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December, 2017

3M™ Adhesive Transfer Tape 467MP

Product Description

Finite Element Analysis (FEA) data is available for this product at: **3m.com/FEA**

3M™ High Performance Acrylic Adhesive 200MP is a popular choice for graphic attachment and general industrial joining applications. It provides outstanding adhesion to metal and high surface energy plastics. This adhesive provides some initial repositionability for placement accuracy when bonding to plastics. It also performs well after exposure to humidity and hot/cold cycles.

Product Features

- Up to 400°F short-term heat resistance
- Excellent solvent resistance
- Excellent shear strength to resist slippage and edge lifting

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

Property	Values		Notes
Adhesive Thickness	0.06 mm	2.3 mil	The thickness listed is based on a calculation from manufacturing controlled adhesive coat weights using a density of 1.012 g/cc. While past data pages have listed nominal thicknesses, the coat weight (and theoretical caliper) has not changed.
Liner	58# Polycoated Kraft Paper (PCK)		
Liner Thickness	0.11 mm	4.2 mil	
Liner Color	Tan		

Typical Performance Characteristics

90° Peel Adhesion		Dwell/Cure Time	Substrate
5.4 N/cm	49 oz/in	15 min ± 5 min	Stainless Steel
10 N/cm	92 oz/in	72 hr @ Room Temperature	Stainless Steel
16.7 N/cm	153 oz/in	72 hr @ 158°F(70°C)	Stainless Steel
7 N/cm	64 oz/in	72 hr @ Room Temperature	Aluminum
2.4 N/cm	22 oz/in	72 hr @ Room Temperature	ABS
7 N/cm	64 oz/in	72 hr @ Room Temperature	Acrylic (PMMA)
9.9 N/cm	90 oz/in	72 hr @ Room Temperature	Glass
4.4 N/cm	40 oz/in	72 hr @ Room Temperature	Polyvinyl chloride (PVC)
7.8 N/cm	71 oz/in	72 hr @ Room Temperature	Polycarbonate (PC)

Property: 90° Peel Adhesion
Method: ASTM D3330
Backing: Aluminum Foil

Static Shear	Test Condition
10000+ min	1000 g load @ Room Temperature
10000+ min	1000 g load @ 70°C (158°F)
10000+ min	1000 g load @ 93°C (200°F)
10000+ min	500 g load @ 177°C (350°F)

Table continued on next page

Typical Performance Characteristics (continued)

Static Shear	Test Condition
2284 min	400 g load @ 232°C (450°F)
10000+ min	200 g load @ 232°C (450°F)

Property: Static Shear
notes: 1in x 1in size; test terminated after 10,000 minutes

Adhesion Retention after Immersion and Exposure		Environmental Condition
9.5 N/cm	87 oz/in	Control adhesion value
7.9 N/cm	72 oz/in	Gasoline – 1 hour Room Tempterature immersion
7.7 N/cm	70 oz/in	MEK – 1 hour Room Tempterature immersion
7.7 N/cm	70 oz/in	Weak Acid – 4 hour Room Tempterature immersion
7.2 N/cm	66 oz/in	Weak Base – 4 hour Room Tempterature immersion
13.9 N/cm	127 oz/in	Oil (10W30) – 72 hour, 120°F (49°C) immersion
9.5 N/cm	87 oz/in	Water – 100 hours, Room Tempterature
9.5 N/cm	87 oz/in	Salt Water (5%) – 72 hours, Room Tempterature
11.9 N/cm	109 oz/in	Warm/Humid – 7 days, 90°F (32°C) and 90% relative humidity
11.4 N/cm	104 oz/in	UV Conditions - ASTM G-154 Cycle 1, for 2000 hours
12.3 N/cm	112 oz/in	Temperature Cycling: 4 Hours at 158°F (70°C) 4 Hours at -20°F (-29°C) 16 Hours at Room Tempterature Repeat three times

Property: Adhesion Retention after Immersion and Exposure
Dwell/Cure Time: 24 hr @ Room Temperature
Substrate: Stainless Steel
Backing: Aluminum Foil
notes: 90° peel, 12 ipm; 2 mil foil backing. Adhesion values above 80 oz/1" is considered to be a permanent bond.

Property	Values		Method	Substrate	Notes	Dwell/Cure Time	Backing
Tensile Lap Shear – Peak Load	164 lb		ASTM D1002	#6061 Aluminum	0.5 in²		
180° Peel Adhesion	8.4 N/cm	77 oz/in	ASTM D3330	Stainless Steel		72 hr @ Room Temperature	Aluminum Foil

Electrical and Thermal Properties

Property	Values		Method	Test Condition	Notes
Breakdown Voltage	1760 V				
Insulation Resistance	>2.5 × 10^16 Ω		Mil-I-46058C	test voltage = 100 VDC	
Dielectric Constant	2.72		ASTM D150	1 KHz, Room Temperature	
Dissipation Factor	0.017				
Dielectric Strength	690 V/mil		ASTM D149	500 vac, rms[60 hz/sec]	
Thermal Conductivity	0.18 W/m/K	1.21 (btu-in)/(h-ft²-°F)	ASTM C518	109°F(43°C)	results listed are at 109°F
Coefficient of Thermal Expansion	618 ppm/°C				

Environmental Performance

Humidity Resistance – High humidity has a minimal effect on adhesive performance. Bond strength 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 is maintained.
Temperature Cycling Resistance – High bond strength is maintained 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™ High Performance Acrylic Adhesive 200MP increases as a function of time and temperature
Temperature/Heat Resistance: 3M™ High Performance Acrylic Adhesive 200MP is usable for short periods (minutes, hours) at temperatures up to400°F (204°C) and for intermittent longer periods (days, weeks) up to 300°F (149°C).
Lower Temperature Service Limit: The glass transition temperature for 3M™ High Performance Acrylic Adhesive 200MP is -31°F (-35°C). Many applications survive below this temperature (factors affecting successful applications include: materials being bonded, dwell at RT before cold exposure, and stress below the TG [i.e. expansion/contraction stresses, impact]). Optimum conditions are: bonding high surface energy materials, longer time at RT before cold exposure, and little or no stress below the TG. The lowest service temperature is -40°F (-40°C).

Handling/Application Information

Application Ideas

• Long term bonding of graphic nameplates and overlays (“subsurface” printed polycarbonate or polyester) to metal and high surface energy plastics in the aerospace, medical and industrial equipment, automotive, appliance and electronics markets.
• Bonding metal nameplates and rating plates in the aerospace, medical and industrial equipment, automotive, appliance and electronics markets.
• Bonding graphic overlays for membrane switches and for bonding the complete switch to the equipment surface.
• High speed processing of parts in the medical, telecommunications and electronics markets (medical components, durable labels, and flexible circuits).
• Lamination to industrial foams for rotary die-cutting of small gaskets for industrial and electronics markets.

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 affect on skin and can interfere with the performance of a pressure-sensitive adhesive.
*Note: Carefully read and follow the manufacturer’s precautions and directions for use when working with solvents. These cleaning recommendations may not be in compliance with the rules of certain air quality management districts in California; consult applicable rules before use.
It is necessary to provide pressure during lamination (1.5-20 pli recommended) and during final part installation (10-15 psi) 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 60°F (15.6°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 section VII of the Typical Physical Properties and Performance Characteristics).
When bonding a thin, smooth, flexible material to a smooth surface, it is generally acceptable to use 2 mils of 3M™ Adhesive 200MP. If a texture is visible on one or both surfaces, the 5 mil 3M adhesive 200MP 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 the data page 70-0709-3830-6).
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.

Storage and Shelf Life

It is suggested that products are stored at room temperature conditions of 70°F (21°C) and 50% relative humidity.
If stored properly, product retains its performance and properties for 24 months from date of manufacture.

Trademarks

3M is a trademark of 3M Company.

References

Safety Data Sheet (SDS)

https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=467MP

3M™ Adhesive Transfer Tape 467MP

Family Group

	467MP	468MP	467MPF	468MPF
Adhesive Thickness (mm)	0.06	0.13	0.06	0.13
Liner	58# Polycoated Kraft Paper (PCK)	58# Polycoated Kraft Paper (PCK)	Polyester Film (PET)	Polyester Film (PET)
Liner Thickness (mm)	0.11	0.11	0.05	0.05
Liner Color	Tan	Tan	Clear	Clear

ISO Statement

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

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: 3M has not prepared a MSDS for this product which is not subjected 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, 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 Standard 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.
Military: Meets MIL-P-19834

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Information

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