

Technical Data Sheet

3M™ Damping Foil 2552

Product Description

3M™ Damping Foil 2552 consists of a room temperature pressure sensitive viscoelastic polymer on a dead soft aluminum foil and is designed for application to vibrating panels and support members. The combination of viscoelastic polymer and a aluminum foil backing (a constrained layer damper, or CLD) has proved to be a unique construction with exceptional ability to control resonant vibrations in the temperature range of 32° to 140°F (0° to 60°C), with survivability from -25° to 175°F (-32° to 80°C).

Product Features

- Excellent aging qualities of the polymer.
- Wide temperature range for damping. Usable from -25° to 175°F (-32° to 80°C), with peak damping from 32° to 140°F (0° 60°C).
- Liner on product offers the user die-cut capability.
- Pressure sensitive adhesive for ease of application.
- Meets flame retardancy requirements of FAR Part 25.853(a).
- Can pass ASTM E-162 and ASTM E-662 for flammability and smoke generation.


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
Available Formats	<p>Roll Lengths: Standard length 36 yd</p> <ul style="list-style-type: none"> • 2" to 4": up to 180 yd • Wider widths available to 180 yd • Dispensers available for purchase through 3M <p>-</p> <p>Sheets and Die-Cut parts: 3M can introduce you to fabricators with a background of handling this product and the capability to provide sheet goods and die cut dampers to customer specifications.</p> <p>-</p> <p>Custom Dispensers: Designed for manual or automatic operation, this custom dispenser removes protective liner from 3M™ Damping Foil 2552 before cutting to a predetermined length. Built to hold and dispense 6" core with a roll size up to 2" wide by 108 yd Engineered for table top usage, this custom dispenser measures 31"L x 22"H x 10"W and weighs only 45 pounds.</p>	
Backing	Aluminum	
Adhesive Type	Acrylic Viscoelastic Polymer	


Liner 58# poly-coated paper

Backing Thickness (mm) 0.25 mm View 


Test Method: ASTM D3652

Total Tape Thickness (mil) 15 mil View 

Test Method: ASTM D3652

Total Tape Thickness (mm) 0.38 mm View 

Test Method: ASTM D3652

Backing Thickness 10 mil View 

Test Method: ASTM D3652

Total Product Weight 0.17 lb/in²

Typical Performance Characteristics

Property	Values	Additional Information
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Tensile Strength	220.7 N/cm	View 
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Test Method: ASTM D3759

180° Peel Adhesion	7.2 N/cm	View 
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Test Method: ASTM D3330

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


180° Peel Adhesion	65 oz/in	View 
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Test Method: ASTM D3330





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

Tensile Strength	2016 oz/in	View 
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Test Method: ASTM D3759

Elongation at Break (%)	12 %	View 
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Test Method: ASTM D3759

Long Term Temp C	80 °C	View 
Test Condition: Long Term (day, weeks)		
Minimum Long Term Temperature Resistance	-32 °C	View 
Test Condition: Long Term (day, weeks)		
Long Term Temp F	175 °F	View 
Test Condition: Long Term (day, weeks)		
Minimum Long Term Temperature Resistance	-25 °F	View 
Test Condition: Long Term (day, weeks)		

Available Sizes

Property	Values	Additional Information
Minimum Available Width	2 in	
Maximum Available Width	23.5 in	

Typical Damping Properties

The high-energy dissipative polymer used in 3M damping foil 2552 can afford excellent control of resonance-induced vibrations. When applied to a vibrating structure, the polymer used in 3M damping foil 2552 converts vibration to negligible heat. Vibration amplitudes and structure-borne noise can be consequentially reduced. The performance of most damping devices is highly dependent on the interaction between the device and the system to which it is applied. A constrained layer control system is no different than a typical damping device and its ability to provide the desired performance is affected by parameters other than temperature and frequency. Namely the geometry, stiffness and the structure to which the control system is applied will affect the performance.

The loss factor of a material is a dynamic property that can define damping performance:

The following data are the results of 3M damping foil 2552 being tested per ASTM E756-83. A sample was applied to a 8.0 inch by 0.5 inch by 0.06 inch steel beam. The beam was tested over a temperature range of -40° to 140°F, in increments of 10°F. Beam modes 2 through 7 were monitored for system damping measurements.

3M™ Damping Foil 2552

Test Method: The following data were obtained by doing a frequency sweep from 1 to 100 radians/sec (0.16 to 16 Hz) at 5 different temperatures: -20°, 10°, 0°, 10°, and 22°C. A 3 point bend geometry was used on the Rheometrics RSA II. Time – temperature superposition was used to create the master curve for a reference temperature of 22°C.

3M™ Damping Foil 2552 on 18 mil Stainless Steel

T = 22°C

Data Interpolation:

To determine the damping properties at ambient temperature 72°F (22°C), proceed as follows:

- 1) Locate the desired frequency on the bottom HORIZONTAL scale.
- 2) Follow the chosen frequency up to the point of intersection with the plotted data.
- 3) From this intersect, go left to the vertical scale.
- 4) Read the COMPOSITE LOSS FACTOR for the chosen frequency.

Note: Please note that the data has been determined by combining 3M™ Damping Foil 2552 with a panel of 0.018" thick stainless steel with a hardness of T-22 and is presented as a reference to the damping that can be achieved when combined with a material of this description and tested at ambient temperature of 72°F (22°C).

Typical Environmental Performance

When properly laminated between two impervious materials, the polymer will resist intermittent exposure to mild acids and alkalis, most oils, grease, gasoline, kerosene, JP-4 fuel, hydraulic fluids, and other typical aromatic and aliphatic hydrocarbon and ketone solvents.

Note: Continuous submersion in chemical solutions like solvents or fuels is not recommended.

Storage and Shelf Life

To obtain best performance, use this product within 24 months from date of manufacture.

Industry Specifications

FAR Part 25.853(a)

[NFPA 130 test report for details \(ASTM E162, ASTM E662, BSS 7239\)](#)

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.

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Bottom Matter

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Trademarks

3M is a trademark of 3M Company.

Handling/Application Information

Application Examples

- Industrial applications.
- Electronic equipment and appliances.
- Reduce resonant noise, vibration and fatigue in metal, plastic panels and support structures.
- Almost anywhere plastic or metal contact with materials can result in potentially damaging vibration.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b40067948/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=2552

ISO Statement

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

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