



Technical Data Sheet

3M™ Adhesive Transfer Tape 9471

Product Description

3M™ Adhesive Transfer Tapes with 3M™ Adhesive 300 offer excellent adhesion to a wide variety of surfaces, including low surface energy plastics and foam. This pressure sensitive medium firm acrylic adhesive family features very high initial adhesion with good holding power and is available in several thicknesses for a wide variety of surface bonding and provides a variety of liner configurations to help ensure excellent process flexibility.

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 |
| Liner | | 60# Densified Kraft |
| Liner Thickness | | 0.09 mm |
| Primary Liner Color | | Tan |
| Liner Print | | Green, 3M |

Typical Performance Characteristics

90° Peel Adhesion

Backing: 2 mil Aluminum Foil

Test Method: ASTM D3330

| Dwell Time | Temperature | Substrate | Value |
|------------|-------------|--------------------|-----------------------|
| 15 min | 23 °C | ABS | 3.4 N/cm ¹ |
| 15 min | 23 °C | Polypropylene (PP) | 4.9 N/cm ¹ |
| 15 min | 23 °C | Stainless Steel | 5.7 N/cm ¹ |
| 72 h | 23 °C | ABS | 3.7 N/cm ¹ |
| 72 h | 23 °C | Polypropylene (PP) | 5.7 N/cm ¹ |
| 72 h | 22 °C | Stainless Steel | 6.5 N/cm ² |

¹ 304 mm/min (12 in/min)

² 12 in/min (300 mm/min)

| Attribute Name | Value |
|-----------------------------------|---------------------|
| Short Term Temperature Resistance | 121 °C ¹ |
| Long Term Temperature Resistance | 70 °C ² |

¹ Short Term (minutes, hour)

² Long Term (day, weeks)

Typical Environmental Characteristics

Environmental Resistance

Humidity Resistance - High humidity has a minimal effect on adhesive performance. Bond strength (is generally higher/shows no significant reduction) after exposure for 7 days at 90°F (32°C) and 90% relative humidity.

UV Resistance - When properly applied, nameplates and decorative trim parts are not adversely affected by outdoor exposure.

Water Resistance - Immersion in water has no appreciable effect on the bond strength. After 100 hours at room temperature, the high bond strength (increases/is maintained).

Temperature Cycling Resistance - High bond strength (is maintained /increases) after cycling four times through:
4 hours at 158°F (70°C)
4 hours at -20°F (-29°C)
4 hours at 73°F (22°C)

Chemical Resistance - When properly applied, nameplate and decorative trim parts will hold securely after exposure to numerous chemicals including oil, mild acids and alkalis.

Bond Build-up: The bond strength of 3M™ Adhesive 300 increases as a function of time and temperature

Temperature/Heat Resistance: Adhesive 300 is usable for short periods (minutes, hours) at temperatures up to 250°F (120°C) and for intermittent longer periods (days, weeks) up to 150°F (65°C).

Lower Temperature Service Limit:-40F (-40°C).

Electrical and Thermal Properties

Coefficient of Thermal Expansion

Test Method: ASTM D696

| Test Condition | Value |
|-----------------------|------------------------------|
| First Heat | 20 x 10 ⁻⁵ m/m/°C |
| Second Heat | 58 x 10 ⁻⁵ m/m/°C |

| Attribute Name | Test Method | Temperature | Test Condition | Value |
|-----------------------|--------------------|--------------------|----------------------------|--------------|
| Dielectric Constant | ASTM D150 | 23 °C | 1 KHz | 3.21 |
| Dissipation Factor | | | | 0.04 |
| Dielectric Strength | ASTM D149 | | 500 vac, rms[60 hz/sec] | 340 V/mil |

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 70°F (21°C) to 100°F (38°C). Application is not recommended if the surface temperature is below 50°F (10°C) 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 office.

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 | 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

SDS: 3M has not prepared a SDS for this product which is not subjected to the SDS 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, this product should not present a health and safety hazard. However, use or processing of the product in a manner not in accordance with the directions for use may affect its performance and present potential health and safety hazards.

UL: These products have been recognized by Underwriters Laboratories, Inc. under UL 969, Marking and Labeling Systems Materials Component. For more information on the UL Certification, please visit the website at <http://www.3M.com/converter>, select UL Recognized Materials, 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, USCPSTI, FDA, California Proposition 65, REACH and RoHS, can be found at 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

Precautionary Information: Refer to product label and Material Safety Data Sheet for health and safety information before using the product. For information, please contact your local 3M Office. You can click or scan QR code to see contact detail or visit www.3M.com Important Information: All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method or application. All questions of liability relating to this product are governed by the terms of the sale subject, where applicable, to the prevailing law. Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications. This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.

ISO Statement

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

3M™ Centre
Cain Rd, Binfield, Bracknell RG12 8HT, United Kingdom
3m.co.uk/iatd

3M is a trademark of 3M Company
© 3M 2016 (3/16)