

# 3M™ Very Low Outgassing High Shear Polyester Tape 8439FL

## Product Description

3M™ Very Low Outgassing High Shear Polyester Tape 8439FL is a silver colored polyester film tape for the demanding requirements of hard disk drive and related electronics manufacturing. The metalized polyester backing offers low static and diffusivity and is complimented with a very low outgassing acrylic adhesive. This product offers a high level of permanence, yet is cleanly removable from most substrates even after extended heat treatments. This product uses 3M™ Non-Silicone Release Liner 5932.

## Product Construction

Product	Backing	Adhesive	Liner	Color
3M™ Very Low Outgassing High Shear Polyester Tape 8439FL	Metalized Polyester, 1 mil	Acrylic	3M™ Non-Silicone Release Liner 5932	Silver

## Typical Physical Properties and Performance Characteristics

**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
<b>Adhesion to Stainless Steel:</b>		D-3330
Initial	29 oz./in.	
After 30 hrs. @ 72°F	44 oz./in.	
After 30 hrs. @ 120°F	54 oz./in.	
After 30 hrs. @ 150°F	68 oz./in.	
<b>Adhesion to Aluminum:</b>		D-3330
Initial	22 oz./in.	
After 30 hrs. @ 72°F	41 oz./in.	
After 30 hrs. @ 120°F	48 oz./in.	
After 30 hrs. @ 150°F	69 oz./in.	
<b>Shear Strength:</b>		D-3654
0.5 in. x 0.5 in. w / 1750 gm load	> 10,000 min.	
0.5 in. x 0.5 in. w / 1000 gm load	> 10,000 min.	
<b>Mechanical Performance:</b>		D-3659
Tensile Strength	29 lb./in.	
Elongation @ Break	120%	
Yield Point (%)	10%	
Yield Point (lbs./in.)	16 lbs./in.	



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## Typical Physical Properties and Performance Characteristics (continued)

**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
<b>Caliper:</b>		D-3652
Backing	1.0 mil	
Adhesive	1.0 mil	
Total	2.0 mil	
<b>Moisture Vapor Transmission Rate:</b>	0.29 gms H <sub>2</sub> O/24 hr/100 in <sup>2</sup>	D-3833
<b>Static<sup>1</sup>:</b>	< 100 volts	
<b>NASA Outgassing:</b>		E-595
Total Mass Loss (TML)	0.46%	
Condensable Materials (CVCN)	< 0.01%	
Water Vapor Recovered (WVR)	0.24%	
<b>Outgassing by Headspace GC Analysis<sup>2</sup> (units = µg/cm<sup>2</sup>)</b>		D-4526 <sup>3</sup>
Hydrocarbons	< .05 µg/cm <sup>2</sup>	
Acrylates	< .05 µg/cm <sup>2</sup>	
Organic Acids	< .02 µg/cm <sup>2</sup>	
Alcohols & Esters	< .05 µg/cm <sup>2</sup>	
Siloxanes	< .02 µg/cm <sup>2</sup>	
<b>Anions by Ion Chromatography (units = ng/cm<sup>2</sup>)</b>		
Fluoride	not detected	
Chloride	< 20 ng/cm <sup>2</sup>	
Nitrite	not detected	
Bromide	not detected	
Nitrate	not detected	
Phosphate	not detected	
Sulfate	not detected	

<sup>1</sup>Static = Residual voltage on surface of tape after unwind @ 12 in./min. as measured by 3M Model 709 static sensor.

<sup>2</sup>Outgassing = Dynamic headspace analysis of volatile components collected during a 4 hr @ 80°C heat cycle using a Hewlett-Packard Model 5890 Series II gas chromatograph coupled with a Hewlett-Packard Model 5989B mass spectrometer.

<sup>3</sup>ASTM test method modified per footnote #2 above.

## Application Ideas

- Perimeter sealing of hard disk drive clamshells.
- Temporary porthole sealing of hard disk drive clamshells.
- Process aid.
- General purpose sealing.
- Other applications which require a low outgassing polyester film tape.

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## Key Attributes

Features	Advantages	Benefits
1 mil metalized polyester backing	Thin, high strength	Helps reduce breakage
	Bleeds static charge rapidly	Helps reduce risk of product damage due to electrostatic discharge
	Low diffusivity	Effective contamination barrier
	Low water vapor transmission rate	Effective barrier for water vapor
High purity acrylic adhesive	Low outgassing	Helps reduce risk of chemical contamination
	Low extractable ionic content	Helps reduce risk of chemical contamination
	Acrylic acid-free adhesive formulation	Helps reduce risk of chemical contamination
	Clean removability from a wide variety of substrate materials	Eliminate cleanup of substrate materials during rework operations
	Excellent shear strength	Helps reduce chance of tape slippage when shear stress is applied
	Long aging	Adhesive stable over long periods of time

## General Information

- Best results obtained using firm rubdown pressure on clean, oil-free substrate materials.
- Dimensionally stable over temperature range from -60°F to 300°F (-51°C to 149°C).
- Standard packaging includes plastic cores and individual plastic bags.
- Shear performance decreases with increasing temperature.

## Shelf Life

18 months from manufacture of material if properly stored at 60-80°F (16-27°C) and 40-50% relative humidity.

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## Certification/Recognition

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**TSCA:** These products are defined as articles under the Toxic Substances Control Act and therefore, are exempt from inventory listing requirements.

**RoHs Complaint/REACH Compliant:** 3M™ Very Low Outgassing High Shear Polyester Tape 8439FL complies with the European Union's "Restriction of Hazardous Substances" (RoHs) initiative and with European REACH regulations 2002/95/EC and 2005/618/EC.

## For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-251-8634. Address correspondence to: 3M, Electronics Markets Materials Division, 3M Center, Building 225-3S-06, St. Paul, MN 55144-1000. Our fax number is 651-778-4244 or 1-877-369-2923. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.

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