



3M™ Membrane Switch Product with Adhesive 200MP 7956MP

Last Revision Date: May, 2022

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	PCK	
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
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Secondary Liner Thickness	0.11 mm
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Adhesive Thickness	0.05 mm
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[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	0.05 mm
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Total Tape Thickness	2 mil
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[View](#) 

Test Method: ASTM D3652

Total Tape Thickness	0.05 mm
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[View](#) 

Test Method: ASTM D3652


Adhesive Thickness	2 mil
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[View](#) 

Test Name: Backside

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

Adhesive Thickness	0.05 mm
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[View](#) 

Test Name: Faceside

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

Adhesive Thickness	2 mil
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[View](#) 

Test Name: Faceside

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

Carrier Thickness	2 mil
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Liner Print	200MP
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Liner Thickness	4.2 mil
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Primary Liner Thickness	4.2 mil
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Secondary Liner Thickness	4.2 mil
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Typical Performance Characteristics

Property	Values	Additional Information
90° Peel Adhesion	5.5 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	50 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	17.1 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	156 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	3.5 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	32 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

8.2 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

75 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

17.2 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

157 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

4.8 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

44 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

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

73 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

5.1 N/cm

View 


Test Method: ASTM D3330 (modified)

Substrate: Polycarbonate (PC)
Backing: PET Film

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

90° Peel Adhesion

47 oz/in

View 

Test Method: ASTM D3330 (modified)

Test Name: 90° Peel Adhesion
Substrate: Polycarbonate (PC)
Backing: PET Film

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

90° Peel Adhesion

7.3 N/cm

View 

Test Method: ASTM D3330 (modified)

Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 70C
Temp F: 158F
Substrate: Polycarbonate (PC)
Backing: PET Film

90° Peel Adhesion

67 oz/in

View 

Test Method: ASTM D3330 (modified)

Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 70C
Temp F: 158F
Substrate: Polycarbonate (PC)
Backing: PET Film

Tensile Strength

3971 lb/in

View 

Test Method: ASTM D2370

Substrate: Stainless Steel
Backing: PET Film

Overlap Shear Strength

0.72 MPa

View 

Test Method: ASTM D1001

Substrate: Stainless Steel
Backing: PET Film

Overlap Shear Strength

103 lb/in²


View 

Test Method: ASTM D1001

Substrate: Stainless Steel
Backing: PET Film

Overlap Shear Strength

0.54 MPa

View 

Test Method: ASTM D1001

Substrate: Polycarbonate (PC)
Backing: PET Film

Overlap Shear Strength

78 lb/in²

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](#) 

Test Method: ASTM D3654

Substrate: Stainless Steel
Backing: PET Film

Notes: 0.5 in² sample size

Static Shear 10,000+ min

[View](#) 

Test Method: ASTM D3654

Substrate: Stainless Steel
Backing: PET Film

Notes: 0.5 in² sample size

90° Peel Adhesion Stainless Steel 113 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: Stainless Steel
Backing: 2 mil PET

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

90° Peel Adhesion Stainless Steel 12.4 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) 8.3 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: Polycarbonate (PC)
 Backing: 2 mil PET

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

90° Peel Adhesion Polycarbonate (PC)	76 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	1.1 x 10 ¹³ Ω	View 
<p>Test Method: Mil-I-46058C</p>		
Dissipation Factor	0.015	View 
<p>Test Method: ASTM D150</p>		
Dielectric Strength	1700 V/mil	View 
<p>Test Method: ASTM D149</p> <p>Notes: Short time method (air)</p>		
Volume Resistivity	8.9 x 10 ¹⁴ 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	5.1 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.

Bottom Matter

3M

Industrial Adhesives & Tapes Division

Converter Markets

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Trademarks

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Automotive Disclaimer

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Handling/Application Information

Application Examples

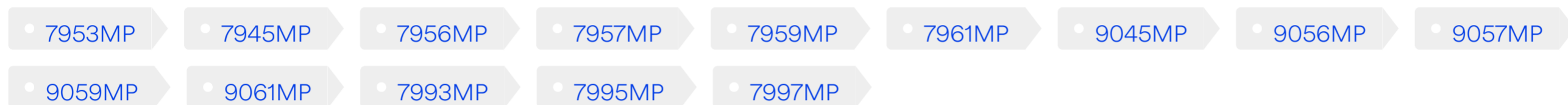
- 3M™ Double Coated Membrane Switch Spacers are ideal for circuit separation

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b40070357/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=7956MP

Family Group

Link Tags:



Products	Adhesive Type	Adhesive Carrier	Liner	Primary Liner Type	Secondary Liner Type	Liner Thickness	Primary Liner Thickness	Secondary Liner Thickness	Adhesive Thickness	Carrier Thickness	Total Tape Thickness	Short Term Temperature Resistance	Long Term Temperature Resistance
7959MP	Acrylic	Polyester Film (PET)	PCK	58# Kraft Paper (PCK)	58# Polycoated Kraft Paper (PCK)	0.11 mm	0.11 mm	0.11 mm	0.05 mm	0.13 mm	0.05 mm	149 °C	200 °F
7956MP	Acrylic	Polyester Film (PET)	PCK	58# Kraft Paper (PCK)	58# Polycoated Kraft Paper (PCK)	0.11 mm	0.11 mm	0.11 mm	0.05 mm	0.05 mm	0.05 mm	149 °C	200 °F
9045MP	Acrylic	Polyester Film (PET)	PCK	94# Kraft Paper (PCK)	94# Polycoated Kraft Paper (PCK)	0.18 mm	0.18 mm	0.18 mm	0.05 mm	0.03 mm	0.05 mm	149 °C	200 °F
9059MP	Acrylic	Polyester Film (PET)	PCK	94# Kraft Paper (PCK)	94# Polycoated Kraft Paper (PCK)	0.18 mm	0.18 mm	0.18 mm	0.05 mm	0.13 mm	0.05 mm	149 °C	200 °F
7945MP	Acrylic	Polyester Film (PET)	PCK	58# Kraft Paper (PCK)	58# Polycoated Kraft Paper (PCK)	0.11 mm	0.11 mm	0.11 mm	0.05 mm	0.03 mm	0.05 mm	149 °C	200 °F

7961MP	Acrylic	Polyester Film (PET)	PCK	58# Polycoated Kraft Paper (PCK)	58# Polycoated Kraft Paper (PCK)	0.11 mm	0.11 mm	0.11 mm	0.05 mm	0.18 mm	0.05 mm	149 °C	200 °F
7957MP	Acrylic	Polyester Film (PET)	PCK	58# Polycoated Kraft Paper (PCK)	58# Polycoated Kraft Paper (PCK)	0.11 mm	0.11 mm	0.11 mm	0.05 mm	0.08 mm	0.05 mm	149 °C	200 °F
9057MP	Acrylic	Polyester Film (PET)	PCK	94# Polycoated Kraft Paper (PCK)	94# Polycoated Kraft Paper (PCK)	0.18 mm	0.18 mm	0.18 mm	0.05 mm	0.08 mm	0.05 mm	149 °C	200 °F
9061MP	Acrylic	Polyester Film (PET)	PCK	94# Polycoated Kraft Paper (PCK)	94# Polycoated Kraft Paper (PCK)	0.18 mm	0.18 mm	0.18 mm	0.05 mm	0.18 mm	0.05 mm	149 °C	200 °F
9056MP	Acrylic	Polyester Film (PET)	PCK	94# Polycoated Kraft Paper (PCK)	94# Polycoated Kraft Paper (PCK)	0.18 mm	0.18 mm	0.18 mm	0.05 mm	0.05 mm	0.05 mm	149 °C	200 °F
7995MP	Acrylic	Polyester Film (PET)	Kraft Paper (PCK)	94# Polycoated N/A	N/A	0.18 mm	N/A	N/A	N/A	0.08 mm	0.05 mm	149 °C	200 °F
7997MP	Acrylic	Polyester Film (PET)	Kraft Paper (PCK)	94# Polycoated N/A	N/A	0.18 mm	N/A	N/A	N/A	0.13 mm	0.05 mm	149 °C	200 °F
7993MP	Acrylic	Polyester Film (PET)	Kraft Paper (PCK)	94# Polycoated N/A	N/A	0.18 mm	N/A	N/A	N/A	0.03 mm	0.05 mm	149 °C	200 °F
7953MP	Acrylic	Polyester Film (PET)	PCK	58# Polycoated Kraft Paper (PCK)	58# Polycoated Kraft Paper (PCK)	0.11 mm	0.11 mm	0.11 mm	0.04 mm	0.01 mm	0.04 mm	149 °C	200 °F

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

Information

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