

3M™ Surface Protection Film 3952

Technical Data Sheet

Product Description

3M™ Surface Protection Film 3952 is a fluoropolymer film that provides a high performance, low surface energy coating solution for paint replacement and specialized surface protection for both indoor and outdoor applications. 3M 3952 Film is inherently resistant to moisture, chemicals, and environmental agents offering excellent substrate protection as well as providing long term color stability. 3M 3952 Film is provided without liners and is best suited for composite co-curing applications. The film is available in gray.

Typical Physical Properties and Performance Characteristics

1. The following technical information and data should be considered repetitive of typical only and should not be used for specification purposes.
2. ASTM = American Society of Testing and Materials.
3. Metric values are listed in parenthesis.

Dimensions

Approximate applied Thickness	0.004 inch (0.1 mm)
Standard Roll Length	36 yd (32.9 m)
Available Widths	12 inch to 24 inch (30.48 cm to 61 cm)
Approximate Weight*	0.37 lb/yd ² (18 kg/m ²)

Typical Physical Properties and Performance Characteristics:

Property	Test Method	Units U.S. (SI)	Typical Value
Tensile Strength @ Break	ASTM D882	Psi (Mpa)	3900 (27)
Elongation % @ Break	ASTM D882	%	500
Dielectric Strength	ASTM149	Volts/mil (kV/mm)	1200 (47)
Volume Resistivity	ASTM D257	Ohms-cm	1.7 x 10 ¹²
Dielectric Constant @ 5.6 GHz	See NIST Technical Note 1512	None	2.9
Dissipation Factor @ 5.6 GHz	See NIST Technical Note 1512	None	0.058
Oxygen Transmission Rate	ASTM D3895 ^[1]	Cm ³ /m ² /day (mol/m ² /s)	1210 (6.2 x 10 ⁻⁷)
Oxygen Permeance	ASTM D3895 ^[1]	Cm ³ /m ² /day/atm (mol/m ² /s/Pa)	1210 (6.1 x 10 ⁻¹²)
Water Vapor Transmission Rate	ASTM F1249 ^[2]	g/100 in ² /day (g/m ² /day)	0.46 (7.2)
Max. Service Temperature		°F (°C)	250°F (121°C)

^[1]Sample area 10.0 cm²; 25.0°C; 40% relative humidity; 100% O₂.

^[2]Sample area 10.0 cm²; 37.8°C; 90% relative humidity.

Fluid and Environmental Resistance

Environmental Condition	Exposure	Result
US Aging ASTM G 154, Cycle 3 ASTM G 155, Cycle 1	500 hours 500 hours	No visible change in dimensions No visible change in color No visible change in gloss ^[3] No cracking @ -60°F (-51°C) (ASTM D 522 @ ¼ inch mandrel bend)
Low Temperature Flexibility:	4 hours @ -60°F (-51°C) 1/4 inch (6.4 mm) mandrel bend	No cracking
Flammability: FAR 25.853(a) Appendix F Part I (a) (1) (ii) Aircraft Interior Fire Protection	12 Second Vertical Exposure	Self-Extinguish Time (sec) = 0.0 No flaming drips, No ignition
High Temperature: IDEMA Standard M11-99	3 hours @ 185°F (85°C)	Total outgassing = 360 ng/cm ²
Salt Spray: ASTM B 117	30 days	5.2 MJ/m ²
De-icing Fluid: SAD/AMS 142 B Type 1	7 days @ 70°F (21°C)	No visible change in dimensions No visible change in color No visible change in gloss ^[3]
Turbine Wash: Mil-PRF-85740C	24 hours @ 100°F (38°C)	
Tap Water Immersion	24 hours @ 70°F (21°C)	
Unleaded Gasoline	24 hours @ 70°F (21°C)	
Diesel Fuel	24 hours @ 70°F (21°C)	
De-ionized Water: ASTM D2247 @ 100% RH	7 days @ 10°F (38°C)	
JP-4 Jet Fuel	14 days @ 70°F (21°C)	
JP-8 Jet Fuel	14 days @ 70°F (21°C)	
Hydraulic Fluid: Mil-H-5606G	30 days @ 70°F (21°C)	
Motor Oil: SAE 10W-40	24 hours @ 70°F (21°C)	

^[3] Samples exposed to the listed environmental conditions; then brought back to ambient conditions, cleaned with isopropyl alcohol and dried before testing.

General Information

- 3M™ Surface Protection Film 3952 has excellent environmental resistance properties and has been used to isolate and protect substrates from environmental damage and corrosive elements.
- 3M 3952 Film pass FAR 25.853 flame resistance performance requirement for aircraft interiors.
- 3M 3952 Film can be adhered to a variety of surfaces using 3M bonding solutions.
- 3M 3952 Film has been co-cured to composite panels and parts under standard temperature and pressure cycles typically used for curing composite components. The surface protection film bonds directly to composite parts and components via a unique one-step curing process to provide excellent resistance to moisture vapor, fluids, UV and environmental agents as well as provide a high quality, pigmented, low surface energy surface to the exterior of composite components and parts.

Shipping and Storage

No special/hazardous labeling or packaging required and no regulations for air, ground or water shipment for this product.

Keep film in clean area, away from excessive moisture and out of direct sunlight. Store rolls in the shipping carton
Return partially used rolls to shipping carton.

Shelf Life: Two (2) years from data of manufacture or as expressly certified by 3M.

Precautionary Information

Refer to product label and Safety Data Sheet (SDS) for health and safety information before using this product. For SDS visit our website https://www.3m.com/3M/en_US/company-us/SDS-search/.

Additional Information

In the U.S. call toll free 1-800-235-2376, or fax 1-800-435-3082 or 651-737-2171. For U.S. Military, call 1-866-556-5714. If you are outside of the U.S., please contact your nearest 3M representative.

**These products were manufacture under a 3M Quality Management System registered to the AS9100 standard*

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.



Automotive & Aerospace Solutions Division
3M Center
St. Paul, MN 55144-1000
Phone 1-800-328-1684
Web www.3M.com/aerospace

3952
Issue date: 6/2018

3M is a trademark of 3M Company
© 3M 2018. All rights reserved.