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Technical Data Sheet

3M™ Membrane Switch White Spacer 7966MWS

Product Description

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

3M™ Membrane Switch White Spacers use 3M™ High Performance Acrylic Adhesive 200MP on both sides of an opaque polyester film. It is linered on one side and can be used for demanding requirements in graphic as well as non-graphic lamination applications.

Product Features

• Ease of assembly and a high-performance pressure sensitive adhesive system to help ensure your membrane switch or graphic assembly perform through difficult environmental conditions throughout the product life.
• Metallized vapor coat & white color provide strong opacity to the adhesive system for facilitating backlighting & eliminating floodcoats.

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	Test Condition	Value
Adhesive Type			200MP Acrylic
Adhesive Carrier			White/Silver PET (Polyester)
Adhesive Thickness		Faceside	0.05 mm [1]
Carrier Thickness			0.05 mm
Adhesive Thickness		Backside	0.13 mm [2]
Total Tape Thickness	ASTM D3652		0.23 mm
Liner			58# PCK
Liner Print			200MP
Liner Thickness			0.1 mm

[1] Faceside adhesive is on the interior of the roll, exposed when unwound.

[2] Backside adhesive is on the exterior of the roll, exposed when liner is removed.

Typical Performance Characteristics

90° Peel Adhesion

Substrate: Stainless Steel
Temperature: 23 °C
Dwell Time: 72 h
Backing: 2 mil PET
Test Method: ASTM D3330

Test Condition	Value
2 mil Side	6.3 N/cm [1]
5 mil Side	9.7 N/cm [1]

[1] 304 mm/min (12 in/min)

Temperature: 23 °C
Test Condition: 1000 g

Attribute Name	Test Method	Value
Static Shear	ASTM D3654	10,000+ min [1]

[1] 13 x 25 mm (0.5 x 1 in) sample area, test terminated at 10,000 minutes

Attribute Name	Value
Short Term Temperature Resistance	149 °C [1]
Long Term Temperature Resistance	93 °C [2]

[1] Short Term (minutes, hour)

[2] Long Term (day, weeks)

Typical Environmental Characteristics

Environmental Resistance

The properties defined are based on the attachment of impervious faceplate materials (such as aluminum) to an metal surface.

Bond Build-up: The bond strength of 3M™ Adhesive 200MP increases as a function of time and temperature.

Humidity Resistance: High humidity has a minimal effect on adhesive performance. Bond strengths are generally higher after exposure for 7 days at 90°F (32°C) and 90% relative humidity.

U.V. 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 in room temperature water the bond actually shows an increase in strength.

Temperature Cycling Resistance: Bond strength generally increases after cycling four times through:
4 hours at 158°F (70°C)
4 hours at -20°F (-29°C)
16 hours at room temperature.

Chemical Resistance: When properly applied, nameplate and decorative trim parts will hold securely after exposure to numerous chemicals including gasoline, oil, Freon TF, sodium chloride solution, mild acids and alkalis.

Handling/Application Information

Application Examples

- Use where opacity of the adhesive layer is helpful to eliminate graphic ink flood coat or facilitate backlighting.
- Attachment of nameplates, appliques, and decorative trim to metal and high surface energy plastics.
- Suitable for lamination to back-printed polycarbonate or polyester graphic overlay materials.
- Used in the automotive, appliance and electronic industries for cost-effective, longterm bonding.

Application Techniques

Processing

Die Cutting: Steel rule die and hard tooling - Good die-cutting and kiss-cutting properties. Lubricate dies with vanishing oil or similar low residue lubricants for improved processing if required. Optimal design, quality construction, and make ready give best results when cutting PSA materials and substrates. Consult with your tooling supplier for design and qualification of new tooling needs.

Laser Converting: Laser cutting, kiss-cutting, scoring and perforating using CO2 lasers has proven very successful for cutting PSA materials particularly for prototyping and short-run work. Consult with your laser job shop or vendor to test and qualify converting process.

Roll Laminating: Use rubber over steel roll set up with moderate application pressure. Make adhesive to substrate contact at nip area only to avoid air entrapment in bond. Proper rubber roll durometer hardness, parallelism of rolls, roll diameters and width, PLI and nip gap, and web thread up and table configuration set-up parameters are all critical to satisfactory results to eliminate wrinkles, entrapped bubbles, etc. Heated rolls or heat assist can be very helpful to good lamination quality and bond build-up. Consult with your laminating equipment supplier for details.

Special Considerations
For maximum bond strength, surface should be thoroughly cleaned and dried. A typical substrate cleaning solvent is heptane or isopropyl alcohol*. There are many others that will work well, but cleaning materials must be tested to assure compatibility with the substrate and that residues are not deposited on the surface.

Bond strength may be improved with firm application pressure and moderate heat causing adhesive to flow and develop intimate contact with bonding surface.

*Note: When using solvents, be sure to follow the manufacturer’s precautions and directions for use when handling such materials.

Application Equipment

For assistance in helping you determine the best equipment for your application, contact your local 3M sales representative, or call 1-800-362-3550.

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
Core Size (ID)	152.4 mm
Length Tolerance	0 — +1/4 in
Master Width	0 — +6.35 mm
Maximum Available Width	1219 mm
Squareness	1 — 16 in
Standard Roll Length	329 m
Standard Sheet Size	24in x 36in in [1]
Width Tolerance	0 — +1/4 in

[1] Custom sheets are available for 3M™ Adhesive Transfer Tapes8132LE, 8153LE

Recognition/Certification

TSCA: These products are defined as articles under the Toxic Substances Control Act and therefore, are 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, the products should not present a health and safety hazard. However, use or processing of the products in a manner not in accordance with the directions for use may affect their 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 in File MH26206. 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

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.

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