels.	9498
400/1000 Repositional	928	2 (0.05)	<ul style="list-style-type: none"> Differential tack Repositionable 	180°F (82°C)	150°F (65°C)	Med.	High/Low	Low/Low	Attach credit card in mailer. Core start/end tab paper, films and foils. Attach temporary labels.	9416	

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

Relative Adhesion: HSE – High Surface Energy, LSE – Low Surface Energy ¹ More information on pages 80-81.

Tape Selection Guide

This matrix gives you a few of our most commonly used tapes for various surface combinations. Products shown represent only a small part of the total line.

		Surface A													
		Steel Aluminum Glass Ceramics		ABS, Acrylic, Enamel & Epoxy Paints, Kapton® Industrial Film, Noryl Resin, Nylon, Lexan® Polycarbonate, Polyester, Rigid Vinyl		Polystyrene Polypropylene Polyethylene Powder Paints		Plasticized Vinyl		Paper		Cloth		Rubber	
Surface B		Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick
Rubber	Transfer	950/969* 9472LE		950/969* 9472LE		950/969* 9472LE		950/969*		950/969*		950/969*		950/969* 9472LE	
	Double coated	444 9495LE		444 9495LE		444 9495LE				444		444		444	
Cloth	Transfer	950/969 9485/926		950/969 9485/926		950/969 9485/926		950/969		465/924 950/969 9485/926		465/924 950/969 9485/926			
	Double coated	444 9690		444 9690		444 9690		9443NP		444 9690		444 9690			
Paper	Transfer	465/924 950/969		465/924 950/969		950/969		950/969 9465PC		465/924 950/969					
	Double coated	410M 415		410M 415		444				410M 415					
Plasticized Vinyl	Transfer	950/969 9465PC		950/969 9465PC		950/969		950/969 9465PC							
	Double coated		4941		4941						4941				
Polystyrene Polypropylene Polyethylene Powder Paints	Transfer	950/969 9485PC/ 926 9472LE	4462	950/969 9485PC/ 926 9472LE	4462	950/969 9472LE	4462								
	Double coated	444 9589 9495LE	4952 5952 (powder paint)	444 9495LE	4952 5952 (powder paint)	444 9495LE	4952 5952 (powder paint)								
ABS, Acrylic, Enamel & Epoxy Paints, Kapton® Industrial Film, Noryl® Resin, Nylon, Lexan® Polycarbonate, Polyester, Rigid Vinyl	Transfer	950/969 F9469PC 9485PC/926 468MP	4046/4016 4462 4492	950/969 F9469PC 9485PC/926 468MP	4046/4016 4462 4492										
	Double coated	444 9500PC 9495MP	4941 5952	444 9500PC 9495MP	4941 5952										
Steel Aluminum Glass Ceramics	Transfer	468MP 9085 9469 9485PC/ 926	4046/4016 4462 4492												
	Double coated	9495MP 9500PC	4941 4950												

Easy access to the knowledge

For direct access to product data, downloadable product data pages, or to request sample product for evaluation:

www.3M.com/industrial

*For temporary holding only.

NOTE: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

Tape Selection Guide

Finding the Optimum Tape

To help you make sure of finding the optimum tape for your particular application, you'll want to consider several factors: rubber or acrylic adhesive, surface energy (pg.7) and contact, stress conditions, end use environment, and substrate characteristics such as size, rigidity, thickness, and weight.

Rubber or Acrylic Adhesive	
3M tapes and fasteners feature advanced 3M rubber or acrylic adhesive formulations. Each has characteristics that affect production and end use performance.	
Rubber Adhesives	Acrylic Adhesives
High initial adhesion	Fair initial adhesion
Some adhesion buildup	Gradual adhesion buildup
Good shear strength	High shear strength
Moderate temperature resistance	High temperature resistance
Good solvent resistance	Excellent solvent resistance
Fair UV resistance	Excellent UV resistance
Moderate durability	Excellent durability

Rubber or Acrylic Adhesive

To make rubber adhesives, natural or synthetic rubbers are made tacky by mixing with various compounds. Individual elements do not change; components are simply mixed together to produce an adhesive.

To make acrylic adhesives, plastic compounds are synthesized to obtain specific chemical structures that are tacky. Acrylics can be formulated to produce specific performance characteristics.

Rubber vs. Acrylic Adhesive Bond Buildup On Metal Surfaces



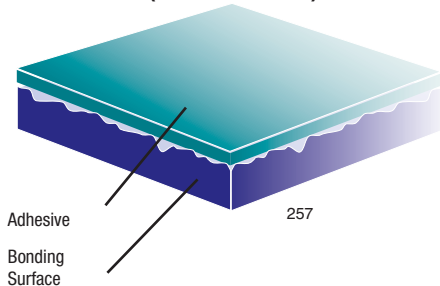
Metal - Basic Surface

256

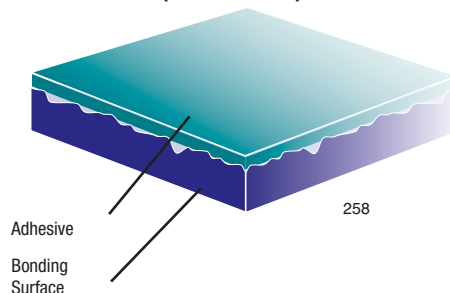
Adhesive Surface Contact

Applying firm pressure to the bond increases adhesive flow and contact for more secure bonding. Time and temperature will typically further increase contact and adhesion values.

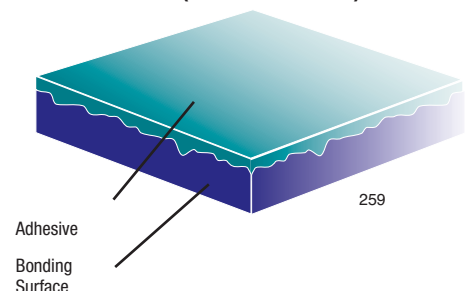
Initial Contact (Minimal Contact)



After Rubdown (More Contact)



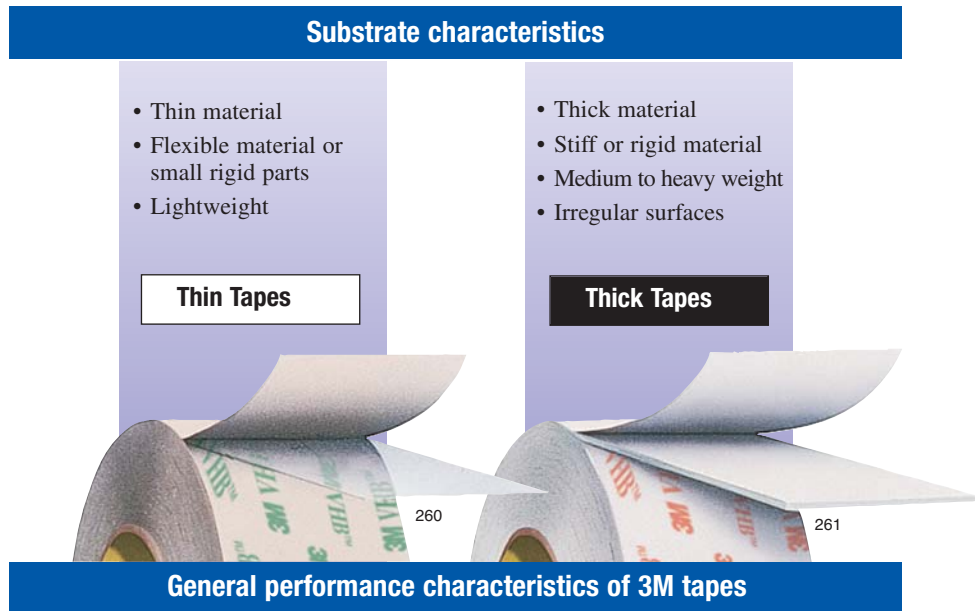
After Dwell Time (Excellent Contact)



Substrate characteristics that determine thin or thick tape

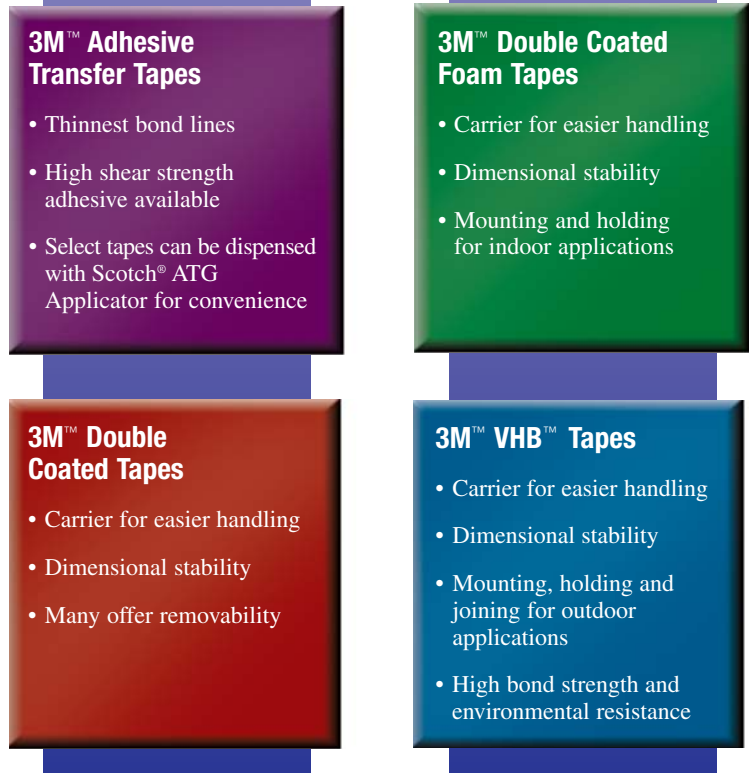
You will find information on these two pages to help you narrow tape choices to two or three possibilities for evaluation and testing.

First of all, define the substrates you want to bond. All substrates have characteristics that determine how well a substrate can be bonded with a particular adhesive for performance in a specific environment. Substrate characteristics such as thickness, rigidity, size, and weight will help determine your choice between two general groupings of 3M tapes: thin or thick. Each group has general performance characteristics. Thin and thick tapes are then further categorized into product lines each differentiated by specific performance characteristics.



Specific performance characteristics by 3M product line

Depending on the tape line, a choice of 3M adhesive types is available to meet different design, production, and end use requirements.



Tape Selection Guide

Adhesive Family Characteristics

100 High Temperature Acrylic

- Up to 450°F short-term heat resistance and excellent solvent resistance.
- High peel strength compared to other acrylic formulations.
- Exceptional shear strength even at elevated temperatures.
- Exhibits low outgassing characteristics.

100MP High Performance Acrylic

- Up to 500°F short-term heat resistance and outstanding solvent resistance.
- Higher peel strength than most other acrylic formulations.
- Exceptional shear strength even at elevated temperatures.

100HT Ultra High Temperature Acrylic

- Up to 550°F short-term heat resistance and outstanding solvent resistance.
- Higher peel strength than most other acrylic formulations.
- Exceptional shear strength even at elevated temperatures.

200MP High Performance Acrylic

- Up to 400°F short-term heat resistance and excellent solvent resistance.
- Outstanding adhesion to metal and high surface energy plastics.
- Excellent shear strength to resist slippage and edge lifting.
- Short-term repositionability for placement accuracy.

220 Industrial Acrylic

- Up to 350°F short-term heat resistance and good chemical resistance.
- Good shear strength and chemical resistance for general purpose industrial applications.
- Good adhesion to most metal and high surface energy plastics.

290 Low Outgassing Acrylic

- Up to 450°F short-term heat resistance.
- Exceeds most OEM specifications for outgassing and long-term performance.
- High peel strength compared to other acrylic formulations.
- Exceptional shear strength even at elevated temperatures.

300 High Tack Acrylic

- Up to 250°F short-term heat resistance.
- High initial adhesion especially to low surface energy plastics.
- Quick flowing to speed lamination of textured plastics, foams, fabrics, and coated papers.

300FR Flame Retardant

- Meets various flame retardancy standards such as UL94 V-O/2, F.A.R. 25.853, and FMVSS 302.
- Similar adhesive properties to adhesive 300 family.
- Good adhesion to a wide variety of surfaces including LSE plastics, foams, and fabrics.

300LSE Low Surface Energy Acrylic

- Up to 300°F short-term heat resistance.
- Outstanding adhesion to low surface energy plastics, powder coated paints, and lightly oiled metals.
- Good chemical and humidity resistance.

300MP High Tack Acrylic

- Up to 250°F short-term heat resistance for automotive interior applications.
- Designed especially to bond most plastics and foams.
- Economical attachment of graphics.

Adhesive Family Characteristics

340 High Tack Acrylic

- Up to 180°F short-term heat resistance.
- Excellent bonding to foam and other substrates.
- High tack; medium shear.

350 High Performance Acrylic

- Up to 450°F short-term heat resistance.
- Excellent solvent resistance and adhesion to LSE materials.

375 High Performance

- Up to 300°F short-term heat resistance
- Bonds a wide variety of substrates
- Good initial tack

400 Acrylic Adhesive

- Up to 250°F short-term heat resistance.
- Good low temperature performance and peel strength on many surfaces.
- Excellent adhesion to uncoated papers.
- Clarity and UV resistance for window label applications.

420 Acrylic Adhesive

- Up to 300°F short-term heat resistance.
- High tack adhesive.

430 Acrylic Adhesive

- Up to 350°F short-term heat resistance.
- Lead for high temperature splicing.

700 Series Synthetic Rubber

- Up to 200°F short-term heat resistance.
- Good adhesion to low surface energy substrates.
- For indoor and room temperature applications.

800 Series Natural Rubber

- Up to 200°F short-term heat resistance.
- Offers good adhesion to a variety of surfaces.
- For indoor and room temperature applications.

900R Miscellaneous Rubber Adhesive Group

- Excellent initial adhesion and high bond to a variety of foams.
- Utility rubber-based adhesive ideal for the foam fabricating industry.

1000 Series Repositionable Acrylic

- Good holding to many surfaces.
- Clean removal.

Screen Printable Adhesive

- For selective placement of pressure sensitive adhesive using screen print technology.
- Either UV curable or water-based are available.

Tape Selection Guide

Adhesive Family Selection Based on Surface Energy

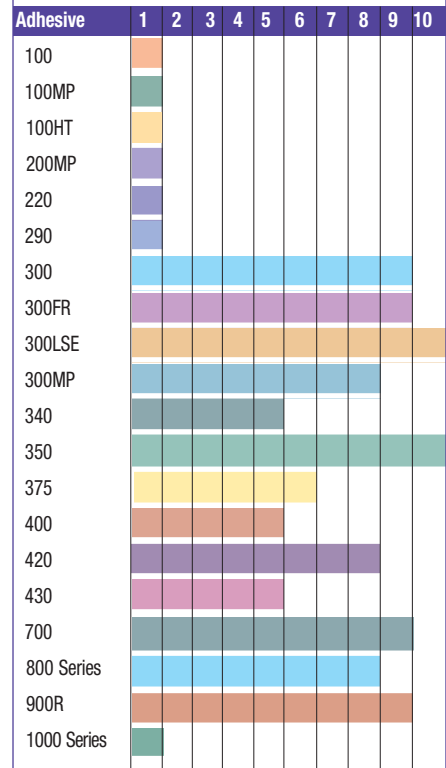
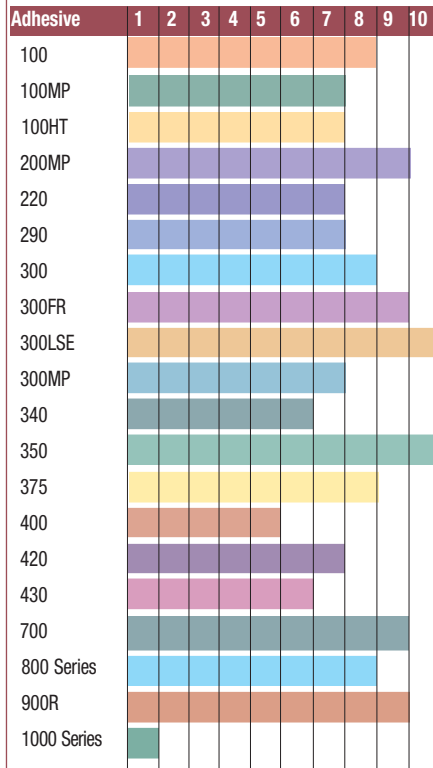
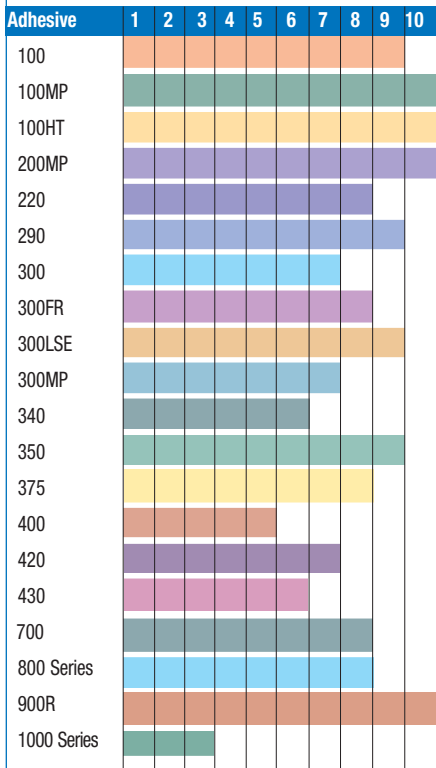
These charts are based on relative adhesion within each given surface energy category.

Metals	Surface Energy Dynes/cm
Copper	1103
Aluminum	840
Zinc	753
Tin	526
Lead	543

HSE Plastics	Surface Energy Dynes/cm
Kapton®	50
Phenolic	47
Nylon	46
Alkyd Enamel	45
Polyester	43
Epoxy Paint	43
Polyurethane	43
ABS	42
Polycarbonate	42
PVC	39
Noryl	38
Acrylic	38
Polane Paint	38

LSE Plastics	Surface Energy Dynes/cm
PVA	37
Polystyrene	36
Acetal	36
EVA	33
Polyethylene	31
Polypropylene	29
Polyvinyl Fluoride Film	28
PTFE Fluoropolymer	18
Powder Coatings	**

**Broad range of surface energy.



1=Lowest Performance 10=Highest Performance

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

Adhesive Family Selection Based on Other Service Conditions

Shear Strength at Room Temperature										
Adhesive	1	2	3	4	5	6	7	8	9	10
100	1	1	1	1	1	1	1	1	1	1
100MP	1	1	1	1	1	1	1	1	1	1
100HT	1	1	1	1	1	1	1	1	1	1
200MP	1	1	1	1	1	1	1	1	1	1
220	1	1	1	1	1	1	1	1	1	1
290	1	1	1	1	1	1	1	1	1	1
300	1	1	1	1	1	1	1	1	1	1
300FR	1	1	1	1	1	1	1	1	1	1
300LSE	1	1	1	1	1	1	1	1	1	1
300MP	1	1	1	1	1	1	1	1	1	1
340	1	1	1	1	1	1	1	1	1	1
350	1	1	1	1	1	1	1	1	1	1
375	1	1	1	1	1	1	1	1	1	1
400	1	1	1	1	1	1	1	1	1	1
420	1	1	1	1	1	1	1	1	1	1
430	1	1	1	1	1	1	1	1	1	1
700	1	1	1	1	1	1	1	1	1	1
800 Series	1	1	1	1	1	1	1	1	1	1
900R	1	1	1	1	1	1	1	1	1	1
1000 Series	1	1	1	1	1	1	1	1	1	1

Ultimate Peel Strength										
Adhesive	1	2	3	4	5	6	7	8	9	10
100	1	1	1	1	1	1	1	1	1	1
100MP	1	1	1	1	1	1	1	1	1	1
100HT	1	1	1	1	1	1	1	1	1	1
200MP	1	1	1	1	1	1	1	1	1	1
220	1	1	1	1	1	1	1	1	1	1
290	1	1	1	1	1	1	1	1	1	1
300	1	1	1	1	1	1	1	1	1	1
300FR	1	1	1	1	1	1	1	1	1	1
300LSE	1	1	1	1	1	1	1	1	1	1
300MP	1	1	1	1	1	1	1	1	1	1
340	1	1	1	1	1	1	1	1	1	1
350	1	1	1	1	1	1	1	1	1	1
375	1	1	1	1	1	1	1	1	1	1
400	1	1	1	1	1	1	1	1	1	1
420	1	1	1	1	1	1	1	1	1	1
430	1	1	1	1	1	1	1	1	1	1
700	1	1	1	1	1	1	1	1	1	1
800 Series	1	1	1	1	1	1	1	1	1	1
900R	1	1	1	1	1	1	1	1	1	1
1000 Series	1	1	1	1	1	1	1	1	1	1

Chemical Resistance										
Adhesive	1	2	3	4	5	6	7	8	9	10
100	1	1	1	1	1	1	1	1	1	1
100MP	1	1	1	1	1	1	1	1	1	1
100HT	1	1	1	1	1	1	1	1	1	1
200MP	1	1	1	1	1	1	1	1	1	1
220	1	1	1	1	1	1	1	1	1	1
290	1	1	1	1	1	1	1	1	1	1
300	1	1	1	1	1	1	1	1	1	1
300FR	1	1	1	1	1	1	1	1	1	1
300LSE	1	1	1	1	1	1	1	1	1	1
300MP	1	1	1	1	1	1	1	1	1	1
340	1	1	1	1	1	1	1	1	1	1
350	1	1	1	1	1	1	1	1	1	1
375	1	1	1	1	1	1	1	1	1	1
400	1	1	1	1	1	1	1	1	1	1
420	1	1	1	1	1	1	1	1	1	1
430	1	1	1	1	1	1	1	1	1	1
700	1	1	1	1	1	1	1	1	1	1
800 Series	1	1	1	1	1	1	1	1	1	1
900R	1	1	1	1	1	1	1	1	1	1
1000 Series	1	1	1	1	1	1	1	1	1	1

UV Resistance										
Adhesive	1	2	3	4	5	6	7	8	9	10
100	1	1	1	1	1	1	1	1	1	1
100MP	1	1	1	1	1	1	1	1	1	1
100HT	1	1	1	1	1	1	1	1	1	1
200MP	1	1	1	1	1	1	1	1	1	1
220	1	1	1	1	1	1	1	1	1	1
290	1	1	1	1	1	1	1	1	1	1
300	1	1	1	1	1	1	1	1	1	1
300FR	1	1	1	1	1	1	1	1	1	1
300LSE	1	1	1	1	1	1	1	1	1	1
300MP	1	1	1	1	1	1	1	1	1	1
340	1	1	1	1	1	1	1	1	1	1
350	1	1	1	1	1	1	1	1	1	1
375	1	1	1	1	1	1	1	1	1	1
400	1	1	1	1	1	1	1	1	1	1
420	1	1	1	1	1	1	1	1	1	1
430	1	1	1	1	1	1	1	1	1	1
700	1	1	1	1	1	1	1	1	1	1
800 Series	1	1	1	1	1	1	1	1	1	1
900R	1	1	1	1	1	1	1	1	1	1
1000 Series	1	1	1	1	1	1	1	1	1	1

Humidity Resistance										
Adhesive	1	2	3	4	5	6	7	8	9	10
100	1	1	1	1	1	1	1	1	1	1
100MP	1	1	1	1	1	1	1	1	1	1
100HT	1	1	1	1	1	1	1	1	1	1
200MP	1	1	1	1	1	1	1	1	1	1
220	1	1	1	1	1	1	1	1	1	1
290	1	1	1	1	1	1	1	1	1	1
300	1	1	1	1	1	1	1	1	1	1
300FR	1	1	1	1	1	1	1	1	1	1
300LSE	1	1	1	1	1	1	1	1	1	1
300MP	1	1	1	1	1	1	1	1	1	1
340	1	1	1	1	1	1	1	1	1	1
350	1	1	1	1	1	1	1	1	1	1
375	1	1	1	1	1	1	1	1	1	1
400	1	1	1	1	1	1	1	1	1	1
420	1	1	1	1	1	1	1	1	1	1
430	1	1	1	1	1	1	1	1	1	1
700	1	1	1	1	1	1	1	1	1	1
800 Series	1	1	1	1	1	1	1	1	1	1
900R	1	1	1	1	1	1	1	1	1	1
1000 Series	1	1	1	1	1	1	1	1	1	1

Short Term Temperature Resistance °F/°C*										
Adhesive	180/82	200/93	250/121	300/149	350/177	400/204	450/232	500/260	550/288	
100	1	1	1	1	1	1	1	1	1	1
100MP	1	1	1	1	1	1	1	1	1	1
100HT	1	1	1	1	1	1	1	1	1	1
200MP	1	1	1	1	1	1	1	1	1	1
220	1	1	1	1	1	1	1	1	1	1
290	1	1	1	1	1	1	1	1	1	1
300	1	1	1	1	1	1	1	1	1	1
300FR	1	1	1	1	1	1	1	1	1	1
300LSE	1	1	1	1	1	1	1	1	1	1
300MP	1	1	1	1	1	1	1	1	1	1
340	1	1	1	1	1	1	1	1	1	1
350	1	1	1	1	1	1	1	1	1	1
375	1	1	1	1	1	1	1	1	1	1
400	1	1	1	1	1	1	1	1	1	1
420	1	1	1	1	1	1	1	1	1	1
430	1	1	1	1	1	1	1	1	1	1
700	1	1	1	1	1	1	1	1	1	1
800 Series	1	1	1	1	1	1	1	1	1	1
900R	1	1	1	1	1	1	1	1	1	1
1000 Series	1	1	1	1	1	1	1	1	1	1

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

* Low temperature resistance is -40°F (-40°C) for all adhesives except 1000 Series at -20°F (-29°C).