



Technical Data Sheet

3M™ Adhesive Transfer Tape 9471



Additional Info



Regulatory
Info/SDS

Product Description

3M™ Adhesive Transfer Tape 9471 with 3M™ Adhesive 300 offers good adhesion to a variety of surfaces, including low surface energy plastics and foam. This pressure sensitive acrylic adhesive family features good initial adhesion. This tape is reinforced with discrete glass fibers, which limits elongation, provides structure and is important for roll stability in narrow widths and resists edge oozing.

Product Features

- Reinforced with (or contains) discrete glass fibers, which limits elongation, provide structure and is important for roll stability in narrow widths and resists edge oozing.
- Low odor for improved working environment.
 - Also available in ATG format as ATG 976.

Technical Information Note

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

Typical Physical Properties

Attribute Name	Test Method	Value
Adhesive Type		300 Fibered Acrylic
Total Tape Thickness	ASTM D3652	0.05 mm (2 mil)
Liner		60# Glassine
Liner Thickness		0.08 mm (3.2 mil)
Primary Liner Color		Tan with green 3M logo

Typical Performance Characteristics

180° Peel Adhesion

Backing: 2 mil Aluminum Foil

Test Method: ASTM D3330

Dwell Time	Temperature	Substrate	Value
20 min	23 °C (73 °F)	Stainless Steel	6.5 N/cm (59 oz/in) ¹
72 h	23 °C (73 °F)	Stainless Steel	9.4 N/cm (86 oz/in) ¹
72 h	23 °C (73 °F)	ABS	8.4 N/cm (76 oz/in) ¹
72 h	23 °C (73 °F)	Polypropylene (PP)	7.9 N/cm (72 oz/in) ¹
72 h	70 °C (158 °F)	Stainless Steel	12.7 N/cm (116 oz/in) ¹

¹ 300 mm/min (12 in/min)

Substrate: Stainless Steel
 Temperature: 32 °C (90 °F)
 Dwell Time: 72 h
 Backing: 2 mil Aluminum Foil
 Environmental Condition: 90 %RH

Attribute Name	Test Method	Value
180° Peel Adhesion	ASTM D3330	11.4 N/cm (104 oz/in) ¹

¹ 300 mm/min (12 in/min)

90° Peel Adhesion

Backing: 2 mil Aluminum Foil
 Test Method: ASTM D3330

Dwell Time	Temperature	Substrate	Value
20 min	23 °C (73 °F)	Stainless Steel	5.3 N/cm (49 oz/in) ¹
72 h	23 °C (73 °F)	Stainless Steel	5.8 N/cm (53 oz/in) ¹
72 h	23 °C (73 °F)	ABS	5.8 N/cm (53 oz/in) ¹
72 h	23 °C (73 °F)	Polypropylene (PP)	5.6 N/cm (51 oz/in) ¹
72 h	70 °C (158 °F)	Stainless Steel	9.0 N/cm (82 oz/in) ¹

¹ 300 mm/min (12 in/min)

Substrate: Stainless Steel
 Test Condition: 500 g
 Test Method: ASTM D3654

Attribute Name	Value
Short Term Temperature Resistance	49 °C (120 °F) ¹
Long Term Temperature Resistance	Not intended for elevated temperatures ²

¹ Maximum temperature where tape supports indicated load per 6.5cm² (1 in²) in static shear for 60 minutes.

² Maximum temperature where tape supports indicated load per 6.5cm² (1 in²) in static shear for 10,000 minutes.

Static Shear

Substrate: Stainless Steel
 Dwell Time: 72 h
 Backing: 2 mil Aluminum Foil
 Test Method: ASTM D3654

Temperature	Test Condition	Value
23 °C (73 °F)	1000 g	1,200 min ¹
23 °C (73 °F)	250g	2,500 min ¹
23 °C (73 °F)	100g	10,000 min ¹
70 °C (158 °F)	250g	25 min ¹
70 °C (158 °F)	100g	200 min ¹

¹ 25 x 25 mm (1 in x 1 in) sample area, test terminated after 10,000 minutes

Typical Environmental Performance

90° Peel Adhesion

Substrate: Stainless Steel
Backing: 2 mil Aluminum Foil
Test Method: ASTM D3330

Dwell Time	Temperature	Environmental Condition	Value
72 h	23 °C (73 °F)	Control	100 % of control ¹
1 h	23 °C (73 °F)	Isopropyl alcohol	88 % of control ¹
1 h	23 °C (73 °F)	Acetone	74 % of control ¹
1 h	23 °C (73 °F)	Gasoline	77 % of control ¹
4 h	23 °C (73 °F)	Weak Acid (pH 4)	88 % of control ¹
4 h	23 °C (73 °F)	Weak Base (pH 10)	88 % of control ¹
72 h	23 °C (73 °F)	Water	105 % of control ¹
72 h	23 °C (73 °F)	Salt Water (5% by weight)	80 % of control ¹
72 h	32 °C (90 °F)	90 %RH	103 % of control ¹
72 h	49 °C (120 °F)	Oil (10W30)	121 % of control ¹
96 h		Temperature Cycling: 4 Hours at 70 °C (158 °F). 4 Hours at -29 °C (-20 °F). 16 Hours at 23 °C (73 °F). Repeat four times	149 % of control ¹

¹ 300 mm/min (12 in/min)

Electrical and Thermal Properties

Midpoint Tg

Attribute Name	Test Method	Value
Glass Transition Temperature (Tg)	ASTM E1356	-29 °C ¹

¹ Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 10 °C per minute. Second heat values given.

Handling/Application Information

Application Examples

- Long term bonding of graphic nameplates and overlays to surfaces such as metal and low surface energy plastics in the aerospace, medical and industrial equipment, automotive, appliance and electronic markets.
- Bonding metal nameplates and rating plates in the aerospace, medical and industrial equipment, automotive, appliance and electronic markets.
- Lamination to foam for gasket application.

Application Techniques

For maximum bond strength (during installation of the final part) the surface should be thoroughly cleaned and dried. Typical cleaning solvents are heptane (for oily surfaces) or isopropyl alcohol for plastics. Use reagent grade solvents since common household materials like rubbing alcohol frequently contain oils to minimize the drying effect on skin. These oils can interfere with the performance of a pressure-sensitive adhesive.

Consult solvent manufacturers MSDS for proper handling and storage instructions. Also, use disposable wipes that do not contain oils, to remove the cleaning solvents.

It is necessary to provide pressure during lamination (1.5-20 PLI recommended) and during final part installation (10-15 PLI) to allow the adhesive to come into direct contact with the substrate. Using a hard edged plastic tool, which is the full width of the laminated part, helps to provide the necessary pressure at the point of lamination. Heat can increase bond strength when bonding to metal parts (generally this same increase is observed at room temperature over longer times, weeks). For plastic parts, the bond strength is not enhanced with the addition of heat.

The ideal adhesive application temperature range is 21 °C (70 °F) to 38 °C (100 °F). Application is not recommended if the surface temperature is below 10 °C (50 °F) because the adhesive becomes too firm to adhere readily. Once properly applied, at the recommended application temperature, low temperature holding is generally satisfactory (please refer to the Typical Physical Properties and Performance Characteristics section).

When bonding a thin, smooth, flexible material to a smooth surface, it is generally acceptable to use 2 mils of adhesive. If a texture is visible on one or both surfaces, the 5 mil adhesive would be suggested. If both materials are rigid, it may be necessary to use a thicker adhesive to successfully bond the components. 3M™ VHB™ Acrylic Foam Tapes may be required (please refer to data page 70-0709-3863-7).

Application Equipment

To apply adhesives in a wide web format, lamination equipment is required to ensure acceptable quality. To learn more about working with pressure-sensitive adhesives please refer to technical bulletin, Lamination Techniques for Converters of Laminating Adhesives (70-0704-1430-8).

For additional dispenser information, contact your local 3M sales representative, or the toll free 3M sales assistance number at 1-800-362-3550.

Industry Specifications

FDA Statement

This product might be suitable for use in indirect food contact applications. Please see the applicable Regulatory Data Sheet for more information relating to FDA compliance.

Storage and Shelf Life

Store under normal conditions of 16° to 27°C (60° to 80°F) and 40 to 60% relative humidity in the original packaging, out of direct sunlight.

For best performance, use this product within 24 months from date of manufacture.

Available Sizes

Attribute Name	Value
Master Width	122 cm (48 in) ¹

¹ More sizes may be available. Please talk to your local 3M representative for more information.

Recognition/Certification

TSCA: This product is defined as an article under the Toxic Substances Control Act and therefore, it is exempt from inventory listing requirements

MSDS: These products are not subject to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R. 1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, these products should not present a health and safety hazard. However, use or processing of these products in a manner not in accordance with the directions for use may affect their performance and present potential health and safety hazards.

UL:

This product is UL recognized under the following files:

- File PGGU2.MH26206, Marking & Labeling System Materials - Component, UL 969
- File PGGU8.MH26206, Marking and Labeling System Materials Certified for Canada - Component, CSA-C22.2 No. 0.15.

If you require official recognition of any 350 adhesive under either UL 969 or UL 746C, please contact 3M-customer service at 1-800-362-3550.

For more information on the UL Certification, please visit the website at <http://www.3m.com/converter>, select UL Recognized Materials, and then select the specific product area.

Note: One of 3M's core values is to respect our social and physical environment. 3M is committed to comply with ever-changing, global, regulatory and consumer environmental, health, and safety (EHS) requirements. As a service to our customers, 3M is providing information on the regulatory status of many 3M products. Further regulation information including that for OSHA, USCPSP, FDA, California Proposition 65, REACH and RoHS, can be found at [3M.com/regs](http://3m.com/regs).

Automotive Disclaimer

Select Automotive Applications:

This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

Information

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ISO Statement

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

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