



Technical Data Sheet

3M™ Membrane Switch Product with Adhesive 200MP 7959MP

Product Description

Finite Element Analysis (FEA) data is available for this product at: [3m.com/FEA](https://www.3m.com/FEA)

3M™ High Performance Acrylic Adhesive 200MP is a popular choice and industry standard, 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 and provides the assurance the switch will perform through difficult environmental conditions and millions of actuations.

Product Features

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

3M™ Double Coated Membrane Switch Spacers feature 2.0 or 5.0 mil adhesive layers for industry-standard, high-performance requirements.

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	Additional Information
Adhesive Type	Acrylic	
Adhesive Carrier	Polyester Film (PET)	
Liner	200MP Acrylic	
Primary Liner Type	58# Polycoated Kraft Paper (PCK)	View
Notes: Inner liner is primary (stays with die-cut part); Outer liner is secondary (removed first)		
Secondary Liner Type	58# Polycoated Kraft Paper (PCK)	View
Notes: Inner liner is primary (stays with die-cut part); Outer liner is secondary (removed first)		
Liner Thickness	0.11 mm	

Primary Liner Thickness 0.11 mm

Secondary Liner Thickness 0.11 mm

Adhesive Thickness 0.05 mm [View](#) 


Test Name: Backside

Notes: The caliper listed is based on a calculation from manufacturing controlled adhesive coat weight. While past data pages have listed nominal thicknesses of 1 and 2 mils, the coat weight (and theoretical caliper) has not changed.

Carrier Thickness 0.13 mm

Total Tape Thickness (mil) 2 mil [View](#) 

Test Method: ASTM D3652


Total Tape Thickness (mm) 0.05 mm [View](#) 

Test Method: ASTM D3652

Adhesive Thickness 2 mil [View](#) 

Test Name: Backside

Notes: Backside adhesive is on the exterior of the roll, exposed when liner is removed.

Adhesive Thickness 0.05 mm [View](#) 

Test Name: Faceside

Notes: Faceside adhesive is on the interior of the roll, exposed when unwound and liner removed.

Adhesive Thickness 2 mil [View](#) 

Test Name: Faceside

Notes: Faceside adhesive is on the interior of the roll, exposed when unwound and liner removed.

Carrier Thickness 5 mil






Liner Print 200MP

Liner Thickness 4.2 mil

Primary Liner Thickness 4.2 mil

Secondary Liner Thickness 4.2 mil

Typical Performance Characteristics

Property	Values	Additional Information
90° Peel Adhesion	3.3 N/cm	View 
<p>Test Method: ASTM D3330</p> <p>Test Name: 90° Peel Adhesion Temp C: 23C Temp F: 72F Substrate: Stainless Steel Backing: 2 mil PET</p> <p>Notes: 12 in/min (300 mm/min)</p>		
90° Peel Adhesion	30 oz/in	View 
<p>Test Method: ASTM D3330</p> <p>Test Name: 90° Peel Adhesion Temp C: 23C Temp F: 72F Environmental Condition: 50%RH Substrate: Stainless Steel Backing: 2 mil PET</p>		
90° Peel Adhesion	14.7 N/cm	View 
<p>Test Method: ASTM D3330 (modified)</p> <p>Test Name: 90° Peel Adhesion Dwell/Cure Time: 72.0 Dwell Time Units: hr Temp C: 70C Temp F: 158F Environmental Condition: 50%RH Substrate: Stainless Steel Backing: PET Film</p> <p>Notes: 12 in/min (300 mm/min)</p>		
90° Peel Adhesion	134 oz/in	View 
<p>Test Method: ASTM D3330 (modified)</p> <p>Test Name: 90° Peel Adhesion Dwell/Cure Time: 72.0 Dwell Time Units: hr Temp C: 70C Temp F: 158F Environmental Condition: 50%RH Substrate: Stainless Steel Backing: PET Film</p> <p>Notes: 12 in/min (300 mm/min)</p>		
90° Peel Adhesion	3.4 N/cm	View 
<p>Test Method: ASTM D3330 (modified)</p> <p>Test Name: 90° Peel Adhesion Substrate: Aluminum Backing: PET Film</p>		
90° Peel Adhesion	31 oz/in	

View 


Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Aluminum
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Aluminum

7.4 N/cm

View 

Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Aluminum
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Aluminum

68 oz/in

View 


Test Method: ASTM D3330

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Aluminum
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion

13.6 N/cm

View 

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 70C
Temp F: 158F
Environmental Condition: 50%RH
Substrate: Aluminum
Backing: PET Film

90° Peel Adhesion

124 oz/in

View 

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 70C
Temp F: 158F
Environmental Condition: 50%RH
Substrate: Aluminum
Backing: PET Film

90° Peel Adhesion


3.6 N/cm

View 

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion
Substrate: PET
Backing: PET Film

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	33 oz/in	View 
-------------------	----------	--

Test Method: ASTM D3330 (modified)


Test Name: 90° Peel Adhesion
Substrate: PET
Backing: PET Film

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	5.8 N/cm	View 
-------------------	----------	--

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: PET
Backing: PET Film

90° Peel Adhesion	53 oz/in	View 
-------------------	----------	--


Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: PET
Backing: PET Film

90° Peel Adhesion	12.9 N/cm	View 
-------------------	-----------	--

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 70C
Temp F: 158F
Environmental Condition: 50%RH
Substrate: PET
Backing: PET Film

90° Peel Adhesion	118 oz/in	View 
-------------------	-----------	--

Test Method: ASTM D3330 (modified)









Test Name: 90° Peel Adhesion
Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 70C
Temp F: 158F
Environmental Condition: 50%RH
Substrate: PET
Backing: PET Film

90° Peel Adhesion	3.9 N/cm	View 
-------------------	----------	--

Test Method: ASTM D3330 (modified)

Substrate: Polycarbonate (PC)
Backing: PET Film

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	36 oz/in	View 
<p>Test Method: ASTM D3330 (modified)</p> <p>Test Name: 90° Peel Adhesion Substrate: Polycarbonate (PC) Backing: PET Film</p> <p>Notes: 12 in/min (300 mm/min)</p>		
90° Peel Adhesion	7.2 N/cm	View 
<p>Test Method: ASTM D3330 (modified)</p> <p>Dwell/Cure Time: 72.0 Dwell Time Units: hr Temp C: 70C Temp F: 158F Substrate: Polycarbonate (PC) Backing: PET Film</p>		
90° Peel Adhesion	66 oz/in	View 
<p>Test Method: ASTM D3330 (modified)</p> <p>Dwell/Cure Time: 72.0 Dwell Time Units: hr Temp C: 70C Temp F: 158F Substrate: Polycarbonate (PC) Backing: PET Film</p>		
Tensile Strength	6462 lb/in	View 
<p>Test Method: ASTM D2370</p> <p>Substrate: Stainless Steel Backing: PET Film</p>		
Overlap Shear Strength	0.54 MPa	View 
<p>Test Method: ASTM D1001</p> <p>Substrate: Stainless Steel Backing: PET Film</p>		
Overlap Shear Strength	78 lb/in ²	View 
<p>Test Method: ASTM D1001</p> <p>Substrate: Stainless Steel Backing: PET Film</p>		
Overlap Shear Strength	0.48 MPa	View 
<p>Test Method: ASTM D1001</p> <p>Substrate: Polycarbonate (PC) Backing: PET Film</p>		
Overlap Shear Strength	69 lb/in ²	View 

Test Method: ASTM D1001


Substrate: Polycarbonate (PC)
Backing: PET Film

Short Term Temperature Resistance	300 °F
-----------------------------------	--------


Short Term Temperature Resistance	149 °C
-----------------------------------	--------

Long Term Temperature Resistance	93 °C
----------------------------------	-------


Long Term Temperature Resistance	200 °F
----------------------------------	--------

Static Shear	10,000+ min	View 
--------------	-------------	--

<p>Test Method: ASTM D3654</p> <p>Substrate: Stainless Steel Backing: PET Film</p> <p>Notes: 0.5 in² sample size</p>		
--	--	--

Static Shear	10,000+ min	View 
--------------	-------------	--


<p>Test Method: ASTM D3654</p> <p>Substrate: Stainless Steel Backing: PET Film</p> <p>Notes: 0.5 in² sample size</p>		
--	--	--

90° Peel Adhesion Stainless Steel	83 oz/in	View 
-----------------------------------	----------	--

<p>Test Method: ASTM D3330</p> <p>Test Name: 90° Peel Adhesion Dwell/Cure Time: 72.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Environmental Condition: 50%RH Substrate: Stainless Steel Backing: 2 mil PET</p> <p>Notes: 12 in/min (300 mm/min)</p>		
---	--	--

90° Peel Adhesion Stainless Steel	9 N/cm	View 
-----------------------------------	--------	--


Notes: 12 in/min (300 mm/min) ASTM D3330 72 hour dwell on Stainless Steel at 23°C (72°F) and 50% RH Backing: 2 mil Polyester

90° Peel Adhesion Polycarbonate (PC)	5.9 N/cm	View 
--------------------------------------	----------	--







<p>Test Method: ASTM D3330</p> <p>Test Name: 90° Peel Adhesion Dwell/Cure Time: 72.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F</p>		
---	--	--

Environmental Condition: 50%RH
Substrate: Polycarbonate (PC)
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion Polycarbonate (PC)	54 oz/in	View 
<p>Test Method: ASTM D3330</p> <p>Test Name: 90° Peel Adhesion Dwell/Cure Time: 72.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Environmental Condition: 50%RH Substrate: Polycarbonate (PC) Backing: 2 mil PET</p> <p>Notes: 12 in/min (300 mm/min)</p>		

Electrical and Thermal Properties

Property	Values	Additional Information
Insulation Resistance	1.9 x 10 ¹³ Ω	View 
<p>Test Method: Mil-I-46058C</p>		
Dissipation Factor	0.011	View 
<p>Test Method: ASTM D150</p>		
Dielectric Strength	1600 V/mil	View 
<p>Test Method: ASTM D149</p> <p>Notes: Short time method (air)</p>		
Volume Resistivity	1.5 x 10 ¹⁵ Ω-cm	View 
<p>Test Method: ASTM D257</p> <p>Temp C: 23C Temp F: 73F</p>		
Surface Resistivity	>5.6 x 10 ¹⁶ Ω	View 
<p>Test Method: ASTM D257</p>		
Coefficient of Thermal Expansion	4.7 x 10 ⁻⁴ m/m/°C	View 
<p>Test Method: ASTM D696</p>		

Typical 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 increases as a function of time and temperature as the adhesive further wets the surface and reaches maximum bond strength after 72 hours at room temperature.

Temperature/Heat Resistance: 3M™ High Performance Acrylic Adhesive on polyester carriers is usable for short periods (minutes, hours) at temperatures up to 300 °F (149°C) and for intermittent longer periods (days, weeks) up to 250°F (121°C).

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

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.

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 UI 746C and UL 969. 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, USCPSI, FDA, California Proposition 65, READY and RoHS, can be found at 3M.com/regs.

Automotive Disclaimer

Automotive Applications: This product is an industrial product and has not been designed or tested for use in certain automotive applications, including, but not limited to, automotive electric powertrain battery or high voltage applications. This product does not fully adhere to typical automotive design or quality system requirements, such as IATF 16949 or VDA 6.3. This product may not be manufactured in an IATF certified facility and may not meet a Ppk of 1.33 for all properties. The product may not undergo an automotive production part approval process (PPAP). Customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's automotive application and for conducting incoming inspections before use of the product. Failure to do so may result in injury, death, and/or harm to property.

No written or verbal statement, report, data or recommendation by 3M related to automotive use of the product shall have any force or effect unless in an agreement signed by the Technical Director of 3M's Automotive Division. Customer assumes all responsibility and risk if customer chooses to use this product in an automotive electric powertrain battery or high voltage application, and 3M will not be liable for any loss or damage arising from or related to the 3M product or customer's use of the product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity or recall costs), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability. In no event shall 3M be liable for any damages in excess of the purchase price paid for the product.

NOTWITHSTANDING ANY OTHER STATEMENT TO THE CONTRARY, 3M MAKES NO REPRESENTATIONS, WARRANTIES OR CONDITIONS WHATSOEVER, EXPRESS OR IMPLIED, REGARDING THE PRODUCT IF USED IN AN AUTOMOTIVE ELECTRIC POWERTRAIN BATTERY OR HIGH VOLTAGE APPLICATION, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY ON PERFORMANCE, LONGEVITY, SUITABILITY, COMPATIBILITY, OR INTEROPERABILITY, OR ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE.

Bottom Matter

3M

Industrial Adhesives and Tapes Division

3M Center, Building 225-3S-06

St. Paul, MN 55144-1000

800-362-3550

Trademarks

3M is a trademark of 3M Company

Handling/Application Information

Application Examples

- 3M™ Double Coated Membrane Switch Spacers are ideal for circuit separation

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b40070356/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=7959MP

ISO Statement

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

Information

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

Product Selection and Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

Disclaimer: 3M industrial and occupational products are intended, labeled, and packaged for sale to trained industrial and occupational customers for workplace use. Unless specifically stated otherwise on the applicable product packaging or literature, these products are not intended, labeled, or packaged for sale to or use by consumers (e.g., for home, personal, primary or secondary school, recreational/sporting, or other uses not described in the applicable product packaging or literature), and must be selected and used in compliance with applicable health and safety regulations and standards (e.g., U.S. OSHA, ANSI), as well as all product literature, user instructions, warnings, and limitations, and the user must take any action required under any recall, field action or other product use notice. Misuse of 3M industrial and occupational products may result in injury, sickness, or death. For help with product selection and use, consult your on-site safety professional, industrial hygienist, or other subject matter expert. For additional product information, visit www.3M.com.