

**3M** Science.  
Applied to Life.™

# Engineered Industrial Tapes Product Catalog



# Table of Contents

## Resist Chemicals

3M™ Aluminum Foil Tape 425.....	4
3M™ Electroplating Tape 470 .....	4
3M™ Polyester Tape 8992.....	4

## Withstand Temperatures

3M™ Vinyl Tape 471+ .....	5
3M™ Polyester Tape 875.....	5
3M™ High Temperature Aluminum Foil/Glass Cloth Tape 363.....	5

## Secure Anything

3M™ Polyester Tape 850 .....	6
Scotch® Strapping Tape 8898.....	6
Scotch® Filament Tape 898 .....	6

## Reduce Noise

3M™ UHMW Film Tape 5423 .....	7
3M™ Conformable Sound Management Film Tape 9343.....	7
3M™ Damping Foil 2552.....	7

## Regulate Friction

3M™ UHMW PE Film Tape 5421.....	8
3M™ Traction Tape 5401 .....	8
3M™ PTFE Film Tape 5491 .....	8

## Take on Weather

3M™ Vinyl Tape 471 Black .....	9
3M™ Preservation Sealing Tape 481.....	9
3M™ Weather Resistant Film Tape 838.....	9

## Product Catalog

3M™ Impact Stripping Tapes.....	10
Scotch® and Tartan™ High Strength Filament Tapes .....	10
Scotch® Tensitized Polypropylene Tapes.....	11
Scotch® Stretchable Tapes .....	11
3M™ Application Specific Tapes.....	12
3M™ Glass Cloth Tapes.....	13
3M™ Metal Foil Tapes .....	13–14
3M™ Sound Damping Foils .....	15
3M™ Polyester Tapes .....	15–16
3M™ PTFE Tapes .....	17
3M™ Polyethylene Tapes .....	17
3M™ UHMW-PE Tapes.....	18
3M™ Preservation Tapes.....	18
3M™ Gripping Materials .....	18
3M™ Vinyl Tapes.....	19
3M™ Tape Applicators .....	20



# Tape Collections

## What are they?

Manufacturers have a variety of extreme conditions to overcome both during and after a product is made. Whether it's high heat or chemical exposure, product parts can be put at risk for damage or reduced functionality. Tapes can help by protecting, masking, or holding these at-risk parts. But which tape will work best?

To make selection easier, we have grouped our industrial single-coated tape products around some of the most common manufacturing challenges.

### The six key challenges are:

- Resist Chemicals
- Withstand Temperatures
- Secure Anything
- Take on Weather
- Regulate Friction
- Reduce Noise



**Resist Chemicals**



**Withstand Temperatures**



**Secure Anything**



**Reduce Noise**



**Regulate Friction**



**Take on Weather**

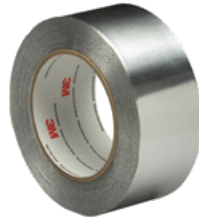


## Engineered to **Resist Chemicals**

### **A strong seal keeps surfaces safe.**

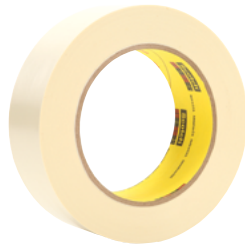
Aggressive chemicals are tools used in many modern production processes to form durable or decorative surfaces, or to make surfaces ready for another production step.

Due to the sensitive nature of some parts, design needs, or aesthetics, surfaces may need to be protected during chemical exposure. Here are a few leading tapes for these types of applications.



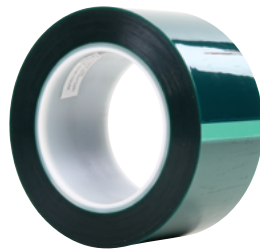
### **3M™ Aluminum Foil Tape 425**

- Resists harsh chemical strippers and protects critical parts
- Removes cleanly when the job is done
- Exceptional conformability
- Quick stick
- Go-to tape for many aircraft maintenance specifications



### **3M™ Electroplating Tape 470**

- One-piece clean removal
- Conformable backing, great for irregular surfaces
- Great line definition
- Rubber adhesive helps minimize risk of silicone contamination
- Excellent resistance to electroplating chemicals



### **3M™ Polyester Tape 8992**

- Works in a variety of common chemical baths
- Reliable, clean removal
- Offers excellent protection and crisp lines
- Lined version works well in plotter machines





## Engineered to **Withstand Temperatures**

### **Powerful protection against hot and cold extremes.**

Product parts can be exposed to extreme temperatures in both production processes and during long-term use. Tapes can be vital tools in protecting parts from unwanted heat or to maintain a part's surface design during a coating process.

In the short-term, tapes on parts may need to survive applications such as high-temp paint curing cycles or welding processes.

Long-term, sensitive parts may be subject to heat from an exhaust pipe or the low temperatures of an airplane cargo hold. Tapes can provide a protective shield, helping increase part durability.



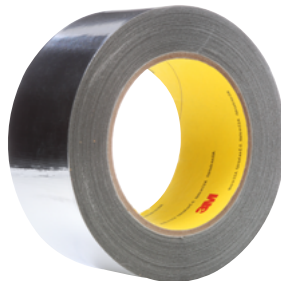
### **3M™ Vinyl Tape 471+**

- Excels in masking applications to create sharp, fine paint lines
- Retains shape and hold during 30-minute bake cycles up to 250°F/121°C
- Clean removal without residue or ghosting
- Quick stick to most surfaces
- Exceptional conformability for paint masking of complex designs or on uneven surfaces



### **3M™ Polyester Tape 875**

- Works in demanding conditions up to 400°F/204°C
- Good initial tack and holding strength
- One-piece clean removal
- Rubber adhesive helps minimize risk of silicone contamination
- Great for autoclave and powder coating applications



### **3M™ High Temperature Aluminum Foil/ Glass Cloth Tape 363**

- Performs continuously over a wide temperature range up to 600°F/316°C
- Light and heat reflective, plus it resists flame, moisture, chemicals, weather, and UV degradation
- High tensile strength, puncture, fracture, and tear resistance
- Light and flexible construction easily conforms to curved or irregular surfaces
- Works to protect sensitive materials such as wires from long-term heat exposure or welding processes



Engineered to  
**Secure Anything**

**Unbeatable hold keeps everything in its place.**

Whether during shipment of a product or on the production line, movement is constant. With movement comes the challenge of keeping parts aligned, protected, and functional.

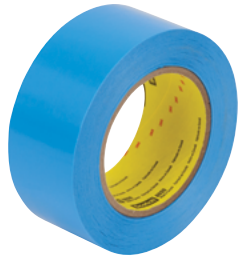
Product damage or line shutdowns drive up costs, delay deliveries, and can create unavoidable warranty issues.

Tapes can help keep parts in place, make reliable splices, and give extra holding power to valuable shipments.



### **3M™ Polyester Tape 850**

- Fast-grab adhesive helps minimize production slowdowns
- Tough, thin caliper film runs smoothly in most machinery
- High temperature resistance
- Multiple colors and a metalized version for easy splice detection
- Reliable splicing material for films



### **Scotch® Strapping Tape 8898**

- Clean removal from most surfaces
- Secure holding power
- Resists tearing, breaking, and abrasion
- Backing designed for easy use in manual or semi-automatic dispensers
- Made for part and appliance holding



### **Scotch® Filament Tape 898**

- Heavy-duty filament tape maximizes strength
- High cut and tear resistance
- Quick-grab and high adhesion
- Excellent performance in L-clip box closure applications
- Works where high strength is needed, such as in metal splicing, coil tabbing, pipe bundling, or reinforcing bulk containers



## Engineered to **Reduce Noise**

### **Specially formulated to minimize noise and wear.**

Even a little vibration can cause premature wear and tear on parts or make for a noisy product experience for your customers. The right fix has to be precisely designed to minimize every rattle and buzz while keeping your products running smoothly.

Specially formulated tapes can help provide a fast solution for long-lasting vibration mitigation on a range of surfaces.



### **3M™ UHMW Film Tape 5423**

- Can help reduce squeaks, rattles, and other noises that occur with movement
- Translucent, abrasion-resistant backing helps protect surfaces from wear
- Low coefficient of friction for “slip plane” effect between surfaces
- Rubber adhesive provides good initial tack
- Made for helping to reduce noise in cars, planes, and more



### **3M™ Conformable Sound Management Film Tape 9343**

- Non-woven, microfiber backing offers conformability, elasticity, compressibility, and durability
- Abrasion-resistant backing maintains a long wear life, is die-cuttable, and passes FMVSS 302
- Withstands a temperature range of -30°F/-34°C to 250°F/121°C
- Conformable design provides a solution for irregular-shaped parts where stiffer tapes fail



### **3M™ Damping Foil 2552**

- Dead soft aluminum foil and viscoelastic adhesive combination is designed to damp vibrations in panels and supports
- Withstands exposure to weathering, moisture, and UV
- Performs in temperatures ranging from -25°F/-32°C to 175°F/80°C
- Meets flame retardancy requirements of F.A.R. 25.853(a) and can pass ASTM E-162 and ASTM-E 662 for flammability and smoke generation



## Engineered to Regulate Friction

### Durable design delivers better command over slip and grip.

Working across different surfaces can mean you don't always get the performance you need. When materials are getting stuck or you're getting slip when you need grip, you want a reliable solution that gives you a wide range of surface control without risking damage to your equipment or product.

Carefully honed combinations of backing, like gliding PTFE or puncture-resistant glass cloth, and adhesive such as silicone or versatile acrylic, give you more ways to control your level of friction.



### 3M™ UHMW PE Film Tape 5421

- Translucent, abrasion-resistant backing helps protect surfaces from wear
- Low coefficient of friction for “slip plane” effect between surfaces
- Rubber adhesive provides good initial tack for immediate bonding to material surface
- Used in applications where lubrication is not possible because of contamination
- Great for lining chutes, conveyor guide rails, drawer slides, or anywhere you need smooth movement



### 3M™ Traction Tape 5401

- High coefficient of friction of fiberglass reinforced silicone backing assists with slowing material movement
- Nonstick, siliconized backing provides easy-release properties, so materials don't collect and interfere with processing
- Fiberglass reinforcement of backing provides durability and puncture resistance
- Silicone adhesive removes cleanly after use from most surfaces



### 3M™ PTFE Film Tape 5491

- Nonstick PTFE film provides an exceptionally slick surface
- Silicone adhesive provides clean removal from a variety of surfaces
- Wide temperature range for performance on heated machinery and equipment
- Extruded 3M™ PTFE Film Tape lies flatter than typical skived PTFE film tapes
- Excellent chemical resistance enables tape to withstand challenging applications





Engineered to

## Take on Weather

**Defensive barrier keeps moisture, dust, and UV rays out.**

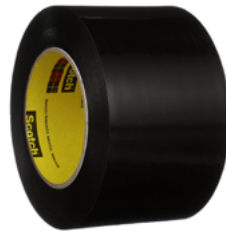
Rain, snow, or sunshine, your parts, products and components are often exposed to elements that cause corrosion, fading, and other costly damage. What's more, the wrong solution can be expensive or even cause damage of its own.

Select 3M™ Engineered Industrial Tapes can provide a conformable, rugged, weatherproof seal and clean, one-piece removal.



### 3M™ Vinyl Tape 471 Black

- Vinyl backing has a unique stretch that enables tape to remain stretched to conform to uneven surfaces without lifting and retracting
- Vinyl film backing provides puncture resistance and moisture barrier
- Engineered for tidy, one-piece removal to minimize cleanup and labor
- Black colored backing absorbs sunlight, allowing tape to be used outdoors up to three months



### 3M™ Preservation Sealing Tape 481

- Polyethylene backing stretches and conforms to irregular surfaces and provides ability to cover difficult to reach areas
- Provides for one-piece, clean removal from most substrates
- Provides weather resistance to hot and cold temperatures, moisture, and UV resistance for up to 24 months
- Excellent resistance to staining, common lubricants, and strippable coatings on a variety of surfaces
- Can be certified to Military Specification: SAE AMS-T-22085













### 3M™ Weather Resistant Film Tape 838

- PVF backing is inherently resistant to weathering
- Backing remains tough and flexible over a broad temperature range (-100°F/-73°C to 225°F/107°C)
- Aggressive acrylic adhesive has excellent permanent adhesion to a variety of surfaces
- Outstanding mechanical properties and inertness toward a wide variety of chemicals, solvents, and staining agents

## 3M™ Impact Stripping Tapes

Tape Collection	Product Number	Backing Material	Color	Adhesive Type	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Elongation at Break %	Liner Type	Typical Use and Comments
Impact Stripping Tapes									
	500	Rubber	Green	Acrylic	36 (0.9)	29 (31)	85	Paper	Good for small lettering. Acrylic adhesive ideal for use during plastic media blasting.
	528	Rubber	Tan	Acrylic	82 (2.1)	29 (31)	145	Paper	Thickest-backed sandblast stencil product.

## Scotch® and Tartan™ High Strength Filament Tapes



Tape Collection	Product Number	Tensile Strength lb./in. (N/100 mm)	Backing Material	Reinforcement	Total Thickness mils (mm)	Adhesive Type	Adhesion Strength oz./in. (N/100 mm)	Elongation %	Backing Color	Typical Use and Comments
Universal Filament										
	898	380 (6655)	Polypropylene	Fiberglass	6.6 (0.17)	Synthetic Rubber (SR)	70 (77)	5	Clear	L-clip box closure. General bundling and reinforcing. Very high strength. Versatile. Good adhesion to many substrates.
	893	300 (5254)	Polypropylene	Fiberglass	6.0 (0.15)	Synthetic Rubber (SR)	55 (60)	5	Clear	Box closing, palletizing, strapping, bundling, and reinforcing. High strength.
	897	170 (2977)	Polypropylene	Fiberglass	6.0 (0.15)	Synthetic Rubber (SR)	60 (65)	3	Clear	Box closing, palletizing, strapping, bundling, and reinforcing. Medium strength.
	8934*	100 (1751)	Polypropylene	Fiberglass	4.0 (0.10)	Synthetic Rubber (SR)	60 (65)	3	Clear	Box closing, palletizing, strapping, bundling, and reinforcing. Utility.
High Adhesion Filament										
	890MSR	600 (10500)	Polyester	Fiberglass	8.0 (0.20)	Modified Synthetic Rubber (MSR)	80 (88)	3	Clear/Black	Metal coil closure. Good adhesion to oily surfaces.
	8919MSR	380 (6655)	Polyester	Fiberglass	7.0 (0.18)	Modified Synthetic Rubber (MSR)	100 (109)	3	Clear	Metal coil closure. Good adhesion to oily surfaces. Thicker backing for improved handling.
Specialty Filament										
	890RCT	600 (10500)	Polyester	Fiberglass	8.0 (0.20)	Synthetic Rubber (RCT)	75 (82)	3	Clear	Basiloid. Heavy appliance lifting. Good adhesion to recycled corrugate.
	8916V	210 (3678)	Polypropylene	Fiberglass	6.8 (0.17)	Synthetic Rubber (SR)	75 (82)	3	Clear/Blue	Appliance. Secure and stabilize parts. Clean removal. Thicker backing.
	8915	170 (2977)	Polypropylene	Fiberglass	6.0 (0.15)	Synthetic Rubber (SR)	65 (71)	3	Clear	Appliance. Secure and stabilize parts. Clean removal.
	8959	150 (2627)	Polypropylene	Bi-Directional Fiberglass	5.7 (0.15)	Synthetic Rubber (SR)	100 (109)	6	Clear	Heavy box closure. Splicing. Metal parts bundling. Bi-directional filament for excellent cut and puncture resistance. High adhesion.
	890HD	1200 (21012)	Polyester	Glass Yarn	11.3 (0.287)	Pressure-Sensitive Rubber Resin	80 (88)	4	Clear	Very high strength and abrasion resistant backing used for demanding pipe reinforcement in the Oil & Gas industry.

\*Tartan™ branded


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

Availability of all products in this catalog may vary by location. Please contact your 3M Sales Representative for further information.

## Scotch® Tensitized Polypropylene Tapes

Tape Collection	Product Number	Tensile Strength lb./in. (N/100 mm)	Backing Material	Reinforcement	Total Thickness mils (mm)	Adhesive Type	Adhesion Strength oz./in. (N/100 mm)	Elongation (%)	Color	Typical Use and Comments
	8898	160 (2802)	MOPP (Polypropylene)	None	4.6 (0.12)	Synthetic Rubber	75 (82)	32	Blue/Ivory	Appliance. Secure and stabilize parts. Clean removal. High adhesion.
	8896	160 (2800)	MOPP (Polypropylene)	None	4.6 (0.12)	Synthetic Rubber	70 (77)	32	Blue/Ivory	Appliance. Secure and stabilize parts. Clean removal. High adhesion.








## Scotch® Stretchable Tapes

Tape Collection	Product Number	Tensile Strength lb./in. (N/100 mm)	Backing Material	Total Thickness mils (mm)	Adhesive Type	Adhesion Strength oz./in. (N/100 mm)	Elongation (%)	Color	Typical Use and Comments
	8886	28 (490)	Polyethylene	6.6 (0.17)	Synthetic Rubber	65 (71)	720	Clear	Load containment.

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Availability of all products in this catalog may vary by location. Please contact your 3M Sales Representative for further information.









## 3M™ Application Specific Tapes





Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Liner Type	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Temperature Range °F (°C)	Typical Use and Comments
Graphic Arts Tapes												
	616	Ruby Red	Rubber	UPVC	1.6 (0.04)	—	2.4 (0.06)	36 (39)	29 (509)	50	Up to 120 (Up to 49)	Film splicing and masking
High Temperature Tapes												
	8997/8997L	Amber	Silicone	Polyimide	1.0 (0.02)	Polyester	2.2 (0.06)	22 (24)	26 (453)	37	Up to 500 (Up to 260)	Transparent film. High-temperature applications. 8997L is lined version.
	8998/8998L	Amber	Silicone	Polyimide	2.0 (0.05)	Polyester	3.3 (0.08)	19 (20)	55 (963)	49	Up to 500 (Up to 260)	Transparent film. High-temperature applications. 8998L is lined version.
Riveters Tapes												
	695	Yellow	Acrylic strip coated along edges of tape only	Polyethylene	2.0 (0.05)	—	3.0 (0.08)	15 (16)	8 (140)	120	-20 to 120 (-29 to 49)	Yellow film. White adhesive.
Venting Tapes												
	394	White	Acrylic	Non-Woven	4.5 (0.11)	—	5.0 (0.13)	12 (13)	6 (100)	18	Up to 120 (Up to 49)	Air-permeable backing.
	3294	Pink	Acrylic	Non-Woven	4.5 (0.11)	—	5.0 (0.13)	9 (10)	8 (140)	15	Up to 120 (Up to 49)	Most permeable venting tape. Strip coated.
Nylon Tapes												
	855	White	Rubber	Nylon	2.0 (0.05)	—	3.2 (0.08)	55 (60)	31 (540)	470	60 to 400 (16 to 204)	Composite bonding tape.
	8555	White	Rubber	Nylon	5.0 (0.13)	—	6.0 (0.15)	60 (66)	69 (1208)	540	60 to 400 (16 to 204)	Thick version of 855 tape.
Long Term Protection												
	7070UV	Clear	Acrylic	Polyurethane	6.5 (0.17)	—	8.0 (0.20)	47 (51)	68 (1162)	656	-20 to 170 (-28 to 77)	Durable. Abrasion resistant. UV-resistant surface protection.
	7071UV	Clear	Acrylic	Polyurethane	12 (0.31)	—	14 (0.36)	52 (52)	55 (963)	754	-20 to 170 (-28 to 77)	Durable. Abrasion resistant. UV-resistant surface protection.
Other Specialty Tapes												
	346	Tan	Rubber	Flat Paper Stock	15 (0.38)	—	17 (0.42)	22 (24)	28 (490)	4	60 to 100 (16 to 38)	Heavy-duty abrasion. Moisture and UV protection.
	838	White	Acrylic	PVF	2.1 (0.05)	—	3.4 (0.09)	47 (51)	24 (420)	170	100 to 225 (38 to 107)	Weather-resistant film tape.
	5401	Tan	Silicone	Fiberglass Reinforced Silicone	8.0 (0.20)	—	9.3 (0.24)	12 (13)	220 (3853)	7	Up to 300 (Up to 148)	High coefficient of friction for traction.
	5461	White	Rubber	Silicone Rubber	7.8 (0.19)	Silicone-Paper	9.1 (0.23)	30 (33)	85 (1500)	165	Up to 200 (Up to 93)	High-friction roller tape.
	9343	Black	Acrylic	Non-Woven	15 (0.37)	Paper	20 (0.50)	27 (30)	5 (88)	400	Up to 250 (Up to 121)	Conformable for irregular parts.

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Availability of all products in this catalog may vary by location. Please contact your 3M Sales Representative for further information.

## 3M™ Glass Cloth Tapes

Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Liner Type	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Temperature Range °F (°C)	Meets Specifications	Typical Use and Comments
	361	White	Silicone	Glass Cloth	5.0 (0.13)	—	6.4 (0.16)	38 (42)	146 (2555)	10	-65 to 450 (-54 to 232)	F.A.R. 25.853	General purpose glass cloth tape.
	3615	White	Silicone	Glass Cloth	5.0 (0.13)	—	7.0 (0.18)	35 (38)	180 (3140)	7	-65 to 450 (-54 to 232)	—	General purpose glass cloth tape.
	365	White	Thermoset Rubber	Glass Cloth	4.8 (0.12)	—	8.3 (0.20)	52 (57)	139 (2430)	7	40 to 450 (4 to 232)	—	Splicing textured surfaces. Thermosetting adhesive.
	3650	White	Thermoset Rubber	Glass Cloth	4.8 (0.12)	Blue Film	8.3 (0.20)	52 (57)	139 (2430)	7	40 to 450 (4 to 232)	—	Lined version of 365. Thermosetting tape.
	398FR	White	Acrylic	Glass Cloth	5.0 (0.13)	Blue Film	7.0 (0.18)	38 (42)	130 (2276)	7	-20 to 250 (-29 to 121)	BMS 5-146; F.A.R. 25.853(a); F.A.R. 25.855(d)	Skip-slit liner for ease of application.
	398FRP	White	Acrylic	Glass Cloth	5.0 (0.13)	Blue Film	7.0 (0.18)	38 (42)	130 (2276)	7	-20 to 250 (-29 to 121)	BMS 5-146; F.A.R. 25.853(a); F.A.R. 25.855(d)	Printed backing version of 398FR.

## 3M™ Metal Foil Tapes

Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Liner Thickness mils (mm)	Liner Type	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Meets Specifications	Temperature Range °F (°C)	Typical Use and Comments
Premium Performance														
	425	Silver	Acrylic	Aluminum Foil	2.8 (0.07)	—	—	4.6 (0.12)	47 (51)	28 (490)	6	F.A.R. 25.853(a); SAE AMS T-23397; UL 723; UL 746C; LT-80 C	-65 to 300 (-54 to 149)	Most versatile aluminum tape.
	427	Silver	Acrylic	Aluminum Foil	2.8 (0.07)	3.1 (0.08)	Easy Release Film	4.6 (0.12)	50 (55)	28 (490)	6	F.A.R. 25.853(a); UL 723; UL 746C; LT-80 C	-65 to 300 (-54 to 149)	Lined version of 425.
	431	Silver	Acrylic	Aluminum Foil	1.9 (0.05)	—	—	3.1 (0.08)	34 (37.3)	17 (302)	3	F.A.R. 25.853(a)	-65 to 300 (-54 to 149)	Conformable aluminum tape.
	433	Silver	Silicone	Aluminum Foil	2.0 (0.05)	—	—	3.6 (0.09)	40 (43.8)	20 (350)	3.5	F.A.R. 25.853(a); US Gov A-A-59258	-65 to 600 (-54 to 316)	Silicone adhesive for high temperature resistance. Smooth, easy unwind, clean, straight edges for minimal wrinkling.

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Availability of all products in this catalog may vary by location. Please contact your 3M Sales Representative for further information.

### 3M™ Metal Foil Tapes (cont.)






Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Liner Thickness mils (mm)	Liner Type	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Meets Specifications	Temperature Range °F (°C)	Typical Use and Comments
Premium Performance														
	433L	Silver	Silicone	Aluminum Foil	2.0 (0.05)	3.2 (0.08)	Easy Release Film	3.5 (0.09)	38 (42.0)	20 (350)	3.5	F.A.R. 25.853(a)	-65 to 600 (-40 to 316)	Lined version of 433.
	437	Silver	Acrylic	Aluminum Foil	2.8 (0.07)	4.2 (0.11)	Easy Release Film	8.0 (0.20)	150 (164)	30 (525)	8	—	-40 to 212 (-40 to 100)	Dead-soft, conformable aluminum foil tape with an aggressive adhesive.
	438	Silver	Acrylic	Aluminum Foil	5.0 (0.13)	—	—	7.2 (0.18)	43 (47)	59 (1033)	10	F.A.R. 25.853(a)	-65 to 300 (-54 to 149)	Thickest non-reinforced aluminum tape for heat resistance. Smooth, easy unwind, clean, straight edges with minimal wrinkling.
	438L	Silver	Acrylic	Aluminum Foil	5.0 (0.13)	2.5 (0.06)	Easy Release Film	7.2 (0.18)	43 (47)	59 (1033)	10	F.A.R. 25.853(a)	-65 to 300 (-54 to 149)	Lined version of 438.
	439	Silver	Acrylic	Aluminum Foil	1.9 (0.05)	5.7 (0.14)	Kraft Paper with Silicone Release	3.1 (0.08)	34 (37.3)	17 (302)	3	F.A.R. 25.853(a)	-65 to 300 (-54 to 149)	Lined version of 431.
vv Lead Foil														
	420	Dark Silver	Rubber	Lead Foil	5.0 (0.13)	—	Easy Release Film	7.6 (0.19)	45 (49)	20 (350)	12	—	-60 to 225 (-51 to 107)	Lined plating tape.
	421	Dark Silver	Rubber	Lead Foil	4.0 (0.1)	3.7 (0.09)	—	6.6 (0.17)	45 (49)	15 (263)	14	—	-60 to 225 (-51 to 107)	Self-wound plating tape
Specialty and Reinforced Foils														
	363	Silver	Silicone	Aluminum Foil Laminated to Glass Cloth	3.4 (0.086)	—	—	7.3 (0.19)	52 (57)	135 (2364)	7	F.A.R. 25.853(a)	-65 to 600 (-54 to 316)	Aluminum foil/glass cloth. Highest temperature metal foil tape.
	363L	Silver	Silicone	Aluminum Foil Laminated to Glass Cloth	3.4 (0.086)	3.0 (0.08)	Easy Release Film	7.3 (0.19)	52 (57)	135 (2364)	7	F.A.R. 25.853(a)	-65 to 600 (-54 to 316)	Lined version of 363.

\*Scotch® Tape brand.







Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Availability of all products in this catalog may vary by location. Please contact your 3M Sales Representative for further information.



## 3M™ Sound Damping Foils








Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Liner Type	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Temperature Range °F (°C)	Meets Specifications	Typical Use and Comments
	434	Silver	Viscoelastic Polymer	Aluminum Foil	5.5 (0.14)	Polyethylene	7.5 (0.19)	65 (71.2)	50 (876)	12	-76 to 68 (-60 to 20)	F.A.R. 25.853(a)	Low temperature, vibration damping.
	435	Silver	Viscoelastic Polymer	Aluminum Foil	8.0 (0.2)	Polyethylene	14 (0.34)	65 (71.2)	50 (876)	12	-76 to 68 (-60 to 20)	F.A.R. 25.853(a)	Low temperature, vibration damping.
	436	Silver	Viscoelastic Polymer	Aluminum Foil	12 (0.31)	Polyethylene	18 (0.44)	65 (71.2)	50 (876)	12	-76 to 68 (-60 to 20)	F.A.R. 25.853(a)	Low temperature, vibration damping.
	2552	Silver	Viscoelastic Polymer	Aluminum Foil	10 (0.25)	Polyethylene	15 (0.38)	65 (72)	126 (2205)	7	-25 to 175 (-32 to 80)	ASTM E756-83	General purpose, vibration damping.
	4014	Silver	Viscoelastic Polymer	Aluminum-Urethane	3.0 (0.09)	Easy Release Film	250 (6.35)	N/A	N/A	90	-94 to 86 (-70 to 30)	F.A.R. 25.853(a)	Foil/foam sheet laminate.

## 3M™ Polyester Tapes

Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Temperature Range °F (°C)	Typical Use and Comments
<b>General Industrial Tapes</b>											
	396	Transparent	Rubber	Polyester	1.7 (0.04)	4.1 (0.10)	140 (153)	43 (753)	140	40 to 200 (4 to 93)	Adhesion to low surface energy materials.
	850	Various	Acrylic	Polyester	0.9 (0.02)	1.9 (0.05)	30 (33)	28 (491)	120	-60 to 300 (-50 to 150)	Splicing, holding, sealing. Transparent, red, black, and white.
	853	Transparent	Acrylic	Polyester	1.1 (0.03)	2.2 (0.06)	46 (50)	25 (434)	83	-60 to 300 (-50 to 150)	L-T-100. F.A.R. 25.853(a).
	8412	Transparent	Acrylic	Polyester	4.7 (0.12)	6.3 (0.16)	33 (36)	140 (2450)	180	-60 to 300 (-50 to 150)	Heavy-duty edge and hole reinforcing.
<b>Protective Tapes</b>											
	335	Pink	Rubber	Polyester	0.9 (0.02)	1.5 (0.04)	13 g/in. (0.5)	26 (455)	115	40 to 150 (4 to 65)	Low tack protective tape.
	336	Transparent	Rubber	Polyester	0.9 (0.02)	1.5 (0.04)	13 g/in. (0.5)	26 (455)	115	40 to 150 (4 to 65)	Low tack protective tape.
<b>High Temperature Masking and Liner Splicing Tapes</b>											
	875	Seafoam Green	Rubber	Polyester	1.0 (0.03)	2.0 (0.052)	36 (37)	34 (590)	105	60 to 400 (140 to 204)	High temperature, non-silicone composite bonding.
	876	Seafoam Green	Rubber	Polyester	2.0 (0.05)	3.1 (0.078)	33 (36)	66 (1160)	128	60 to 400 (140 to 204)	High temperature, non-silicone composite bonding.
 	8402	Translucent Green	Silicone	Polyester	0.9 (0.02)	1.9 (0.05)	24 (26)	25 (438)	100	-60 to 425 (-50 to 218)	Adheres well to silicone.










Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Availability of all products in this catalog may vary by location. Please contact your 3M Sales Representative for further information.

## 3M™ Polyester Tapes (cont.)



Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Temperature Range °F (°C)	Typical Use and Comments
High Temperature Masking and Liner Splicing Tapes											
	8403/ 8403L	Translucent Green	Silicone	Polyester	1.4 (0.04)	2.4 (0.06)	27 (29)	46 (806)	150	-60 to 425 (-50 to 218)	Adheres well to silicone. 8403L is lined version.
	8901	Blue	Silicone	Polyester	0.9 (0.02)	2.4 (0.06)	29 (31)	26 (455)	115	-60 to 400 (-50 to 204)	High temperature coating.
	8902	Blue	Silicone	Polyester	2.0 (0.05)	3.5 (0.08)	37 (40)	46 (805)	100	-60 to 400 (-50 to 204)	High temperature coating.
	8905	Blue	Silicone	Polyester	5.0 (0.12)	6.5 (0.17)	26 (28)	110 (1920)	115	-60 to 400 (-50 to 204)	High temperature coating.
	8911	Transparent	Silicone	Polyester	0.9 (0.02)	2.3 (0.05)	26 (29)	26 (440)	110	-60 to 400 (-50 to 204)	High temperature label protection.
	8991/ 8991L	Blue	Silicone	Polyester	1.0 (0.03)	2.4 (0.06)	31 (34)	29 (508)	100	-60 to 400 (-50 to 204)	Thin tapes. Powder coat masking. High temperature applications. 8991L is lined version.
	8992/ 8992L	Green	Silicone	Polyester	2.0 (0.05)	3.2 (0.08)	44 (48)	57 (998)	148	-60 to 400 (-50 to 204)	Powder coat and anodized masking. High temperature applications. 8992L is lined version.
	8985L	Purple	Rubber	Polyester	3.0 (0.076)	3.9 (0.099)	23 (25)	70 (1234)	131	Up to 200 (Up to 93)	Anodized masking applications.
Photo Film Splicing Tapes											
	8422	Black	Rubber	Polyester	1.4 (0.04)	2.5 (0.06)	50 (54)	43 (754)	140	-60 to 300 (-50 to 150)	Photo film splicing.
Reflective Tapes											
	850	Silver	Acrylic	Polyester	0.9 (0.02)	1.9 (0.05)	42 (46)	28 (491)	120	-60 to 300 (-50 to 150)	Splicing, holding, sealing, decorating, and silver color-coding.
	8437	Silver	Acrylic	Polyester	0.9 (0.02)	2.1 (0.05)	40 (44)	20 (350)	70	40 to 200 (4 to 93)	Low emissivity.

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Availability of all products in this catalog may vary by location. Please contact your 3M Sales Representative for further information.

## 3M™ PTFE Tapes

Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Temperature Range °F (°C)	Typical Use and Comments
<b>Glass Cloth</b>											
	5151/5151PL	Light Brown	Silicone	PTFE GC	3.0 (0.08)	5.3 (0.13)	33 (36)	110 (1925)	5	-100 to 500 (-73 to 260)	General purpose PTFE glass cloth tape. Is a lined version of 5151. 5151PL is a thicker, premium liner.
	5153/5153L	Light Brown	Silicone	PTFE GC	5.8 (0.15)	8.0 (0.20)	43 (47)	290 (5075)	5	-100 to 500 (-73 to 260)	General purpose PTFE glass cloth tape. 5153L is a lined version of 5153.
	5451	Brown	Silicone	PTFE GC	3.2 (0.08)	5.6 (0.14)	28 (31)	100 (1760)	5	-100 to 500 (-73 to 260)	Heat seal tape.
	5453	Brown	Silicone	PTFE GC	6.0 (0.15)	8.2 (0.21)	55 (56)	175 (3065)	5	-100 to 500 (-73 to 260)	Heat seal tape.
<b>Skived Film</b>											
	5480	Gray	Silicone	PTFE	2.0 (0.05)	3.7 (0.09)	20 (22)	27 (473)	140	-65 to 500 (-54 to 260)	Roller wrapping tape.
	5481	Gray	Silicone	PTFE	5.0 (0.13)	6.8 (0.17)	32 (35)	49 (858)	335	-65 to 500 (-54 to 260)	Heavy-duty roller wrapping tape.
<b>Extruded Film</b>											
	5490	Gray	Silicone	PTFE	2.0 (0.05)	3.7 (0.09)	27 (29)	22 (385)	150	-65 to 500 (-54 to 260)	Lay-flat backing.
	5491	Gray	Silicone	PTFE	5.0 (0.13)	6.7 (0.17)	35 (38)	40 (700)	200	-65 to 500 (-54 to 260)	Lay-flat backing.
	5498	Brown	Rubber	PTFE	2.0 (0.05)	4.0 (0.10)	48 (53)	19 (332)	105	40 to 350 (4 to 177)	Non-silicone adhesive.






## 3M™ Gripping Materials

Tape Collection	Product Number	Color	Relative Durability 1-10	Relative Friction 1-10: Low-High		Relative Tactility 1-10	Thickness mil (mm) without liner	Weight oz./yd <sub>2</sub> (g/m <sub>2</sub> ) without liner	Temperature Use Range °F (°C)	Relative Chemical Resistance 1-10	Relative UV Resistance 1-10
				Mated	Unmated						
<b>Plain-backed: Washable nylon knit with moderate stretch for sew-on applications</b>											
	GM640	Black	5	9	8	6	33 (0.8)	10.7 (366)	-40 to 160 (-40 to 71)	5	5
<b>Adhesive-backed: 3M pressure sensitive acrylic for bonding to high and low surface energy materials</b>											
	GM641	Black	5	9	8	6	33 (0.8)	12.9 (440)	-40 to 160 (-40 to 71)	5	5



Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Availability of all products in this catalog may vary by location. Please contact your 3M Sales Representative for further information.




## 3M™ UHMW-PE Tapes

Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Liner Type	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Temperature Range °F (°C)	Typical Use and Comments
	5421	Transparent	Rubber	UHMW-PE	5.0 (0.13)	60# Densified Kraft Paper	6.7 (0.17)	26 (28)	30 (526)	275	-30 to 225 (-34 to 107)	General purpose tape to protect plastic and metal chutes, guide rails, and containers from wear.
	5423	Transparent	Rubber	UHMW-PE	10 (0.25)	60# Densified Kraft Paper	11.7 (0.30)	26 (28)	55 (963)	300	-30 to 225 (-34 to 107)	Excellent abrasion resistance and low coefficient of friction make this an effective solution for noise and vibration problems.
	5425	Transparent	Acrylic	UHMW-PE	3.0 (0.08)	55# Densified Kraft Paper	5.0 (0.13)	30 (33)	45 (788)	100	-30 to 225 (-34 to 107)	Solvent resistant adhesive with low coefficient of friction and abrasion resistance.
	5430	Transparent	Acrylic	UHMW-PE	5.0 (0.13)	55# Densified Kraft Paper	7.0 (0.18)	75 (82)	40 (696)	175	-30 to 225 (-34 to 107)	High tack adhesive.
	9325	Transparent	Acrylic	UHMW-PE	3.0 (0.08)	55# Densified Kraft Paper	5.0 (0.13)	50 (55)	40 (696)	175	-30 to 225 (-34 to 107)	Thin version of 5430 tape.

## 3M™ Preservation Tapes

Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Temperature Range °F (°C)	Typical Use and Comments
Preservation Tapes											
	481	Black	Rubber	Polyethylene	7.7 (0.20)	9.8 (0.25)	25 (28)	15 (260)	510	20 to 170 (-7 to 76)	Preservation sealing tape. MIL-T-22085 Amend 3, Type IV. Clean removal up to 2 years.
	4811	White	Rubber	Polyethylene	7.5 (0.18)	9.5 (0.24)	30 (36)	15 (260)	490	Up to 170 (Up to 77)	Preservation sealing tape. Clean removal up to 1 year.

## 3M™ Polyethylene Tapes

Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Temperature Range °F (°C)	Typical Use and Comments
Polyethylene Tapes											
	480	Transparent	Acrylic	Polyethylene	4.0 (0.10)	5.1 (0.13)	22 (24)	12 (210)	520	20 to 170 (-7 to 76)	Acrylic adhesive.
	483	Various	Rubber	Polyethylene	3.9 (0.10)	5.1 (0.13)	18 (21)	10 (175)	300	Up to 170 (Up to 77)	Available in black, blue, red, transparent, white, and yellow. MIL-STD 2041D (SH).


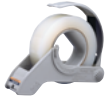






Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Availability of all products in this catalog may vary by location. Please contact your 3M Sales Representative for further information.

## 3M™ Vinyl Tapes

Tape Collection	Product Number	Color	Adhesive Type	Backing Material	Backing Thickness mils (mm)	Total Thickness mils (mm)	Adhesion to Steel oz./in. (N/100 mm)	Tensile Strength lb./in. (N/100 mm)	Elongation at Break %	Temperature Range °F (°C)	Typical Use and Comments
<b>Premium Performance Vinyl Tapes</b>											
	471	Various	Rubber	Vinyl	4.1 (0.10)	5.2 (0.13)	26 (28)	14 (270)	150	40 to 170 (4 to 77)	Conformable and clean removal. Black, blue, green, orange, red, transparent, white, and yellow. MIL-STD 2041D (SH).
	4712	Various	Rubber	Vinyl	4.1 (0.10)	5.2 (0.13)	23 (25)	14 (270)	150	40 to 170 (4 to 77)	Lined version of 471 tape. MIL-STD 2041D (SH). Colors same as 471.
	471+	Indigo	Rubber	Vinyl	4.1 (0.10)	5.3 (0.13)	35 (38.3)	14 (243)	191	Up to 250 (Up to 121)	Superior conformability. Sharp paint lines. Clean removal.
	472	Black	Rubber	Vinyl	9.0 (0.23)	10 (0.26)	23 (25)	32 (560)	270	Up to 225 (Up to 107)	Abrasion and high temperature resistant.
	477	Transparent	Rubber	Vinyl	6.0 (0.15)	7.2 (0.18)	24 (26)	24 (420)	230	40 to 170 (4 to 77)	Abrasion resistant.
	971L	Yellow, White, Red, Blue, Orange and Green	Rubber	Vinyl	15 (0.38)	19 (0.49)	38 (41)	68 (1190)	250	Up to 120 (Up to 49)	Exceptional durability. Abrasion resistant. Clean removal.
<b>General Purpose Vinyl Tapes</b>											
	764	Various	Rubber	Vinyl	4.1 (0.10)	5.0 (0.13)	18 (21)	13 (228)	180	60 to 85 (15 to 27)	Non-critical applications. Black, blue, brown, gray, green, orange, purple, red, transparent, white, and yellow.
<b>Safety Stripe Tapes</b>											
	5700	Black/White	Rubber	Vinyl	4.2 (0.11)	5.5 (0.14)	19 (21)	15 (260)	170	40 to 170 (4 to 77)	Critical applications. Adhesive side printing for long-life.
	5702	Black/Yellow	Rubber	Vinyl	4.2 (0.11)	5.5 (0.14)	19 (21)	15 (260)	170	40 to 170 (4 to 77)	Critical applications. Adhesive side printing for long-life.
	766	Black/Yellow	Rubber	Vinyl	4.1 (0.10)	5.0 (0.13)	18 (21)	13 (228)	180	60 to 85 (15 to 27)	Non-critical marking applications.
	767	Red/White	Rubber	Vinyl	4.1 (0.10)	5.0 (0.13)	18 (21)	13 (228)	180	60 to 85 (15 to 27)	Non-critical marking applications.
<b>Electroplating and Anodizing Tapes</b>											
	470	Tan	Rubber	Vinyl	6.3 (0.16)	7.1 (0.18)	37 (40)	20 (350)	180	Up to 170 (Up to 77)	Conformable and abrasion resistant for masking various surfaces during electroplating and anodizing.

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Availability of all products in this catalog may vary by location. Please contact your 3M Sales Representative for further information.

## 3M™ Tape Applicators

Applicator	Max Width	Compatible Tapes
Floor Marking Applicator		
 3M™ Lane Marking Applicator M-1	4 in.	471, 5700, 5702, 764, 766, 767
Stretch Film Hand Dispenser		
 Scotch® Stretchable Tape Dispenser H38	1.5 in.	8886
L-Clip Box Sealers		
 Scotch® Filament Tape Box Sealer S634	18mm	893, 897, 898, 8934, 8981
 3M-Matic™ L-Clip Applicator S-867	36mm	893, 897, 898, 8934, 8981
 3M-Matic™ Dual L-Clip Applicator S867 II	36mm	893, 897, 898, 8934, 8981
Definite Length Dispensers		
 Scotch® Definite Length Dispenser M96	1 in.	Most single-coated tapes
Hand Applicators for Filament Tapes		
 Scotch® Filament Tape Hand Dispenser H10	24mm	8934, 897, 893, 898, 8959, 8915, 890MSR, 8919MSR, 8896 Blue, 8896 Ivory
 Scotch® Filament Tape Hand Dispenser H130	18mm	8934, 897, 893, 898, 8915, 890MSR, 8919MSR, 8896 Blue, 8896 Ivory

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Availability of all products in this catalog may vary by location. Please contact your 3M Sales Representative for further information.





## Find the right solution for your challenges.

3M has hundreds of options when it comes to single-coated tape solutions. Let our engineers help guide your selection with our online tape selector, the easy way to find solutions to manage every variable.

Visit [go.3M.com/engineeredtapes-my](https://go.3M.com/engineeredtapes-my) to find your solution today.

**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 in accordance with all applicable instructions and with appropriate safety equipment, 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 or repair of the 3M product or refund of the purchase price. Warranty claims must be made within one (1) year from the date of 3M's shipment.

**Limitation of Liability:** Except for the limited remedy stated above, and except to the extent prohibited by applicable 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.

**Disclaimer:** 3M industrial and occupational products are intended, labeled, and packaged for sale to trained industrial and occupational customers for workplace use. Unless specifically stated otherwise on the applicable product packaging or literature, these products are not intended, labeled, or packaged for sale to or use by consumers (e.g., for home, personal, primary or secondary school, recreational/sporting, or other uses not described in the applicable product packaging or literature), and must be selected and used in compliance with applicable health and safety regulations and standards (e.g., U.S. OSHA, ANSI), as well as all product literature, user instructions, warnings, and limitations, and the user must take any action required under any recall, field action or other product use notice. Misuse of 3M industrial and occupational products may result in injury, sickness, or death. For help with product selection and use, consult your on-site safety professional, industrial hygienist, or other subject matter expert. For additional product information, visit [www.3M.com](https://www.3M.com).



3M Malaysia Sdn Bhd  
Industrial Adhesives and Tapes Division  
Level 8, Block F, Oasis Square No.2,  
Jalan PJU 1A/7A, Ara Damansara 47301  
Petaling Jaya, Selangor, Malaysia

Phone +60-3-7884-2888 (Mon-Fri, 8am-5pm)

3M, Scotchgard and Tartan are trademarks of 3M Company. Scotch is a registered trademark of 3M Company. Please recycle. Printed in Malaysia. © 3M 2024. All rights reserved. Rev February 2024