



Vibration Damping Tapes

434 • 435 • 436

Technical Data **November, 2013**

Product Description 3M™ Vibration Damping Tapes are low temperature 3M™ Viscoelastic Damping Polymers coated on a dead soft aluminum foil constraining layer. They have pressure sensitive properties and are furnished in roll form and designed for direct, pressure sensitive application to metal and composite panels for vibration damping purposes. The combination of the low temperature 3M viscoelastic polymers and an aluminum constraining layer has proven to be a unique construction with exceptional ability to damp resonant vibrations in the temperature range of -76° to +68°F (-60° to +20°C).

Product Construction	Product	Liner	Aluminum	Damping Polymer
	3M™ Vibration Damping Tape 434	Polyethylene (Blue)	5.5 mils (0.14 mm) (Dead Soft Aluminum Foil)	2.0 mils (0.05 mm) Synthetic
	3M™ Vibration Damping Tape 435	Polyethylene (Blue)	8.0 mils (0.20 mm) (Dead Soft Aluminum Foil)	5.5 mils (0.14 mm) Synthetic
	3M™ Vibration Damping Tape 436	Polyethylene (Blue)	12.0 mils (0.30 mm) (Dead Soft Aluminum Foil)	5.5 mils (0.14 mm) Synthetic

Typical Physical Properties **Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.**

		ASTM Test Method
Adhesion to Steel:	65 oz./in. width (724 gm/cm width)	D-3330
Tensile Strength:	50 lbs/in (875 N/100 mm)	D-3759
Elongation at Break:	12%	
Total Tape Thickness:		D-3652
3M tape 434	7.5 mils (0.19 mm)	
3M tape 435	13.5 mils (0.34 mm)	
3M tape 436	17.5 mils (0.45 mm)	
Water Vapor Transmission Rate:	0.1 gm./100 in. ² /24 hour/mil	D-3833
Weight:		
3M tape 434	0.090 lb./ft. ² (0.44 Kg/m ²)	
3M tape 435	0.138 lb./ft. ² (0.675 Kg/m ²)	
3M tape 436	0.194 lb./ft. ² (0.949 Kg/m ²)	
Flammability:	All products pass F.A.R. 25.853(a)	
Optimal Temperature Use Range:	-76° to 68°F (-60° to 20°C)	

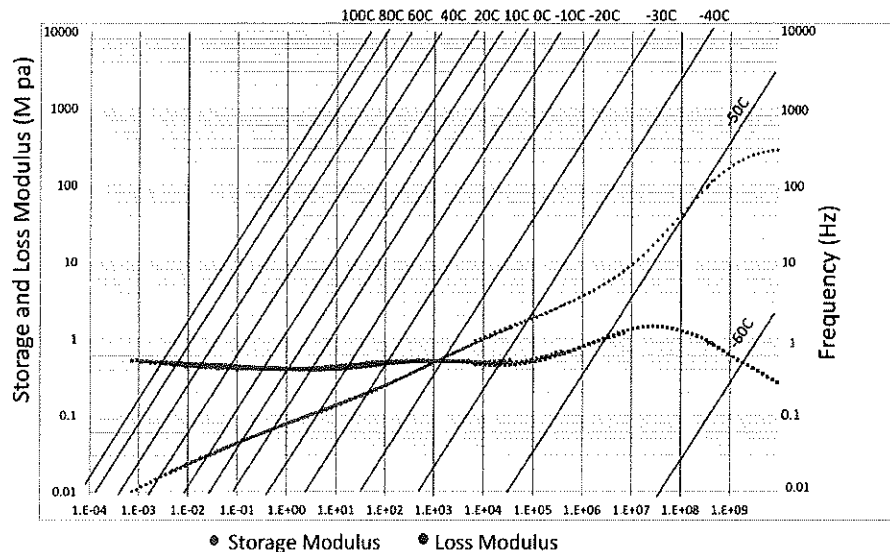
3M™ Vibration Damping Tapes

434 • 435 • 436

Typical Dynamic Damping Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Dynamic Mechanical Properties of 3M™ Viscoelastic Damping Polymer Type 830 (Without Foil)



Note Regarding Dynamic Mechanical Properties:

The shear storage modulus (G') and loss factor of a viscoelastic adhesive are two parameters used to partially define the damping performance when used in the form of a constrained layer damping treatment. The above curves illustrate these data as a function of frequency and temperature in the form of a reduced temperature nomograph.

While the damping performance of a constrained layer damping treatment depends largely on the dynamic mechanical properties of the viscoelastic adhesive alone, it is also dependent on other parameters. Namely the geometry, stiffness, mass and mode shape of the combination of the damper and the structure to which it is applied will also affect the damping performance.

To determine the dynamic mechanical properties at the desired temperature and frequency proceed as follows:

1. Locate the desired frequency on the right vertical scale.
2. Follow the chosen frequency horizontally to the desired temperature isotherm.
3. From the intersect, move vertically up and/or down until crossing both the modulus and loss factor curves.
4. Read the shear storage modulus and loss factor values from the left vertical scale.

Features

- Pressure sensitive construction for easy application.
- Excellent aging qualities of the 3M viscoelastic damping polymer type 830 provide long term performance and has excellent resistance to most hydrocarbon and/or aircraft type solvents.
- Wide temperature range for damping. Usable from -76° to 68° F (-60° to 120° C) at 100 Hz plus higher temperatures at higher frequencies.
- These lined products offer the user die-cut capability.

3M™ Vibration Damping Tapes

434 • 435 • 436

Applications

- For lower temperature aerospace and industrial applications.
- Reduce unwanted resonant noise, vibration and fatigue in metal panels and support structures.
- Chutes, conveyors, bins, metal shop boxes and tables where metal contact with materials can result in unwanted vibration.

Storage

Store under normal conditions of 70°F (21°C) and 50% R.H. in the original carton.

Shelf Life

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

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550 or visit www.3M.com/industrialtape. Address correspondence to: 3M Industrial Adhesives and Tapes Division, Building 225-3S-06, St. Paul, MN 55144-1000. Our fax number is 877-369-2923. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.

Product Use

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 of application.

Warranty and Limited Remedy

Unless stated otherwise in 3M's product literature, packaging inserts or product packaging for individual products, 3M warrants that each 3M product meets the applicable specifications at the time 3M ships the product. Individual products may have additional or different warranties as stated on product literature, package inserts or product packages. 3M MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's application. If the 3M product is defective within the warranty period, your exclusive remedy and 3M's and seller's sole obligation will be, at 3M's option, to replace the product or refund the purchase price.

Limitation of Liability

Except where prohibited by law, 3M and seller will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

ISO 9001

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

3M

Industrial Business
Industrial Adhesives and Tapes Division

3M Center, Building 223-3S-06,
St. Paul, MN 55144-1000



Recycled Paper
40% pre-consumer
10% post-consumer

Printed in U.S.A.
©3M 2013 (11/13)