



Gasket Bonding Tapes

4974 • 4976 • 4978 • 4981 • 4983 • 4987

Technical Data

April, 1997

Product Description

3M™ Gasket Bonding Tapes can bond to many challenging rubber and plastic surfaces. Each tape has a heat activated surface that is thermally bonded to the plastic or rubber extension or molded part. The opposite side of the tape is a pressure sensitive adhesive that bonds the plastic or rubber extrusion to a wide variety of substrates. The pressure sensitive adhesive is protected by a thin polyethylene release liner.

General Information

- 4974 tape is a gray acrylic foam tape that can thermally bond to most neoprene or polyvinylchloride (PVC) plastics. 4974 tape provides excellent bonds to PVC and can be used to bond PVC moldings to a variety of surfaces. 4974 tape should be evaluated where both excellent performance is required and aesthetics of the finished part are important.
- 4976 tape is a gray acrylic foam tape which can thermally bond to EPDM rubber and most propylene-based plastics. The 0.030 inch (0.76 mm) gray bond line makes 4976 tape ideal for many applications where aesthetics of the finished part are important.
- 4978 tape is a gray acrylic foam tape which can thermally bond to EPDM rubber and most propylene-based plastics. 4978 tape should be evaluated where both excellent performance is required and aesthetics of the finished part are important.
- 4981 tape is a 0.007 inch (0.18 mm) product that can thermally bond to EPDM rubber and most propylene-based plastics. 4981 tape has excellent utility for temporary application of the gasket prior to mechanical fastening. 4981 tape also can be used on many foam gaskets or applications where excellent performance is not essential.
- 4983 tape is a white acrylic foam tape that can thermally bond to most neoprene or polyvinylchloride (PVC) plastics. 4983 tape provides excellent bonds to PVC and can be used to bond PVC moldings to a variety of surfaces. 4983 tape can be used to bond neoprene gaskets to a wide variety of surfaces.
- 4987 tape is a white acrylic foam tape which can thermally bond to EPDM rubber and most propylene-based plastics. 4987 tape should be evaluated where excellent performance is required.

Surfaces for thermal bonding:

4974/4983 Tapes	4976/4978/4987 Tapes	4981 Tape
Neoprene	EPDM	EPDM
Polyvinylchloride	Santoprene™ rubber	Polypropylene
Polyurethane Foam	Polypropylene	
Surlyn™ Ionomer Resins		

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Typical Physical Properties

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

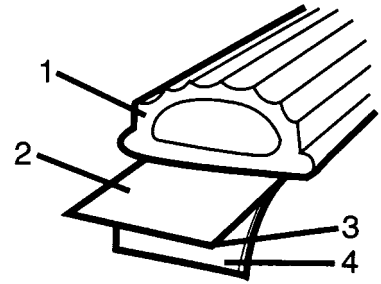
	4976 Tape	4978 Tape	4981 Tape	4983 Tape	4987 Tape	4974 Tape
Tape thickness	0.032 inch (0.081 mm)	0.047 inch (1.19 mm)	0.007 inch (0.18 mm)	0.045 inch (1.14 mm)	0.047 inch (1.19 mm)	0.030 inch (0.76 mm)
Tape color	gray	gray	clear	white	white	gray
Liner thickness	0.004 inch (0.10 mm)	0.004 inch (0.10 mm)	0.004 inch (0.10 mm)	0.004 inch (0.10 mm)	0.004 inch (0.10 mm)	0.004 inch (0.10 mm)
Liner color	green	green	clear	green	green	green
Total thickness	0.036 inch (0.91 mm)	0.051 inch (1.30 mm)	0.011 inch (0.28 mm)	0.049 inch (1.24 mm)	0.051 inch (1.30 mm)	0.034 inch (0.86 mm)
Heat-activated layer	E-2	E-2	E-2	N-1	E-2	N-1
Pressure-sensitive layer	AR-7 (A-30)	AR-7 (A-30)	A-10	AR-5 (A-30)	AR-7 (A-30)	AR-7 (A-30)
Roll length						
For widths less than 0.5 inch (12.70 mm)	72 yards (65.8 mm)	72 yards (65.8 mm)	144 yards (131.7 mm)	72 yards (65.8 mm)	72 yards (65.8 mm)	72 yards (65.8 mm)
For widths 0.5 inch (12.70 mm)	108 yards (98.8 mm)	108 yards (98.8 mm)	200 yards (182.9 mm)	108 yards (98.8 mm)	108 yards (98.8 mm)	108 yards (98.8 mm)
Roll width						
Minimum	0.25 inch (6.35 mm)					
Maximum	48 inch (1219.2 mm)					

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Application Techniques for Heat Bonding Tape to Material

1. Gasket →
2. Heat Activated Adhesive →
3. Pressure Sensitive Adhesive →
4. Release Liner →



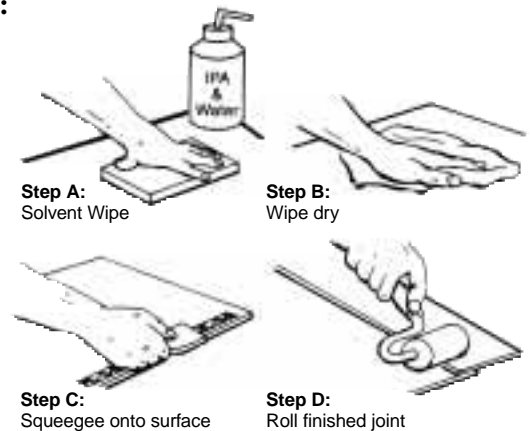
Note: Lamination of tape to gasket is typically done by an extruder/molder.

- **Laminating to extruded materials:** The heat-activated side of a double-coated 3M Gasket Bonding Tape can be laminated to extruded materials with heat-bond laminators. Some laminators are designed for use with continuous extrusions while others are available for extrusions with molded corners, changing cross sections and other dissimilarities. Tapes up to two inches can be laminated to extrusions.
- Minimum lamination temperatures for tape with an N-1 heat-activated layer is 210°F (99°C) and for tapes with an E-2 heat-activated layer is 310°F (155°C). The heat-activated adhesive needs to reach these temperatures for only a few seconds and may be immediately laminated to the extruded material where upon cooling, a permanent bond is created.

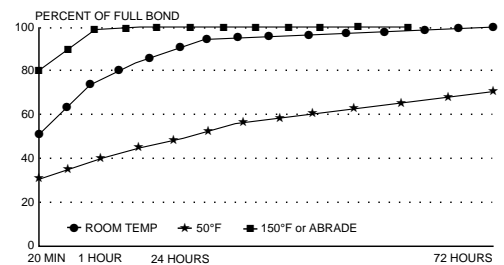
Application Techniques for Bonding Tape Laminated Material to Various Substrates

Bonding extruded materials to substrates:

- To obtain optimum adhesion, the bonding surfaces must be clean, dry and well unified. Typical surface cleaning solvents are isopropyl alcohol/water mixture (rubbing alcohol) or heptane. **Note:** Be sure to follow solvent manufacturer's precautions and directions for use when using solvents. (Steps A and B).
- Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure helps develop better adhesive contact and improve bond strength. (Steps C and D).
- After application, the bond strength will increase as the adhesive flows onto the surface. At room temperature approximately 50% of the ultimate strength will be achieved after 20 minutes, 90% after 24 hours and 100% after 72 hours. In some cases bond strength can be increased and ultimate bond strength can be achieved more quickly by exposure of the bond to elevated temperatures (e.g. 150°F (66°C) for 1 hour). This provides better adhesive wetout onto the substrates.



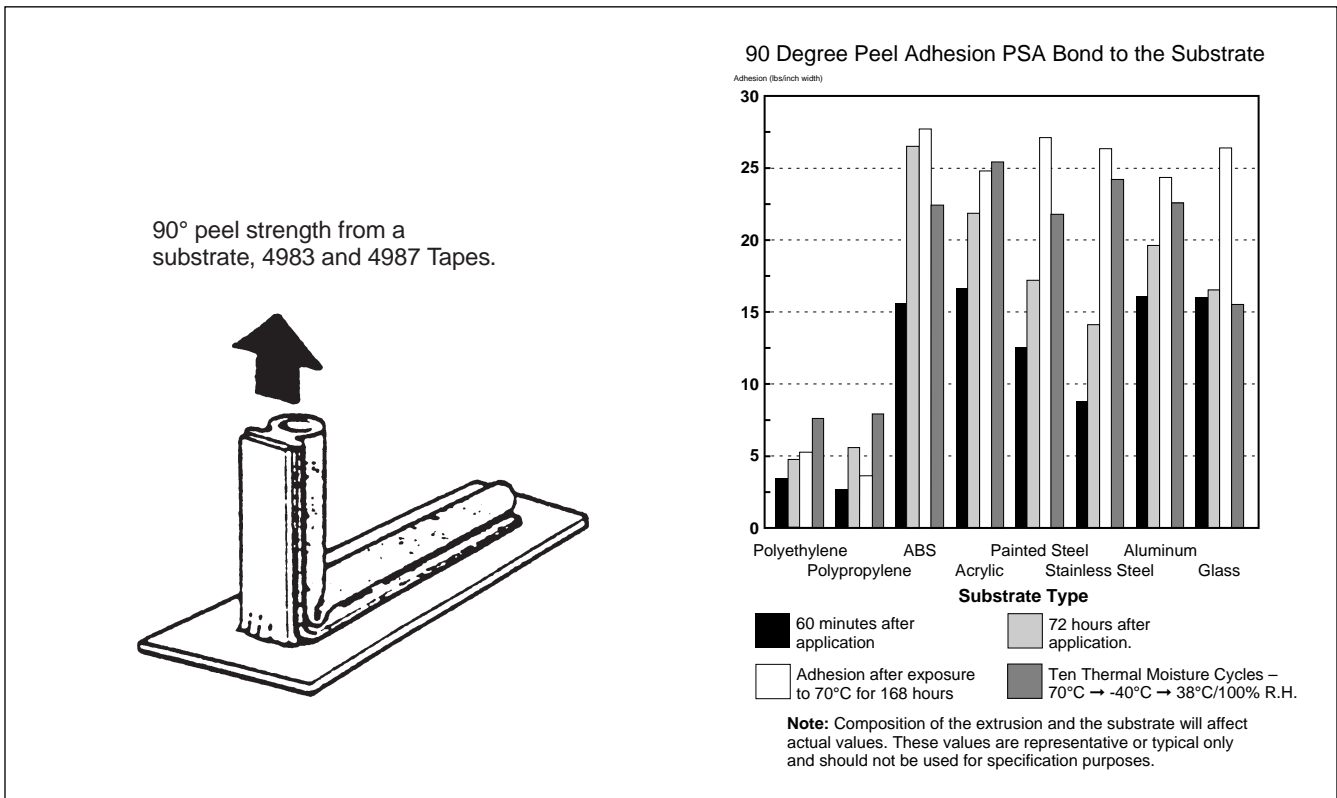
Bond Typical Build vs. Time



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Pressure Sensitive Adhesive Bond to Various Substrates



For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550. Address correspondence to: 3M Industrial Tape and Specialties Division, 3M Center, Building 220-7E-01, St. Paul, MN 55144-1000. Our fax number is 612-733-9175. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-809-750-3000. In Mexico, phone: 5-728-2180.

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ISO 9002

This Industrial Tape and Specialties Division product was manufactured under a 3M quality system registered to ISO 9002 standards.



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