



3M Science.
Applied to Life.™

**Bringing better
ideas to the
surface.**

3M Masking and Surface Protection Products

Design & Production Guide | June 2015

Bringing Better Ideas to the Surface through Science & Innovation

In the 3M Industrial Adhesives and Tapes Division, we apply the science of adhesion to deliver innovative solutions that improve the design and manufacturing processes of companies around the world. In the end, our technologies help customers like you deliver competitive products to the market faster and more efficiently.

Whether you're looking to protect, mask, enhance or otherwise modify surfaces to improve the appearance, function or productivity of your products or processes, this guide will show you what you need to get the job done right.

Solutions through Service

3M sales representatives are located across the globe. For technical service, a highly trained team can help you evaluate tapes for specific applications. In addition, our national authorized distributor network provides sales assistance and local product availability. Authorized converters can also help you adapt 3M tapes to meet your special requirements.



3M Masking and Surface Protection Products

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Selecting the Right Product for the Job

To help you make sure you find the optimum 3M tape or other adhesive-backed product for your particular application, you'll want to consider several factors:

- Backing material
- Adhesive type
- Application time and temperature
- Surface characteristics (e.g., roughness, surface energy, contours, etc.)
- End use conditions (e.g., temperature, UV exposure, abrasion, etc.)

The following selection guides integrate those factors to help you narrow your selection to fewer products for a more in-depth evaluation.

3M™ Backing Materials

In many applications, 3M backings add a second surface that affects how the underlying surface relates to the environment.

To optimize that relationship, 3M backings offer a wide choice of performance and handling characteristics.

| | | |
|---------------------------------|--|---|
| PAPER BACKING | Crepe | Conformable, easy tear |
| | Flatback | Strong, smooth, good for straight line masking |
| | Kraft | Strong, some versions are repulpable |
| | Tissue | Thin, porous to allow adhesive penetration of sheet |
| PLASTIC BACKING | Polyester | Strong even when thin, chemical resistant, high temperature resistance |
| | Polypropylene | Resistant to most solvents, conformable, tear resistant |
| | Polyethylene | Conformable, easy to stretch, chemical/acid/moisture resistant, economical |
| | Polyethylene/Polypropylene Co-polymer | Conformable, chemical/acid/moisture resistant |
| | UHMW-PE | High abrasion resistance, low coefficient of friction, anti-stick surface easy to clean |
| | Polyvinyl Chloride (Vinyl) | Conformable, abrasion resistant, resistant to most chemicals |
| | Polyimide | High temperature resistance, excellent dimensional stability, good chemical resistance |
| | Polyamide (Nylon) | High temperature resistance, high strength and toughness, good chemical resistance but can absorb moisture |
| | Polytetrafluoroethylene (PTFE) | Low coefficient of friction, excellent high temperature and chemical resistance, anti-stick/release properties |
| | Polyvinyl Alcohol (PVA) | Water-soluble, organic solvent resistant, high temperature resistance |
| | Polyurethane | Abrasion/scratch resistant, impact/puncture resistant, UV and corrosion resistant |
| Polyvinyl Fluoride | Excellent weather resistance, excellent long-term UV resistance, thin yet stiff feel | |
| CLOTH BACKING | Cotton | Strong, easy tear by hand, soft and drapable |
| | Glass Cloth | Strong, high temperature resistance, flame-resistant |
| | Vinyl Coated | Strong yet hand tearable, abrasion resistant, water-resistant, conformable |
| NON-WOVEN BACKING | Fiber | Air permeable, strong enough to hold expanding foams |
| METAL BACKING | Aluminum | Heat and light reflective, moisture and chemical resistant, flame-resistant, outdoor weather resistant, conformable |
| | Copper | EMI/RFI shielding |
| | Lead | Electrically conductive, acid resistant, high conformability, x-ray opacity |
| | Stainless Steel | Corrosion resistant |
| RUBBER BACKING | Neoprene | Abrasion resistant, die-cuttable |
| COMBINATION (LAMINATES) BACKING | Paper/Polyethylene | Weather and chemical resistant, hand tearable, stretch resistant |
| | Metalized/Polyester | Reflective, decorative |
| | Glass Cloth/PTFE | High temperature resistance, high strength |
| | Glass Cloth/Aluminum | Very high temperature resistance, high strength |
| | Non-Woven/Aluminum | High heat and cold resistance |
| | Polyethylene Over Cloth | Strong yet hand tearable, abrasion resistant, water resistant and conformable. |

3M™ Pressure Sensitive Adhesives

Most of the products in this guide feature a 3M pressure sensitive adhesive that bonds the backing to another surface on contact. Each adhesive has different characteristics that affect production and end use performance.

| RUBBER ADHESIVE | STANDARD ACRYLIC ADHESIVE | MODIFIED ACRYLIC ADHESIVE | SILICONE ADHESIVE |
|--|-------------------------------|--|--|
| High initial bond | Moderate initial bond | Bonds to wider variety than standard acrylic | Fair initial bond |
| Softer | Firmer | Softer | Very firm |
| Widest variety of surfaces including low surface energy materials* | High surface energy* | Many surfaces | Fewer surfaces |
| Up to 350°F (177°C) | Up to 450°F (232°C) | Up to 300°F (149°C) | Up to 600°F (316°C), excellent low temperature performance |
| Fair chemical resistance | Excellent chemical resistance | Good chemical resistance | Excellent chemical resistance |
| Fair UV resistance | Excellent UV resistance | Moderate UV resistance | Excellent UV resistance |
| Poor aging | Excellent aging | Durable | Excellent aging |
| Removable | Permanent | Various | Removable |
| Good solvent resistance | Excellent solvent resistance | Good solvent resistance | Excellent solvent resistance |

*Surface energy ranges from high to low. To illustrate the concept of surface energy, think of water on the unwaxed hood of a car. The unwaxed hood has high surface energy and water on the hood flows into puddles. In comparison, a waxed hood has low surface energy and the water beads up rather than flows out. Similar to water, adhesive on a high surface energy surface flows and "wets out" the surface. "Wetting out" is required to form a strong bond.

As a rule of thumb, the higher the surface energy, the greater the strength of adhesion. Specially formulated adhesives are available for low surface energy surfaces. Regardless of surface energy, the substrate must be unified, dry, and clean to maximize adhesive contact.

The following illustrations and surface rankings give you an idea of relative surface energy.

Metal Surfaces (High Surface Energy)

High Surface Energy Plastics (HSE)

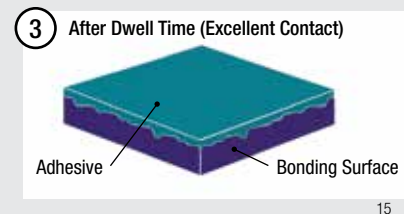
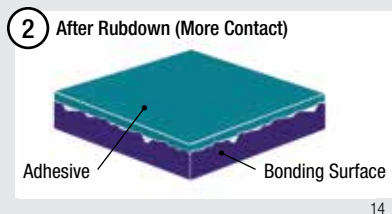
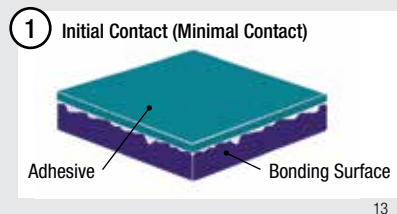
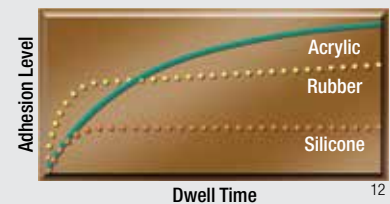
Low Surface Energy Plastics (LSE)

| mJ/m ² | Surfaces | mJ/m ² | Surfaces | mJ/m ² | Surfaces |
|-------------------|-----------------|-------------------|--------------------|-------------------|-------------------------|
| 1103 | Copper | 43 | Polyurethane Paint | 37 | PVA |
| 840 | Aluminum | 42 | ABS | 36 | Polystyrene |
| 753 | Zinc | 42 | Polycarbonate | 36 | Acetal |
| 526 | Tin | 39 | PVC Rigid | 33 | EVA |
| 458 | Lead | 38 | Modified PPE Resin | 31 | Polyethylene |
| 700–1100 | Stainless Steel | 38 | Acrylic | 29 | Polypropylene |
| 250–500 | Glass | 43 | Epoxy Paint | 28 | Polyvinyl Fluoride Film |
| | | | | 18 | PTFE Fluoropolymer |

Note: These values are provided as a guide. Formulation modifications can substantially alter surface energies.

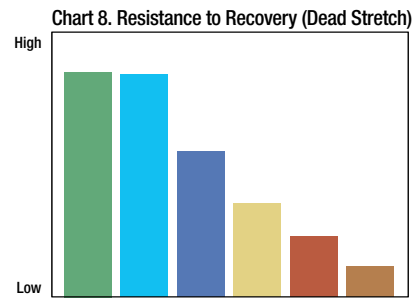
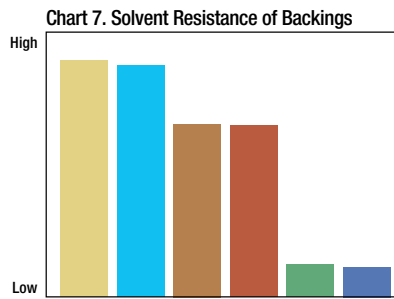
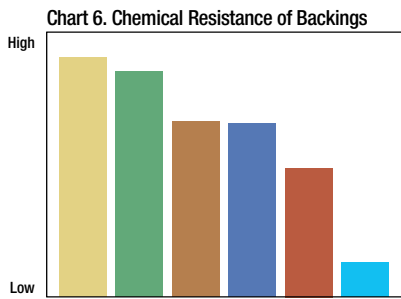
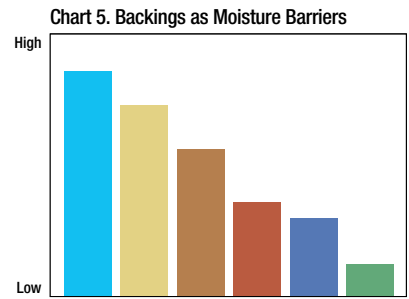
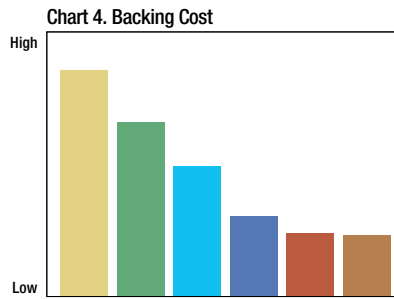
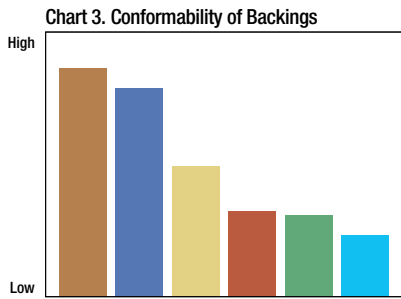
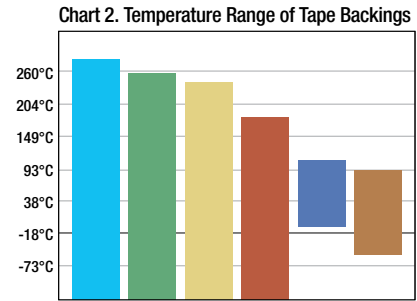
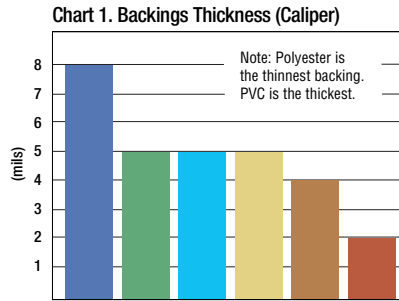
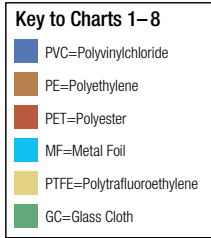
Adhesive Surface Contact

Applying firm pressure to the bond increases adhesive flow and contact for more secure bonding. Time and temperature will typically further increase contact and adhesion values.

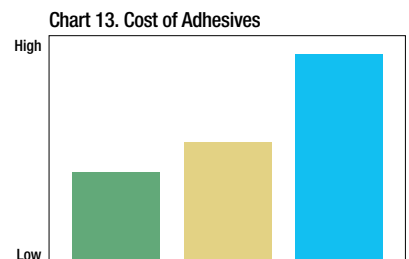
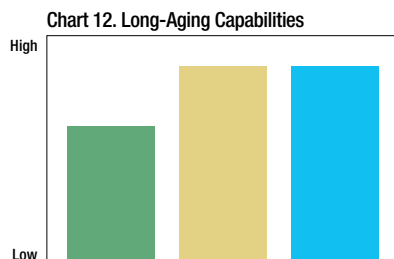
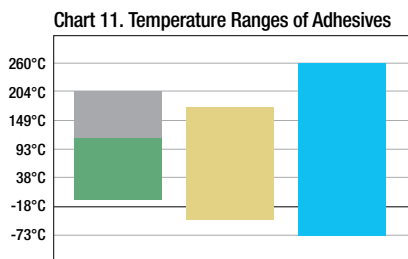
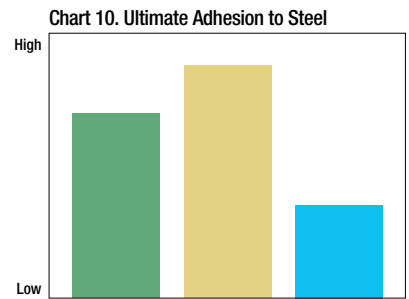
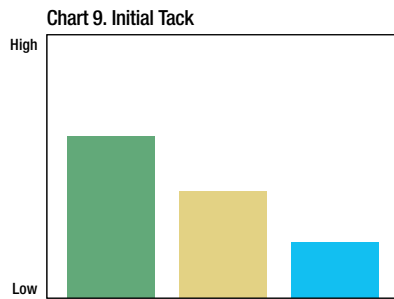
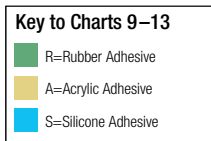


3M™ Specialty Tapes Backing and Adhesive Selection Guide

To help select the **TAPE BACKING** for your application, consult the following charts. Each backing is rated in eight critical categories.



To help select the **ADHESIVE** for your application, consult the charts below. Each adhesive is rated in five critical categories.



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

Masking, Duct and Flatback Tapes

Practical tape solutions.

Tapes that hold firm, yet remove easily.

To get the job done right the first time, you need to use the right tools. That's why we offer a full lineup of industrial tapes with unmatched dependability. From tapes that withstand extreme temperatures to tapes that remove cleanly in UV conditions, you can trust 3M to help you get the job done right.

3M™ Industrial Masking Tapes

Now It's Easy to Choose the Best Tape to Get the Job Done Right

To win in today's highly competitive marketplace, you need the right tools. And that includes your masking tapes. So 3M has created a simple, 5-tape system to help you choose the right tape for your job.

Five tapes, built on increasing levels of performance and a common goal of helping you finish jobs worth finishing.

It's industrial masking made simple.



3M™ Masking Tapes 101+, 201+, 301+, 401+ and 501+.



Consider 301+ for general purpose, low to medium temperature applications up to 107°C (225°F).



Consider 401+ for critical masking applications with temperatures up to 121°C (250°F).



Consider 501+ for bake temperatures up to 149°C (300°F) or for multiple bake cycles.

| Product Number | Colour | Adhesive Type | Backing Material | Total Thickness mm (mil) | Adhesion to Steel N/100 mm (oz/in) | Tensile Strength N/100 mm (lb/in) | Elongation at Break % | Maximum Operating Temperature °C (°F) | Time at Maximum Temperature (mins.) | Can be Certified to Specification | Comments |
|----------------------------|--------|-------------------------|--|--------------------------|------------------------------------|-----------------------------------|-----------------------|---------------------------------------|-------------------------------------|-----------------------------------|--|
| Based on ASTM Test Method: | | | | D-3652 | D-3330 | D-3759 | D-3759 | | | | |
| 101+ | Tan | Rubber | Crepe Paper | 0.13 (5.1) | 37 (34) | 385 (22) | 9 | 66 (150) | 30 | — | Indoor use. Light-duty applications. |
| 201+ | Tan | Solvent-Free Rubber | Crepe Paper | 0.11 (4.4) | 27 (25) | 333 (19) | 8 | 93 (200) | 30 | — | General indoor use. Light-to-medium duty. Clean removal. |
| 301+ | Yellow | Solvent-Free Rubber | Crepe Paper | 0.16 (6.3) | 33 (30) | 385 (22) | 12 | 107 (225) | 30 | — | Good conformability to irregular surfaces. Good paint lines. |
| 401+ | Green | Solvent-Free Rubber | Crepe Paper | 0.17 (6.7) | 39 (36) | 438 (25) | 10 | 121 (250) | 30 | — | Highly conformable to many surfaces. Superior adhesion to metal, rubber, glass and plastic. Great paint lines. |
| 501+ | Tan | High Temperature Rubber | Crepe Paper treated with a heat resistant saturant | 0.19 (7.3) | 39 (36) | 455 (26) | 10 | 149 (300) | 30 | ASTM D 6123 | Exceptionally conformable to irregular surfaces. Superior adhesion to metal, rubber, glass and plastic. Removes cleanly in one piece with no residue. Great paint lines. |

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

Scotch® Fine Line Masking Tapes

Line Sharpness and Removal the Way You Want

With a core capability of coating technology, 3M combines paper or film backings with different adhesives for demanding applications.

- Sharpest possible paint lines
- Conformability to stretch and adhere around sharp curves
- Film or vinyl backings flex easily for creating curved paint edges
- Resist edge lifting



With blue vinyl backing and rubber adhesive, Scotch® Fine Line Masking Tape 4737T offers best-in-class conformability and line sharpness for curves in high value processes.



A combination of Scotch® Fine Line Masking Tape and 3M™ Crepe Masking Tape helps to create sharp, high-impact paint lines on an in-mold application in the marine industry.



Also consider Scotch® Fine Line Tape 265 for difficult to stick to surfaces, such as semi-perm mold release surfaces.

| Product Number | Colour | Adhesive Type | Backing Material | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz/in) | Tensile Strength N/100 mm (lb/in) | Elongation at Break % | Maximum Operating Temperature °C (°F) | Time at Maximum Temperature (minutes) | Comments |
|----------------------------|------------------|---------------------|--|---------------------------|------------------------------------|-----------------------------------|-----------------------|---------------------------------------|---------------------------------------|---|
| Based on ASTM Test Method: | | | | D-3652 | D-3330 | D-3759 | D-3759 | | | |
| 215 | Blue | Rubber | Polyethylene/ Polypropylene Co-polymer | 0.12 (4.8) | 47 (43) | 263 (15) | 1150 | 121 (250) | 30 | Medium temperature. Excellent conformability. |
| 218 | Green | Rubber | Polypropylene | 0.13 (5.0) | 40 (37) | 228 (13) | 720 | 121 (250) | 30 | Good for long, straight lines. |
| 218L | Green | Rubber | Polypropylene | 0.13 (5.0) | 40 (37) | 228 (13) | 720 | 121 (250) | 30 | Lined version of 218 tape. |
| 265 | Green | Rubber/ Silicone | Polypropylene | 0.13 (5.1) | 23 (21) | 368 (21) | 881 | 93 (200) | 30 | In-mold composite masking where sharp, clean, gel-coat color separation lines are desired. |
| 2460 | Gold | Acrylic | Flatback Paper | 0.08 (3.3) | 8.7 (8) | 297 (17) | 5 | 149 (300) | 30 | For paint bake operations at temperatures up to 149°C (300°F). 14 days outdoor. |
| 2480S | Green | Acrylic | Flatback Paper | 0.10 (4.0) | 14.2 (13) | 315 (18) | 6 | 93 (200) | 30 | A thin, strong, smooth flat back paper that gives sharp paint lines with low paint ridge. 60 days outdoor. |
| 4735 | Orange | Rubber | Vinyl | 0.14 (5.4) | 10.4 (9.5) | 245 (14) | 130 | 149 (300) | 30 | Highly conformable, high temperature vinyl fine line tape for fascia panels, two-tone and other multiple colour applications where critical paint break lines are required. |
| 4737T | Translucent Blue | Rubber | Vinyl | 0.14 (5.4) | 11.5 (10.5) | 280 (16) | 115 | 149 (300) | 30 | Conformable, high temperature vinyl fine line tape for fascia panels, two-tone and other multiple colour applications where critical paint break lines are required. |
| 4737S | Solid Blue | Rubber | Vinyl | 0.14 (5.4) | 11.5 (10.5) | 280 (16) | 115 | 149 (300) | 30 | Highly visible backing version of 4737T. |
| 4737TL | Blue | Rubber | Vinyl | 0.14 (5.4) | 11.5 (10.5) | 280 (16) | 115 | 163 (325) | 30 | Lined version of 4737T. |

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

3M™ Masking Tapes — Crepe Paper

Holding Power and Removal the Way You Want

In this simplified line, you will find a range of such characteristics as adhesive holding power, line sharpness, and clean removal to meet different application requirements for virtually every industrial and consumer application. 3M products also feature:

- Instant adhesion at a touch
- Easy tear without stretching or pulling
- Controlled unwind...not too easy or too hard
- Conformability to stretch and adhere around curves



With the wide variety of 3M™ Masking Tapes, you can select from a variety of backings, adhesion strengths, clean removal properties, and temperature range performance.



Use 3M™ Value Masking Tape 101+ for light-duty attaching.



Use 3M™ General Masking Tape 201+ to quickly bundle parts.



3M™ Performance Yellow Masking Tape 301+ is ideal for labeling and identifying applications.

Learn more about Sustainable Solutions from 3M online at www.3M.ca/Masking

3M™ Masking Tapes — Crepe Paper

| Product Number | Colour | Adhesive Type | Backing Material | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz/in) | Tensile Strength N/100 mm (lb/in) | Elongation at Break % | Maximum Operating Temperature °C (°F) | Time at Maximum Temperature (mins.) | Can be Certified to Specification | Cross Reference | Comments |
|--------------------------------------|--------|-------------------------|--|------------------------------|---------------------------------------|--------------------------------------|--------------------------|--|--|--------------------------------------|--------------------|--|
| ASTM Test Method: | | | | D-3652 | D-3330 | D-3759 | D-3759 | | | | | |
| Industrial Masking Tapes | | | | | | | | | | | | |
| 101+ | Tan | Rubber | Crepe Paper | 0.13 (5.1) | 37 (34) | 385 (22) | 9 | 66 (150) | 30 | — | — | Indoor use. Light-duty applications. |
| 201+ | Tan | Solvent-Free Rubber | Crepe Paper | 0.11 (4.4) | 27 (25) | 333 (19) | 8 | 93 (200) | 30 | — | — | General indoor use. Light-to-medium duty. Clean removal. |
| 301+ | Yellow | Solvent-Free Rubber | Crepe Paper | 0.16 (6.3) | 33 (30) | 385 (22) | 12 | 107 (225) | 30 | — | — | Good conformability to irregular surfaces. Good paint lines. |
| 401+ | Green | Solvent-Free Rubber | Crepe Paper | 0.17 (6.7) | 39 (36) | 438 (25) | 10 | 121 (250) | 30 | — | — | Highly conformable to many surfaces. Superior adhesion to metal, rubber, glass and plastic. Great paint lines. |
| 501+ | Tan | High Temperature Rubber | Crepe Paper Treated with a Heat Resistant Saturant | 0.19 (7.3) | 39 (36) | 455 (26) | 10 | 149 (300) | 30 | ASTM D 6123 | — | Exceptionally conformable to irregular surfaces. Superior adhesion to metal, rubber, glass and plastic. Removes cleanly in one piece with no residue. Great paint lines. |
| General Purpose Masking Tapes | | | | | | | | | | | | |
| 200 | Tan | Rubber | Crepe Paper | 0.11 (4.4) | 27 (25) | 333 (19) | 8 | 93 (200) | 30 | — | 201+ | Good instant adhesion. |
| 202 | Tan | Rubber | Crepe Paper | 6.3 (0.16) | 37 (41) | 27 (472) | 8 | 121 (250) | 30 | ASTM D 6123; D 6123M-97 | 401+ | Good holding power. |
| 203 | Beige | Rubber | Crepe Paper | 4.7 (0.12) | 28 (31) | 22 (385) | 8 | 200 (93) | 30 | — | 201+ | General purpose masking tape for holding, bundling, sealing and more. |
| 205 | Green | Rubber | Crepe Paper | 0.13 (5) | 26 (24) | 368 (21) | 7 | 200 (93) | 30 | — | — | 5 day removeability. Ideal for trim and woodwork. |
| 213 | Tan | Rubber | Crepe Paper | 6.0 (0.15) | 34 (37) | 27 (480) | 10 | 350 (177) | 30 | ASTM D 6123; D 6123M-97 | — | Good on anodized aluminum. |
| 214 | Tan | Rubber | Crepe Paper | 5.8 (0.15) | 29 (32) | 27 (480) | 10 | 350 (177) | 60 | ASTM D 6123; D 6123M-97 | — | Stain resistant. |
| 225 | Silver | Rubber | Crepe Paper | 5.8 (0.15) | 33 (36) | 21 (368) | 9 | 200 (93) | 30 | — | — | Outdoor use. |
| 226 | Black | Rubber | Polyethylene/ Crepe Paper | 10.6 (0.27) | 42 (38) | 595 (34) | 11 | 107 (225) | 30 | — | — | Outdoor use. |
| 231/231A | Tan | Rubber | Crepe Paper | 0.19 (7.6) | 41 (38) | 490 (28) | 10 | 149 (300) | 30 | ASTM D 6123; D 6123M-97 | 501+ | Best all-purpose paint masking tape. |
| 232 | Tan | Rubber | Crepe Paper | 0.16 (6.3) | 41 (37) | 472 (27) | 8 | 121 (250) | 30 | — | 401+ | Good paint lines. |
| 234 | Tan | Rubber | Crepe Paper | 0.15 (5.9) | 37 (34) | 472 (27) | 8 | 121 (250) | 30 | ASTM D 6123; D 6123M-97 | 401+ | Excellent controlled unwind. |
| 2214 | Tan | Rubber | Crepe Paper | 0.14 (5.4) | 24 (22) | 403 (23) | 10 | 93 (200) | 30 | — | 101+ | Good for holding and bundling. |
| 2307 | Tan | Rubber | Crepe Paper | 0.13 (5.2) | 31 (28) | 403 (23) | 8 | 93 (200) | 30 | — | 301+ | Solvent-free construction, non-critical paint masking. |
| 2308 | Tan | Rubber | Crepe Paper | 0.13 (5.3) | 38 (35) | 385 (22) | 10 | 121 (250) | 30 | — | 301+ | Good transfer resistance. |
| 2364 | Tan | Rubber | Crepe Paper | 0.17 (6.5) | 34 (31) | 427 (24) | 10 | 149 (300) | 30 | ASTM D 6123; D 6123M-97 | 501+ | High temperature, crepe paper masking tape for general masking application. Good holding power. |
| 2380 | Tan | Rubber | Crepe Paper | 0.18 (7.2) | 43 (39) | 498 (28) | 10 | 163 (325) | 30 | ASTM D 6123; D 6123M-97 | 501+ | High temperature. Best holding to widest variety of surfaces. |
| 2393 | Tan | Rubber | Crepe Paper | 0.19 (7.6) | 36 (32) | 490 (28) | 11 | 163 (325) | 30 | ASTM D 6123; D 6123M-97 | — | Smooth, heavy duty, high temperature masking tape. |
| 2510 | Black | Rubber | Crepe Paper | 0.14 (5.6) | 37 (35) | 350 (20) | 9 | 93 (200) | 60 | ASTM D 6123; D 6123M-97 | — | General purpose masking tape for holding, bundling, sealing and general paint masking where a dark coloured tape is required. |
| 2693 | Tan | Synthetic Rubber | Crepe Paper | 0.20 (7.9) | 44 (40) | 515 (29) | 10 | 163 (325) | 30 | ASTM D 6123; D 6123M-97 | 501+ | Very aggressive holding; excellent for multi-bake paint cycles. |

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

3M™ Duct Tapes and Cloth Tapes

Dependability and Versatility for Bundling, Sealing, Reinforcing and More

This family of rugged cloth and duct tapes adheres to most surfaces for applications ranging from bundling to moisture proofing, sealing to splicing, reinforcing to hanging poly drapes. Features include:

- Hand tearable
- High tensile strength
- Conformability

Latest innovation in the line — clean removal plus long life indoors and out

The line includes 3M™ Performance Plus Duct Tape 8979 and nuclear grade 8979N. The best performing 3M™ Duct Tapes under the sun:

- Remove cleanly for up to six months from most opaque surfaces even after exposure to sun and outdoor weathering
- Stay on for up to one year without deterioration
- Save time and hassle of removing sticky or dried-on residue
- Strong waterproof backing resists wear, abrasion, moisture, and weathering



3M™ Duct Tapes are available in a variety of colours for colour coding. A range of widths provides choices in coverage from 2.4 cm to 55.9 cm (15/16 in to 22 in).



Waterproof backing of 3M™ Performance Plus Duct Tape 8979 resists moisture and rain for up to a year.



Write on the surfaces of many 3M™ Duct Tapes with pen or marker to leave a reminder or mark and identify works-in-progress, components, items bundled and more.



For a tight seal in many containment situations, 3M™ Performance Plus Duct Tape 8979 attaches heavy poly draping, closes cuffs, and then removes cleanly when the job is finished.



Strong backing of 3M™ Outdoor Masking and Stucco Tape 5959 pulls through stucco, EIFS and other heavy coatings in one piece.



For bundling a wide variety of items, 3M™ Duct Tapes with natural rubber adhesive and high tensile strength backings adhere on contact and hold securely.

3M™ Duct Tapes and Cloth Tapes

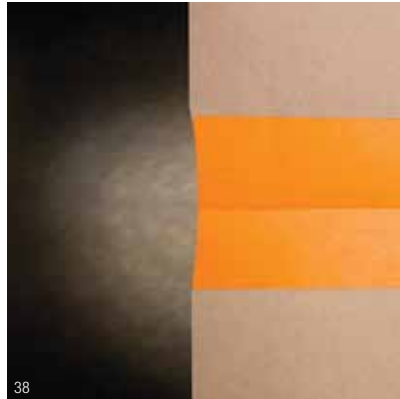
| Product Number | Colour | Adhesive Type | Backing Material | Thickness mm (mils) | Adhesion to Steel N/100 mm (oz/in) | Tensile Strength N/100 mm (lb/in) | Elongation at Break % | Maximum Operating Temperature °C (°F) | Meets Specifications | Comments |
|--|--|------------------|-------------------------------|---------------------|------------------------------------|-----------------------------------|-----------------------|---------------------------------------|---------------------------------|--|
| Based on ASTM Test Method: | | | | D-3652 | D-3330 | D-3759 | D-3759 | | | |
| Clean Removal Duct Tapes | | | | | | | | | | |
| 8979 | Blue, Black, Olive | Rubber | Polyethylene Over Cloth Scrim | 0.31 (12.1) | 53 (48) | 630 (36) | 19 | 93 (200) | UL 723/ ASTM E84 | Up to six months clean removal from most opaque surfaces indoors and outdoors. |
| 8979N | Red, Blue | Rubber | Polyethylene Over Cloth Scrim | 0.31 (12.1) | 53 (48) | 630 (36) | 19 | 93 (200) | UL 723/ ASTM E84/ MIL-STD-2041D | Same features as 8979, plus low halogen and sulfur. |
| 5959 | Red | Rubber | Polyethylene Over Cloth Scrim | 0.30 (12.0) | 53 (48) | 613 (35) | 21 | 93 (200) | UL 723/ ASTM E84 | High tensile strength backing protects against stucco, EIFS and other heavy coatings. 3 months outdoors. |
| 5903 | Red | Synthetic Rubber | Polyethylene | 0.19 (7.5) | 87 (79) | 368 (21) | 72 | 78 (173) | — | UV and weather resistant for outdoor masking, holding, patching, bundling, marking and more. 30 day removal. |
| Professional Grade Duct Tapes | | | | | | | | | | |
| 2979 | Silver | Synthetic Rubber | Polyethylene Over Cloth Scrim | 0.29 (7.4) | 86 (79) | 430 (24) | 21 | 93 (200) | — | Use for a variety of duct tape applications. |
| 3900 | Black, Blue, Olive, Red, Silver, White, Yellow | Rubber | Polyethylene Over Cloth Scrim | 7.6 (0.19) | 58 (53) | 490 (28) | 19 | 93 (200) | — | General purpose duct tape, temporary repairs, colour-coding. |
| 3939 | Silver | Rubber | Polyethylene Over Cloth Scrim | 0.22 (8.6) | 60 (55) | 438 (25) | 17 | 93 (200) | UL 723/ ASTM E84 | Use for demanding duct tape applications. |
| 3979 | Silver | Synthetic Rubber | Polyethylene Over Cloth Scrim | 0.31 (7.9) | 74 (68) | 560 (32) | 26 | 93 (200) | — | Use for a variety of duct tape applications. |
| 6969 | Silver | Rubber | Polyethylene Over Cloth Scrim | 0.25 (10.0) | 56 (51) | 595 (34) | 16 | 93 (200) | UL 723/ ASTM E84 | Industrial grade duct tape, thick adhesive layer sticks to rough surfaces. |
| Utility Duct Tapes | | | | | | | | | | |
| 3903 | Black, Blue, Gray, Green, Red, White, Yellow | Rubber | Vinyl | 0.16 (6.5) | 16.8 (15.4) | 220 (12.6) | 134 | 93 (200) | — | General purpose tape for colour coding and marking. Embossed vinyl backing. |
| 2929 | Silver | Rubber | Polyethylene Over Cloth Scrim | 0.14 (5.5) | 49 (45) | 333 (19) | 14 | 93 (200) | — | Utility grade duct tape for temporary repairs, sealing, holding and marking. |
| 1900 | Silver | Synthetic Rubber | Polyethylene Over Cloth Scrim | 0.15 (5.8) | 68 (62) | 333 (19) | 15 | 93 (200) | — | Economical choice for sealing, holding and marking. |
| Specialized High Strength Tapes | | | | | | | | | | |
| 390 | Silver, Olive | Rubber | Polyethylene Over Cloth Scrim | 0.30 (11.7) | 125 (114) | 841 (48) | 12 | 93 (200) | — | Highest tensile for most demanding jobs, olive for military requirements. |
| 393 | Silver | Rubber | Polyethylene Over Cloth Scrim | 0.30 (12.0) | 104 (95) | 632 (36) | 8 | 93 (200) | — | High adhesion, easy tear, for moisture proofing and insulation sealing. |
| 6910 | Silver | Rubber | Vinyl Coated Cloth | 0.30 (12.0) | 49 (45) | 788 (45) | 5 | 93 (200) | — | Excellent grip/gaffer's tape. Matte finish tape for low light reflectance. |

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

Scotch® Flatback Tapes

With a core capability of coating technology, 3M offers a range of backings and adhesive strengths to hold up to your job.

- High strength backings with strong cross direction tensile properties used for tabbing and splicing
- Highly visible backing to help you identify and remove splices



Scotch® Flatback Tape 2525 is great for applications requiring a unique colour.



Scotch® Flatback Tape 2517 is great for low or high temperature splicing.

| Product Number | Colour | Adhesive Type | Backing Material | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz/in) | Tensile Strength N/100 mm (lb/in) | Elongation at Break % | Maximum Operating Temperature °C (°F) | Time at Maximum Temperature (mins.) | Can be Certified to Specification | Comments |
|----------------------------|-------------------|---------------|------------------|---------------------------|------------------------------------|-----------------------------------|-----------------------|---------------------------------------|-------------------------------------|-----------------------------------|--|
| Based on ASTM Test Method: | | | | D-3652 | D-3330 | D-3759 | D-3759 | | | | |
| 250 | Tan | Rubber | Flatback Paper | 0.15 (6.0) | 85 (78) | 1033 (59) | 4 | 52 (125) | 30 | ASTM D 6123; D 6123M-97 | Used in paint adhesion testing. |
| 256 | White, Red, Green | Rubber | Flatback Paper | 0.17 (6.7) | 27 (25) | 350 (20) | 5 | 93 (200) | 60 | ASTM D 6123; D 6123M-97 | Printable, accepts marking inks. |
| 2515* | Tan | Rubber | Kraft Paper | 0.17 (6.7) | 60 (55) | 630 (36) | 3 | 93 (200) | 30 | — | General purpose splicing, holding and bundling applications. |
| 2517 | Medium Brown | Rubber | Kraft Paper | 0.15 (6.5) | 85 (78) | 543 (35) | 2 | 149 (300) | 30 | ASTM D 6123; D 6123M-97 | Excellent splicing, holding and bundling applications. |
| 2525 | Orange | Rubber | Flatback Paper | 0.24 (9.5) | 75 (69) | 858 (49) | 2 | 149 (300) | 60 | — | Premium splicing, bright color. |
| 2526 | White | Rubber | Flatback Paper | 0.24 (9.8) | 75 (69) | 858 (50) | 4 | 149 (300) | 60 | — | Excellent adhesion and strength for textile applications. |

*Tartan brand.

3M™ Masking Films

| Product Number | Colour | Adhesive Type | Backing Material | Total Thickness mm (mils) | Tensile Strength N/100 mm (lb/in) | Elongation at Break % | Maximum Operating Temperature °C (°F) | Time at Maximum Temperature (mins.) | Comments |
|----------------------------|-------------|---------------|------------------|---------------------------|-----------------------------------|-----------------------|---------------------------------------|-------------------------------------|---|
| Based on ASTM Test Method: | | | | D-3652 | D-3759 | D-3759 | | | |
| 7260M | Translucent | n/a | Polypropylene | 0.04 (1.8) | 88 (5) | 700 | 157 (315) | 60 | Designed for masking cars and light trucks during OEM painting and for industrial paint masking applications such as truck, bus, RV heavy equipment and aircraft. Large area bags and sheets. |
| 7300 | Translucent | n/a | Polypropylene | 0.09 (3.4) | 130 (7.4) | 680 | 155 (310) | 60 | High performance, high temperature masking film that is soft flexing for good drape and conformability. Single wound slit rolls in a variety of widths. |

Surface Protection

Protection where you need it.

Innovative 3M tapes and films can protect surfaces by resisting abrasion, UV, heat and punctures. Our surface protection products adhere and conform to numerous surfaces for maximum protection, and then remove easily. When your products need protection, you can trust 3M for practical solutions.

3M™ Clean-View Pads

Reliable Protection Against Paint Overspray

This clear multi-sheeted adhesive system protects paint booth windows and light fixtures from overspray. You reduce the labour expense, downtime, and amount of chemicals used for cleanup.

- Clear polyethylene keeps paint out and lets light through to help brighten the work area
- Individually tabbed sheets for easy removal from the pad
- Eliminates re-application of single layer protection films
- Acrylic adhesive system for adhesion to glass surfaces



Reliable protection is easy with 3M™ Clean-View Pads. Simply remove the clear protective liner to expose adhesive. Adhere the top adhesive edge to a dry, clean surface and squeegee over the bond area. When the sheet becomes contaminated, peel away to reveal a fresh, ready-to-use sheet.



For large and small painting operations, 3M™ Clean-View Pads protect windows and light fixtures from overspray.



3M™ Clean-View Pads help reduce the cost, downtime, and chemicals used in conventional cleanup.

| Product Number | Quantity | Sizes mm (inches) | Pad/Adhesive | Colour | Total Layer Thickness mm (mils) | Backing Layer Thickness mm (mils) | Adhesive Layer Thickness mm (mils) | Adhesion to Steel N/100 mm (oz/in) | Comments |
|----------------|------------------------------|-------------------------|--------------------------|--------|---------------------------------|-----------------------------------|------------------------------------|------------------------------------|---|
| 5850 | 20 sheets/pad 6 pads/case | 330 x 1295 (13 x 51) | Polyethylene/ Acrylic | Clear | 0.05 (1.83) | 0.03 (1.2) | 0.02 (0.63) | 9.0 (8.0) | Ideal for paint booth operation. Protects from paint overspray. |
| | 20 sheets/pad 6 pads/case | 457 x 1168 (18 x 46) | Polyethylene/ Acrylic | Clear | 0.05 (1.83) | 0.03 (1.2) | 0.02 (0.63) | 9.0 (8.0) | |
| | 20 sheets/pad 6 pads/case | 609 x 1270 (24 x 50) | Polyethylene/ Acrylic | Clear | 0.05 (1.83) | 0.03 (1.2) | 0.02 (0.63) | 9.0 (8.0) | |
| | 20 sheets/pad 6 pads/case | 609 x 914 (24 x 36) | Polyethylene/ Acrylic | Clear | 0.05 (1.83) | 0.03 (1.2) | 0.02 (0.63) | 9.0 (8.0) | |

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

3M™ Scotchgard™ Multi-Layer Protective Film

Easy, Cost-Effective Graffiti Removal

Transit authorities can spend millions annually to maintain and repair interior windows and glass. Specialized labour for replacing glass and materials cost add up quickly.

On interior windows you can simply peel away graffiti with 3M™ Scotchgard™ Film.

Choices with **multi-layer protection** save you time and money while maintaining windows that are free from scratches, graffiti and acid-etched marks. When one layer is defaced, simply peel it away to refresh the window quickly and easily.

- Minimal training to install
- Clean removal of each layer with no adhesive residue on the glass
- Optically transparent view
- Clean removal — no adhesive residue left behind
- Protection from acid, scratches, permanent marker, hard water stains
- High clarity for glass-like appearance



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Easy-to-apply 3M™ Scotchgard™ Multi-Layer Protective Film adheres to any flat glass that is free of dirt, debris and oils. Four layers are as clear as glass to see through.



45



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With 3M™ Scotchgard™ Multi-Layer Protective Film on the inside of public transportation windows, vandals deface one layer of four protective layers not the glass. The defaced layer is simply and cleanly removed to reveal a new layer of protection. 3M optimized adhesives provide long-term adhesion and clean, easy removal between each layer and the last layer from the glass.



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Simply pick and lift the corner, then peel off the defaced sheet.

| | 3M™ Scotchgard™ Multi-Layer Protective Film 1004 | 3M™ Scotchgard™ Multi-Layer Protective Film 1004MS Series |
|--------------|--|---|
| Product # | 1004 | 1004MS |
| Layers/Sheet | 4 | 4 |

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

3M™ Protective Tapes

Protection Against Scratching, Marring, Chipping, Abrasion and UV

These rugged 0.03 mm–0.13 mm (1–5 mil) tapes adhere and conform to protect product surfaces during production, packaging, shipping and installation. Tack level varies depending on the tape. All remove cleanly once the product is in the hands of the end user.

A variety of backings are available and each offers key characteristics:

Polyethylene Tapes

- Transparent with good abrasion resistance
- Cost-effective

UV Tapes

- Transparent or blue with enhanced outdoor UV resistance

Carpet Tapes

- Transparent with easy unwind

Self Sealing Tapes

- Clear film seals to itself for packaging small parts

Co-Extruded “A” Tapes

- Puncture resistance and break strength surpass many typical LDPE films

Co-Extruded Black/White Tapes

- UV resistance up to 9 months

Polyester Tapes

- Best choice for clarity with excellent heat and puncture resistance

Polypropylene Tapes

- Good resistance to heat, abrasion and UV



During manufacturing and transport, transparent 3M™ Polyethylene Protective Tapes protect many finished automotive interior surfaces from abrasion, nicks, and scratches. Clear acrylic adhesive holds with very low tack for easy removal.



To help ensure a scratch-free surface for the end user, 3M™ Co-Extruded “A” Tape is applied after final finishing to sinks, spas, and countertops prior to packaging. Enhanced abrasion and puncture resistance protects the surface through shipping and installation. Tape then removes cleanly.

3M™ Protective Tapes

Nominal Results

| Product | Tape Structure (Backing/Adhesive) | Total Thickness mm (mils) | Adhesion to Steel oz./in. width | Tack Level | Elongation at Break (%) | Application Ideas |
|------------------------------|-----------------------------------|---------------------------|---------------------------------|------------|-------------------------|---|
| Based on ASTM Test Method: | | D-3652 | D-3330 | | D-3759 | |
| Co-Extruded "A" Tapes | | | | | | |
| 25A825 | Co-Extruded/Acrylic | 0.06 (2.5) | 6 | Medium | 600 | Semi-gloss painted metals and plastic surfaces. Automotive moldings. |
| 25A826 | Co-Extruded/Acrylic | 0.06 (2.5) | 7 | Medium | 600 | Embossed, painted metal building panels. Molded fibreglass. |
| 25A829 | Co-Extruded/Acrylic | 0.06 (2.5) | 11 | High | 600 | Satin or bronzed painted aluminum and brushed finished steel and aluminum, textured plastics. |
| 25A87 | Co-Extruded/Acrylic | 0.06 (2.5) | 13 | High | 600 | Brushed aluminum and stainless. Hand applied to cultured marble (typically dusty surface). |
| 25A88 | Co-Extruded/Acrylic | 0.06 (2.5) | 15 | High | 600 | Matte high-pressure laminates. For matte finished automotive plastic parts. |
| 25A89 | Co-Extruded/Acrylic | 0.06 (2.5) | 15 | High | 600 | For non-UV applications requiring high elongation and excellent abrasion resistance compared to a traditional polyethylene film. |
| 2A804 | Co-Extruded/Acrylic | 0.05 (2) | 2 | Very Low | 600 | Effective in many outdoor applications for up to 3 days. |
| 2A825 | Co-Extruded/Acrylic | 0.05 (2) | 7 | Medium | 600 | Painted building panels. Automotive moldings and urethane fascias. |
| 2A826 | Co-Extruded/Acrylic | 0.05 (2) | 8 | Medium | 600 | Painted, embossed, metal building panels, canopies and molded fibreglass. |
| 2A829 | Co-Extruded/Acrylic | 0.05 (2) | 12 | Medium | 600 | Brushed aluminum. Textured, plastic automotive moldings. Offers excellent protection for mill finished aluminum and steel surfaces. |
| 2A87 | Co-Extruded/Acrylic | 0.05 (2) | 14 | High | 600 | Matte decorative and vinyl laminates. |
| 2A88 | Co-Extruded/Acrylic | 0.05 (2) | 15 | High | 600 | Matte decorative and vinyl laminates. Matte, plastic screen-printed nameplates. |
| 2A89 | Co-Extruded/Acrylic | 0.05 (2) | 15 | High | 600 | Matte decorative and vinyl laminates; brushed and anodized aluminum. |
| 5A829 | Co-Extruded/Acrylic | 0.13 (5) | 10 | High | 600 | Offers superior protection for mill finished aluminum and steel surfaces. |
| Carpet Tapes | | | | | | |
| 2E79 | Polyethylene/Acrylic | 0.05 (2) | 20 | High | 600 | Automotive carpeted areas, fabric seals and headliners. |
| 2E93/EZ | Polyethylene/Acrylic | 0.05 (2) | 25 | Very High | 600 | Automotive carpets, fabric seals and headliners. |
| 2E95/EZ | Polyethylene/Acrylic | 0.05 (2) | 35 | Very High | 600 | Automotive carpets, fabric seals and headliners. |
| 2E98 | Polyethylene/Acrylic | 0.05 (2) | 45 | Very High | 600 | For marine carpet only. |
| 2E97 | Polyethylene/Acrylic | 0.05 (2) | 35 | Very High | 600 | For automotive and industrial carpets and fabrics only. |
| 4193/EZ | Polyethylene/Acrylic | 0.10 (4) | 25 | Very High | 600 | Residential carpet tape. |
| 5193EZ | Polyethylene/Acrylic | 0.13 (5) | 30 | Very High | 600 | Residential carpet tape. |
| 4195/EZ | Polyethylene/Acrylic | 0.10 (4) | 30 | Very High | 600 | Higher adhesion for treated carpet. |
| 4F94 | Polyethylene/Acrylic | 0.10 (4) | 20 | Very High | 600 | Flame retardant carpet tape |
| Co-Extruded Tapes | | | | | | |
| 15CV804 | Polyethylene/Acrylic | 0.04 (1.5) | 2 | Very Low | 420 | LCD screens, glass, polycarbonate, high gloss laminate. |
| 15CV825 | Polyethylene/Acrylic | 0.04 (1.5) | 7 | Medium | 420 | Smooth semi-gloss cultured marble, high pressure laminate. |
| 15CV826 | Polyethylene/Acrylic | 0.04 (1.5) | 8 | Medium | 420 | Smooth, satin gloss cultured marble, high pressure laminate. |
| Self Sealing Tapes | | | | | | |
| 3130 | Polyethylene/Rubber | 0.08 (3) | 14* | n/a | 450 | Cohesive film used to package small machine parts, hand tools and literature. |
| 4130 | Polyethylene/Rubber | 0.10 (4) | 12* | n/a | 450 | |

*Value measured as a cohesive bond strength in units.

Selected tapes are available in transparent, blue, white and black/white. For information regarding available colours, contact Protective Tapes customer service at 1-800-241-2031.

3M™ Protective Tapes (cont.)

Nominal Results

| Product | Tape Structure (Backing/Adhesive) | Total Thickness mm (mils) | Adhesion to Steel oz./in. width | Tack Level | Elongation at Break (%) | Application Ideas |
|----------------------------|-----------------------------------|---------------------------|---------------------------------|-------------|-------------------------|--|
| Based on ASTM Test Method: | | D-3652 | D-3330 | | D-3759 | |
| Laser Tapes | | | | | | |
| 4H81CPK | Polyolefin/Acrylic | 0.10 (4) | 12 | Medium | 270 | Designed to be machine laminated using nip roll pressure. For best performance, apply 72 hours before laser cutting. |
| 4H81WPK | Polyolefin/Acrylic | 0.10 (4) | 12 | Medium | 270 | |
| 4H85CPB | Polyolefin/Acrylic | 0.10 (4) | 17 | High | 270 | Unique film construction offering extra protection during processing and allowing easy removal. |
| 4H85WPB | Polyolefin/Acrylic | 0.10 (4) | 17 | High | 270 | |
| Polyester Tapes | | | | | | |
| 1614 | Polyester/Acrylic | 0.03 (1.3) | 1 | Very Low | 88 | Low tack adhesive removes cleanly after exposures of up to 150°C (300°F). |
| 1675 | Polyester/Acrylic | 0.03 (1.3) | 2 | Low | 88 | Low tack adhesive removes cleanly after exposures of up to 171°C (350°F). |
| Transit Films | | | | | | |
| 24S56W | Polypropylene/Acrylic | 0.08 (3) | 9 | Medium | 700 | White tape for painted metals, plastic surfaces and automotive clearcoat paint finishes. |
| 44S56W | Polypropylene/Acrylic | 0.10 (4) | 9 | Medium | 800 | |
| 64S58W | Polypropylene/Acrylic | 0.15 (6) | 9 | Medium | 630 | Use on base, clearcoat and high gloss painted surfaces. Ideal for heavy abrasion protection. |
| UV Tapes | | | | | | |
| 25M25X | Polypropylene/Acrylic | 0.06 (2.5) | 6 | Medium | 600 | Black/White tape does not lift and removes cleanly after sunlight exposure. |
| 25M26X | Polypropylene/Acrylic | 0.06 (2.5) | 8 | Medium | 600 | |
| 25X126 | Polypropylene/Acrylic | 0.06 (2.5) | 6 | Medium | 850 | Can withstand up to 30 days of outdoor exposure in applications oriented at 90 degrees to sunlight.** |
| 2AU23B/UV | Co-extruded A | 0.05 (2) | 3 | Low | 600 | For glass and window frames with a high-gloss surface, high-gloss painted metals and plastics. |
| 2AU26B/UV | Co-extruded A | 0.05 (2) | 7 | Medium | 600 | For flat finished vinyl and aluminum window frames, flat finished painted metals and plastics. |
| 31U23/UV | Polyethylene/Acrylic | 0.08 (3) | 3 | Low | 450 | For glass and window frames with a high-gloss surface, high-gloss painted metals and plastics. |
| 31U26/UV | Polyethylene/Acrylic | 0.08 (3) | 7 | Medium | 450 | For flat finished vinyl and aluminum window frames, flat finished painted metals and plastics. |
| 31U82P | Polyethylene/Acrylic | 0.07 (2.8) | 12.5 | Medium | 450 | Protects a variety of automotive wheels. |
| 31U84P | Polyethylene/Acrylic | 0.08 (3.2) | 15.5 | Medium/High | 450 | |
| 3W25X | Co-Extruded Polyethylene/ Acrylic | 0.08 (3) | 5 | Medium | 450 | Black/White tape does not lift and removes cleanly after exposure to sunlight. Excellent UV resistance for up to 9 months.** |
| 3W26X | Co-Extruded Polyethylene/ Acrylic | 0.08 (3) | 6 | Medium | 450 | |
| 3W29X | Co-Extruded Polyethylene/ Acrylic | 0.08 (3) | 7 | Medium | 450 | |
| 3W55X | Co-Extruded Polyethylene/ Acrylic | 0.08 (3) | 5 | Medium | 450 | |

**UV performance was generated from actual exposure in South Eastern USA on selected painted metal surfaces.

Selected tapes are available in transparent, blue, white and black/white. For information regarding available colours, contact Protective Tapes customer service at 1-800-241-2031.



3M™ Protective UV Tapes Black/White feature UV-resistant adhesives with a UV-resistant backing that provide clean removal from substrates from anywhere between 1 to 9 months.



3M™ Clear Laser Tapes are designed to provide temporary protection for a variety of stainless steel finishes during laser cutting and storage.



3M™ Carpet Tapes provide temporary protection of pre-tested treated truck, automotive and other hard-to-adhere carpets, fabrics interiors and carpeted door panels that require very high adhesion levels.

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

3M™ Protective Tapes (cont.)

Nominal Results

| Product | Tape Structure (Backing/Adhesive) | Total Thickness mm (mils) | Adhesion to Steel oz./in. width | Tack Level | Elongation at Break (%) | Application Ideas |
|-------------------------------|-----------------------------------|---------------------------|---------------------------------|-------------|-------------------------|--|
| Based on ASTM Test Method: | | D-3652 | D-3330 | | D-3759 | |
| Polyethylene Tapes | | | | | | |
| 21804 | Polyethylene/Acrylic | 0.05 (2) | 1 | Very Low | 450 | Glass, CRT screens, LED and LCD screens. |
| 21825 | Polyethylene/Acrylic | 0.05 (2) | 5 | Medium | 450 | Painted, embossed, architectural building panels. Semi-gloss laminates and acrylic sheets. |
| 21826 | Polyethylene/Acrylic | 0.05 (2) | 7 | Medium | 450 | Slightly textured plastics, steel garage doors, metal extrusions and painted building panels. |
| 2187 | Polyethylene/Acrylic | 0.05 (2) | 14 | Medium | 450 | For textured plastics and metals. |
| 3179 | Polyethylene/Acrylic | 0.08 (3) | 20 | Very High | 450 | High-tack adhesive will adhere to most matte textured materials to help reduce rework. |
| 31804 | Polyethylene/Acrylic | 0.08 (3) | 1 | Very Low | 450 | High-gloss coated metals. CRT and LCD screens. |
| 31825 | Polyethylene/Acrylic | 0.08 (3) | 5 | Medium | 450 | Cut-to-length metal sheets in fabrication, shipping and storage. Semi-gloss, painted metals and plastic surfaces. |
| 31826 | Polyethylene/Acrylic | 0.08 (3) | 7 | Medium | 450 | Embossed, painted, metal building panels. Mill-finished aluminum and stainless sheets or coils in fabrication and shipping. |
| 31829 | Polyethylene/Acrylic | 0.08 (3) | 11 | Medium-High | 450 | Painted metal, gloss finish building panels. |
| 3187 | Polyethylene/Acrylic | 0.08 (3) | 11 | High | 450 | Brushed aluminum and stainless. Hand applied to cultured marble (typically dusty surface). |
| 3188 | Polyethylene/Acrylic | 0.08 (3) | 13 | High | 450 | Matte, high-pressure laminates. Matte plastics. |
| 4167 | Polyethylene/Acrylic | 0.10 (4) | 18 | High | 450 | Textured decorative laminates and vinyl. Woodgrain laminates, matte plastics. |
| 4179 | Polyethylene/Acrylic | 0.10 (4) | 20 | High | 450 | Dissimilar metals. Automotive kick plates. |
| 41825 | Polyethylene/Acrylic | 0.10 (4) | 5 | Medium | 450 | Polished #3 and #4 finished stainless coils or sheets. |
| 41826 | Polyethylene/Acrylic | 0.10 (4) | 7 | Medium | 450 | Molded fiberglass or acrylic tubs and spas. Automotive applications such as bumpers, fascias, body side molding paint protection, tail lights or window glass. |
| 4187 | Polyethylene/Acrylic | 0.10 (4) | 13 | High | 450 | Cultured marble and molded fiberglass. Woodgrain vinyl decorative laminates. |
| 4188 | Polyethylene/Acrylic | 0.10 (4) | 15 | High | 450 | Brushed anodized aluminum. Matte plastics or high-pressure laminates. |
| 51825 | Polyethylene/Acrylic | 0.13 (5) | 3 | Low | 450 | Painted metal, gloss finish building panels. Coated metal automotive trim. |
| 51826 | Polyethylene/Acrylic | 0.13 (5) | 5 | Medium | 450 | Mill finish aluminum and stainless coils and sheets. Molded fiberglass, polyester tubs and showers. |
| 5187 | Polyethylene/Acrylic | 0.13 (5) | 10 | Medium | 450 | Cultured marble, textured plastics, matte painted metals. |
| 5188 | Polyethylene/Acrylic | 0.13 (5) | 15 | High | 450 | Cultured marble, textured plastics, matte painted metals. |
| 8179 | Polyethylene/Acrylic | 0.21 (8) | 15 | High | 450 | Dissimilar metals. |
| Other Protective Tapes | | | | | | |
| 335/Pink | Polyester/Rubber | 0.04 (1.5) | 13 | Very Low | 115 | Low tack protective tape. |
| 336/Clear | Polyester/Rubber | 0.04 (1.5) | 13 | Very Low | 115 | Transparent, low tack protective tape, good attachment to smooth surfaces. |
| 346/Tan | Flat Paper Stock/Rubber | 0.42 (17.0) | 22 | Very High | 4 | Heavy-duty protective tape. |
| 9343/Black | Nonwoven/Acrylic | 0.50 (19.5) | 27 | Very High | 400 | Conformable for irregular shaped parts. |

Selected tapes are available in transparent, blue, white and black/white. For information regarding available colours, contact Protective Tapes customer service at 1-800-241-2031.

3M™ Preservation Tapes

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

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

3M™ Sandblast Stencil Products and Impact Stripping Tapes

Thick, Durable Rubber Backing for Demanding Surface Protection

Combining 0.86–2.1 mm (34–82 mil) thick rubber backing with aggressive pressure sensitive adhesive, these products meet the rigors of two tough masking applications:

3M™ Sandblast Stencil Products

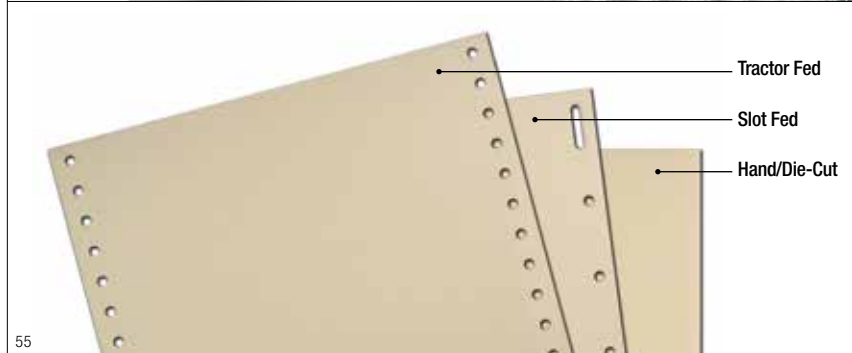
- Rubber backing thickness ranging from 0.81–1 mm (32–40 mils) withstand the heavy blasting used to create crisper, deeper images in stone, wood, and other surfaces
- Uniform backing thickness helps ensure efficient plotter cutting
- Clean, visible cut marks reduce picking and weeding time
- Adhesive adheres to numerous surfaces and removes cleanly
- Advanced rubber backing formulation prevents stretching and design distortion

3M™ Impact Stripping Tapes

- Choice of rubber backing for surface protection during media stripping processes



52



55

For cost-effective production and consistent professional results, 3M Sandblast Stencil products are available with single or double liners for friction, slot and tractor fed plotters as well as hand and die-cutting. Single liners maintain design integrity with either computer or stencil press equipment. Double liners provide support for “islands” eliminating the need for application tape.



56

Uniform stencil thickness and quality hole punch allow smooth and productive design cutting.



57

For clean, intricate designs, cut marks are clean and visible for easy and precise picking and weeding.



40

Easy to see yellow liner, enhances the monument process by providing more precise picking power for greater productivity, blasting accuracy and liner residue cleanup. The advantage of yellow versus a clear liner is especially important when working with intricate details.



58

3M™ Performance Plus Duct Tape 8979 is ideal for field blasting to help protect surrounding granite surface from blasting impact and rebound damage. Aggressive adhesive stays in place yet removes cleanly without residue.



59

Abrasion-resistant rubber backing and acrylic adhesive of 3M™ Impact Stripping Tapes protect surfaces during plastic media blasting.

3M™ Sandblast Stencil Products and Impact Stripping Tapes

| Product Number | Colour | Total Thickness (mm) | Adhesive Type | Release Liner Thickness | Release Liner Type | Secondary Liner Thickness | Secondary Liner Type | Product Formats | | | | Adhesion Level | Comments |
|---------------------|--------|----------------------|---------------|-------------------------|--------------------|---------------------------|----------------------|------------------------------|------------------------------|-----------------------------|-------------------------|----------------|---|
| | | | | | | | | Gerber Compatible (Slot Fed) | IBM Compatible (Tractor Fed) | Friction Fed and/or Flatbed | Hand-Cut and/or Die-Cut | | |
| Double Liner | | | | | | | | | | | | | |
| 519Y | Tan | 1.1 | Rubber | 2.0 | Polypropylene | 1.5 | Polyester | | | ■ | ■ | Medium | Yellow, translucent polyester inner liner, white polypropylene outer liner. |
| 519YS | Tan | 1.1 | Rubber | 2.0 | Polypropylene | 1.5 | Polyester | ■ | | | | Medium | |
| 519YT | Tan | 1.1 | Rubber | 2.0 | Polypropylene | 1.5 | Polyester | | ■ | | | Medium | |
| 519YP2 | Tan | 1.14 | Rubber | 2.0 | Polyester | 1.5 | Polyester | | | ■ | ■ | High | Yellow, translucent polyester inner liner. Extra thick, translucent polyester outer liner. Highest adhesion level for double lined products. Wide format available. |
| 519YP2S | Tan | 1.14 | Rubber | 2.0 | Polyester | 1.5 | Polyester | ■ | | | | High | |
| 519YP2T | Tan | 1.14 | Rubber | 2.0 | Polyester | 1.5 | Polyester | | ■ | | | High | |
| 519YP | Tan | 1.14 | Rubber | 4.0 | Polyester | 1.5 | Polyester | | | ■ | | Medium | Translucent, polyester inner liner. Extra thick, translucent polyester outer liner. Wide format available. |
| 519YPS | Tan | 1.14 | Rubber | 4.0 | Polyester | 1.5 | Polyester | ■ | | | | Medium | |
| 519YPT | Tan | 1.14 | Rubber | 4.0 | Polyester | 1.5 | Polyester | | ■ | | | Medium | |
| Single Liner | | | | | | | | | | | | | |
| 507 | Green | 1.09 | Rubber | 2.0 | Polyethylene | — | — | | | ■ | ■ | Low | Green, high release liner. Butter cut. Ideal for letter press operations. |
| 510 | Green | 1.09 | Rubber | 2.0 | Polyester | — | — | | | ■ | ■ | Low/Med | Translucent, easy liner release. Use on wood and painted surfaces. |
| 520 | Tan | 1.09 | Rubber | 2.0 | Polyester | — | — | | | ■ | ■ | Med/High | Translucent, high liner release. Best blast resistance for single liner products. |
| 520S | Tan | 1.09 | Rubber | 2.0 | Polyester | — | — | ■ | | | | Med/High | |
| 520T | Tan | 1.09 | Rubber | 2.0 | Polyester | — | — | | ■ | | | Med/High | |
| 520ETL | Tan | 1.09 | Rubber | 4.0 | Polyester | — | — | | | ■ | ■ | Med/High | Extra thick, translucent liner. |
| 1532 | Green | 0.9 | Rubber | 4.0 | Polyester | — | — | | | ■ | ■ | Medium | Extra thick, translucent, high liner release. Highest adhesion for single liner products. Excellent for intricate designs. Conformable for use on irregular surfaces. |
| 1532S | Green | 0.9 | Rubber | 4.0 | Polyester | — | — | ■ | | | | Medium | |
| 1532T | Green | 0.9 | Rubber | 4.0 | Polyester | — | — | | ■ | | | Medium | |

| Product Number | Backing Material | Colour | Adhesive Type | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz./in.) | Elongation at Break % | Liner Type | Comments |
|-------------------------------|------------------|--------|---------------|---------------------------|--------------------------------------|-----------------------|------------|---|
| ASTM Test Method | | | | D-3652 | D-3330 | D-3759 | | |
| Impact Stripping Tapes | | | | | | | | |
| 500 | Rubber | Green | Acrylic | 0.9 (36) | 31 (29) | 85 | Paper | Good for small lettering. Acrylic adhesive ideal for use during plastic media blasting. |
| 528 | Rubber | Tan | Acrylic | 2.1 (82) | 31 (29) | 145 | Paper | Thickest backed sandblast stencil product. |

| Product Number | Coating Base | Colour | Consistency | Available Sizes | Comments |
|----------------|--------------|-------------|-------------------------------------|-----------------|--|
| Fillers | | | | | |
| 2 | Rubber | Light Beige | Syrupy | 0.95 L, 3.8 L | Designed for smooth and polished surfaces. More aggressive than filler #3. |
| 3 | Rubber | Light Beige | 5 times more viscous than filler #2 | 3.8 L | Typically used on axed or frosted surfaces. |

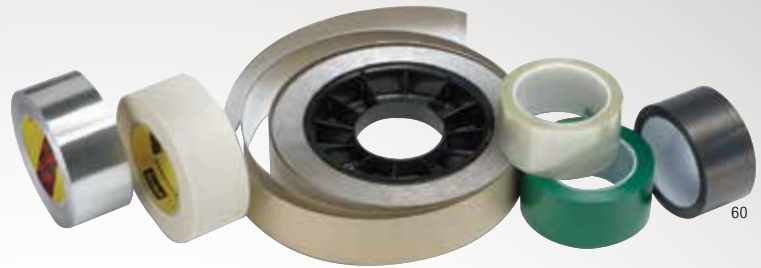
Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes.

Specialty Tapes

Selection simplicity.

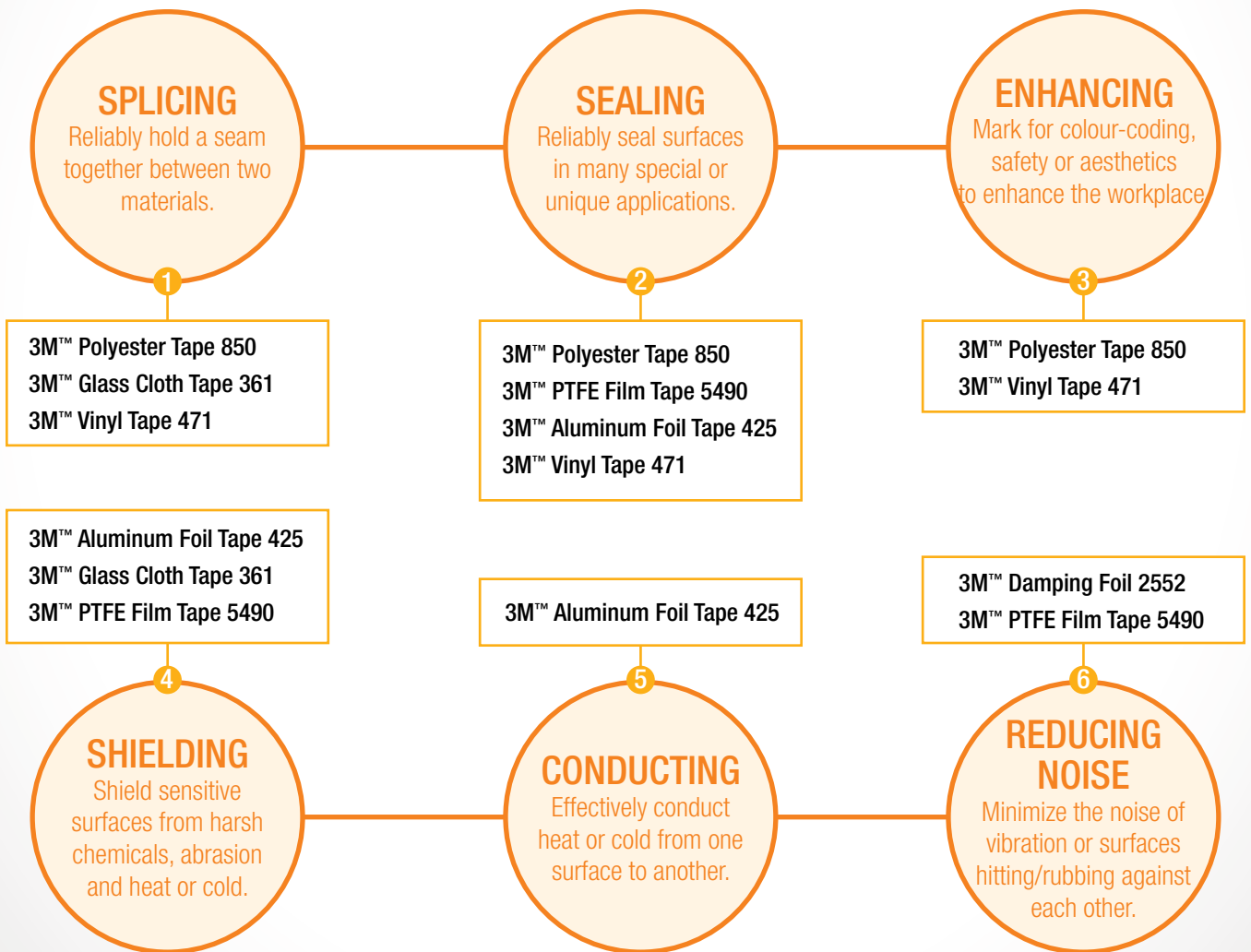
Wide variety of applications.

With more than 120 product solutions, the portfolio of 3M™ Specialty Tapes presents customers with numerous characteristics to evaluate in making the optimum choice for an application.



3M™ Specialty Tapes

To help simplify and streamline the selection process, six products have been highlighted for their versatility. **These Specialty Six solve 80% of customer application needs.** The six represent the key backings that comprise much of the 3M™ Specialty Tapes line: glass cloth, metal foil, polyester, slick surface (PTFE), and vinyl.



Specialty Tapes

For custom tape solutions, contact a 3M Sales Specialist at 1-800-362-3550.

3M™ Application Specific Tapes

Variety for Many Process and Design Solutions

With a choice of unique backing and adhesive combinations, this engineered line meets demanding applications for aerospace, graphic arts, electronics, metal finishing, automotive and more.



3M™ Riveters Tape is used during riveting to help ensure easy visibility of rivets and no adhesive transfer to rivet heads.



3M™ All Weather Flashing Tape 8067 is a self-adhered, waterproof flashing membrane designed for sealing around openings and penetrations in exterior walls.



Use 3M™ Construction Seaming Tape 8087 for exterior and interior seam, seal, splice and repair applications.



3M™ Traction Tape 5401 enhances friction on web rollers to help maintain constant traction and tension for the web material from start-up through wind-up.

3M™ Application Specific Tapes

| Product Number | Colour | Adhesive Type | Backing Material | Backing Thickness mm (mils) | Liner Type | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz./in.) | Tensile Strength N/100 mm (oz./in.) | Elongation at Break % | Temperature Range °C (°F) | Comments |
|-------------------------------|----------|---|---------------------------------------|-----------------------------|------------------------|---------------------------|--------------------------------------|-------------------------------------|-----------------------|---------------------------|--|
| ASTM Test Method | | | | D-3652 | | D-3652 | D-3330 | D-3759 | D-3759 | | |
| Graphic Arts Tapes | | | | | | | | | | | |
| 235 | Black | Rubber | Crepe Paper | 0.12 (5.0) | — | 0.17 (7.0) | 25 (23) | 386 (22) | 9 | Up to 93 (Up to 200) | Photographic masking. |
| 616 | Ruby Red | Rubber | UPVC | 0.04 (1.6) | — | 0.06 (2.4) | 39 (36) | 509 (29) | 50 | Up to 49 (Up to 120) | Lithographers tape. |
| 3051 | White | Acrylic | Flatback Paper | 0.09 (3.4) | — | 0.10 (3.8) | 4 (4) | 680 (39) | 2 | Up to 65 (Up to 150) | Very low tack. |
| High Temperature Tapes | | | | | | | | | | | |
| 8997/8997L | Amber | Silicone | Polyimide | 0.02 (1.0) | Polyester | 0.06 (2.2) | 24 (22) | 453 (26) | 37 | Up to 260 (Up to 500) | Transparent film. High temperature applications. 8997L is lined version. |
| 8998/8998L | Amber | Silicone | Polyimide | 0.05 (2.0) | Polyester | 0.08 (3.3) | 20 (19) | 963 (55) | 49 | Up to 260 (Up to 500) | Transparent film. High temperature applications. 8998L is lined version. |
| Riveters Tapes | | | | | | | | | | | |
| 685 | Green | Rubber strip coated along edges of tape only | Polyester | 0.02 (1.0) | — | 0.04 (1.7) | 33 (30) | 330 (19) | 28 | -29 to 66 (-20 to 150) | Transparent film. Green adhesive. |
| 695 | Yellow | Acrylic strip coated along edges of tape only | Polyethylene | 0.05 (2.0) | — | 0.08 (3.0) | 16 (15) | 140 (8) | 120 | -29 to 49 (-20 to 120) | Yellow film. White adhesive. |
| Venting Tapes | | | | | | | | | | | |
| 394 | White | Acrylic | Non-Woven | 0.11 (4.5) | — | 0.13 (5.0) | 13 (12) | 100 (6) | 18 | Up to 49 (Up to 120) | Air-permeable backing. |
| 3294 | Pink | Acrylic | Non-Woven | 0.11 (4.5) | — | 0.13 (5.0) | 10 (9) | 140 (8) | 15 | Up to 49 (Up to 120) | Most permeable venting tape. Strip coated. |
| Nylon Tapes | | | | | | | | | | | |
| 855 | White | Rubber | Nylon | 0.05 (2.0) | — | 0.08 (3.2) | 60 (55) | 540 (31) | 470 | 16 to 204 (60 to 400) | Composite bonding tape. |
| 8555 | White | Rubber | Nylon | 0.13 (5.0) | — | 0.15 (6.0) | 66 (60) | 1208 (69) | 540 | 16 to 204 (60 to 400) | Thick version of 855 tape. |
| Construction Tapes | | | | | | | | | | | |
| 8067 | Tan | Acrylic | Multi-Layer Elastomeric Film | 0.13 (5.0) | Polycoated Kraft Paper | 0.25 (10.0) | 66 (60) | 350 (20) | 700 | Up to 80 (Up to 176) | Window and door flashing tape. Meets ICC AC 148, AAMA 711 specs. |
| 8087 | Red | Acrylic | Biaxially Oriented Polypropylene Film | 0.04 (1.5) | — | 0.08 (3.0) | 49 (45) | 350 (20) | 130 | Up to 104 (Up to 220) | Construction seaming tape. |
| 8088 | Red | Acrylic | Biaxially Oriented Polypropylene Film | 0.04 (1.5) | — | 0.08 (3.0) | 49 (45) | 350 (20) | 130 | Up to 104 (Up to 220) | Construction seaming tape. CCMC 11362-R |
| Other Specialty Tapes | | | | | | | | | | | |
| 253 | Tan | Silicone | Treated Flatstock Paper | 0.09 (3.5) | Modified Poly Liner | 0.12 (4.6) | 54 (49) | 1052 (60) | 3 | 10 to 66 (50 to 150) | Silicone butt splicing tape. |
| 346 | Tan | Rubber | Flat Paper Stock | 0.38 (15.0) | — | 0.42 (16.7) | 24 (22) | 490 (28) | 4 | 16 to 38 (60 to 100) | Heavy-duty abrasion, moisture, UV protection. |
| 838 | White | Acrylic | PVF | 0.05 (2.1) | — | 0.09 (3.4) | 51 (47) | 420 (24) | 170 | 38 to 107 (100 to 225) | Weather resistant film tape. |
| 5401 | Tan | Silicone | Fibreglass Reinforced Silicone | 0.20 (8.0) | — | 0.24 (9.3) | 13 (12) | 3853 (220) | 7 | Up to 148 (Up to 300) | High coefficient of friction for traction. |
| 5461 | White | Rubber | Silicone Rubber | 0.19 (7.8) | Silicone-Paper | 0.23 (9.1) | 33 (30) | 1500 (85) | 165 | Up to 93 (Up to 200) | High friction roller tape. |
| 8777 | Tan | Acrylic | Multi-Layer Elastomeric Film | 0.13 (5.0) | Polycoated Kraft Paper | 0.25 (10.0) | 66 (60) | 350 (20) | 700 | Up to 80 (Up to 176) | Air and water tight sealing tape. |
| 9343 | Black | Acrylic | Non-Woven | 0.37 (14.5) | Paper | 0.50 (19.5) | 30 (27) | 88 (5) | 400 | Up to 121 (Up to 250) | Conformable for irregular parts. |

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3M™ Glass Cloth Tapes

High Tensile Strength with Choice of Other Properties

With a choice of high tensile strength glass cloth and silicone, acrylic, or rubber adhesives, this line meets demanding applications for Aerospace, Automotive, Commercial Vehicle, Construction, Marine and more.

Depending on the specific tape, you have a choice of characteristics:

- Pass FAA flame resistance regulations
- Protect surfaces against abrasion
- Temperature resistance up to more than 232°C (450°F) for one hour — even higher for intermittent exposures



For seaming and sealing panels in aircraft cargo bays, 3M™ Glass Cloth Tape 398FR exceeds flame retardant standards F.A.R. 25.853 (a) and F.A.R. 25.855 (d). Pressure sensitive acrylic adhesive bonds on contact to many surfaces. High adhesion is secure for extended periods. Rugged cloth surface resists wear from heavy bags.



With high tensile strength and rubber adhesive, 3M™ Glass Cloth Tape 365 reliably splices fabrics and other textured surfaces.



For thermal spray and plasma spray masking, 3M™ Glass Cloth Tape 361 with silicone adhesive performs reliably at up to 232°C (450°F). Passes FAA flame resistance regulations.

| Product | Colour | Adhesive Type | Backing Material | Backing Thickness mm (mils) | Liner Type | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz/in) | Tensile Strength N/100 mm (lb/in) | Elongation at Break % | Temperature Range °C (°F) | Meets Specifications | Comments |
|----------------------------|--------|------------------|------------------|-----------------------------|------------|---------------------------|------------------------------------|-----------------------------------|-----------------------|---------------------------|---|---|
| Based on ASTM Test Method: | | | | D-3652 | | D-3652 | D-3330 | D-3759 | D-3759 | | | |
| 361 | White | Silicone | Glass Cloth | 0.13 (5.0) | — | 0.16 (6.4) | 42 (38) | 2555 (146) | 10 | -54 to 232 (-65 to 450) | F.A.R. 25.853 | General purpose glass cloth tape. |
| 3615 | White | Silicone | Glass Cloth | 0.13 (5.0) | — | 0.18 (7.0) | 38 (35) | 3140 (180) | 7 | -54 to 232 (-65 to 450) | — | General purpose glass cloth tape. |
| 365 | White | Thermoset Rubber | Glass Cloth | 0.12 (4.8) | — | 0.20 (8.3) | 57 (52) | 2430 (139) | 7 | 4 to 232 (40 to 450) | — | Splicing textured surfaces. Thermosetting adhesive. |
| 3650 | White | Thermoset Rubber | Glass Cloth | 0.12 (4.8) | Blue Film | 0.20 (8.3) | 57 (52) | 2430 (139) | 7 | 4 to 232 (40 to 450) | — | Lined version of 365. Thermosetting tape. |
| 398FR | White | Acrylic | Glass Cloth | 0.13 (5.0) | Blue Film | 0.18 (7.0) | 42 (38) | 2276 (130) | 7 | -29 to 121 (-20 to 250) | 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 | 0.13 (5.0) | Blue Film | 0.18 (7.0) | 42 (38) | 2276 (130) | 7 | -29 to 121 (-20 to 250) | BMS 5-146; F.A.R. 25.853(a); F.A.R. 25.855(d) | Printed backing version of 398FR. |
| 399FR | White | Acrylic | Glass Cloth | 0.13 (5.0) | Blue Film | 0.24 (9.5) | 57 (52) | 2276 (130) | 7 | -29 to 93 (-20 to 200) | F.A.R. 25.853(a) | Thicker adhesive. Flame resistant. |

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

3M™ Metal Foil Tapes

Choice of High Performance Foil Tapes

With a choice of conformable backings and adhesives, this line of tapes meets demanding applications in Aerospace, Appliance, Transportation, Construction, Automotive, and MRO (Maintenance and Repair) segments.

3M™ Aluminum Foil Tapes

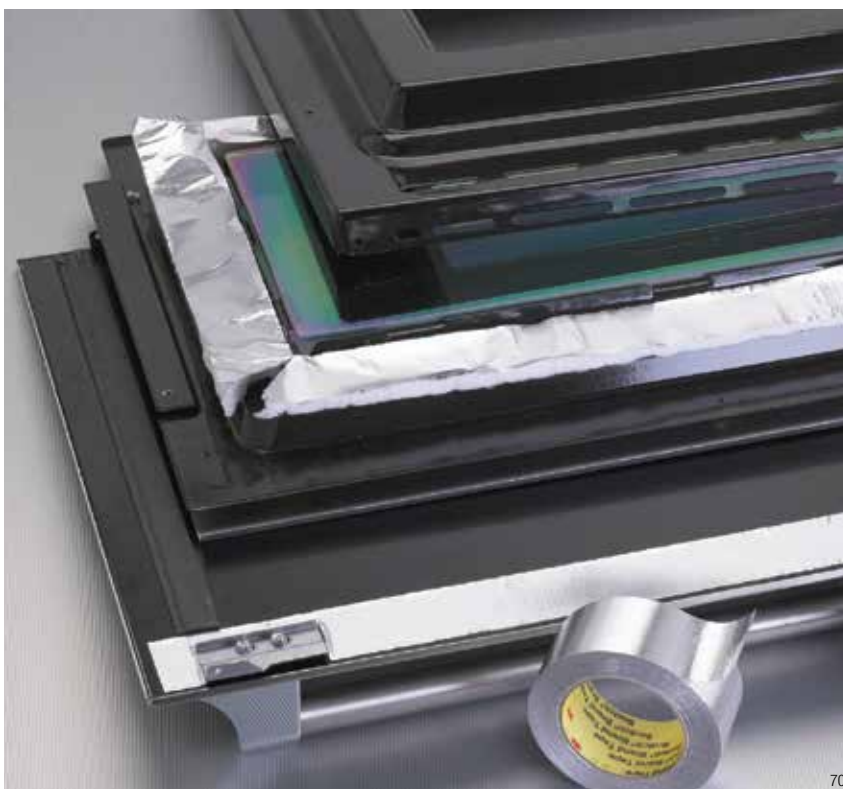
- Resist flame, moisture, weather, UV degradation and most chemicals
- Thermally conductive for heating and cooling efficiency
- Heat and light reflective

3M™ Aluminum Foil Reinforced Tapes

- Flexible flame-resistant wrap for wires and hoses
- Long wearing, tear and puncture resistant
- Flame and heat resistant

3M™ Lead Foil Tapes

- Electrically conductive
- Acid resistant for plating masking
- Radiopaque for X-ray markers



3M™ Aluminum Foil Tape bonds on contact as heat shielding inside an oven door. Helps keep the exterior cool to the touch behind the handle and around the window perimeter.



With aggressive adhesive and dead soft aluminum, Scotch® Foil Tape 3311 seals and secures seams and joints for long-term durability. UL 723 listed for duct sealing and general repairs.



With conformability and chemical resistance, 3M™ Aluminum Foil Tapes protect aircraft windows during harsh chemical paint stripping.



3M™ FSK Facing Tape 3320 is engineered specifically as a vapour retardant tape to seal mineral wool foil-faced insulation, bare sheet metal ducts and blanket style fiberglass duct insulation.



With high heat reflectivity and thermal conductivity, 3M™ Aluminum Foil Tapes protect heat-sensitive components near lights in a garage door opener housing.



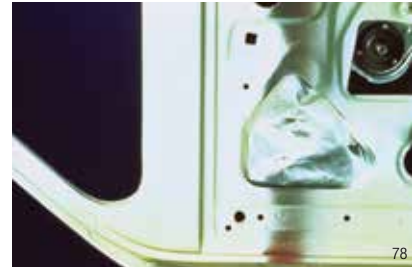
Tear-resistant 3M™ Reinforced Aluminum Foil Tape 363 bundles wire harnesses and helps protect wires, cables, and other flexible parts from heat.



Conformable 3M™ Aluminum Foil Tape securely holds copper cooling tubes to refrigerator panels. Thermal conductivity helps maximize cooling efficiency.



To seal fiberglass duct board and flexible duct systems, Scotch® Foil Tape 3326 meets the performance requirements for UL 181A-P and UL 181B-FX.



Applied over holes and cavities in the interior of a car or truck door panel, 3M™ Aluminum Foil Tape seals out moisture and dust.

3M™ Metal Foil Tapes

| Product Number | Colour | Adhesive Type | Backing Material | Backing Thickness mm (mils) | Liner Thickness mm (mils) | Liner Type | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz./in.) | Tensile Strength N/100 mm (lb./in.) | Elongation at Break % | Meets Specifications | Temperature Range °C (°F) | Comments |
|----------------------------|--------|---------------|------------------|-----------------------------|---------------------------|-----------------------------------|---------------------------|--------------------------------------|-------------------------------------|-----------------------|---|---------------------------|---|
| ASTM Test Method | | | | D-3652 | | D-3652 | | D-3330 | D-3759 | D-3759 | | | |
| Premium Performance | | | | | | | | | | | | | |
| 425 | Silver | Acrylic | Aluminum Foil | 0.07 (2.8) | — | — | 0.12 (4.6) | 51 (47) | 490 (28) | 6 | F.A.R. 25.853(a); SAE AMS T-23397; UL 723; UL 746C; LT-80 C | -54 to 149 (-65 to 300) | Most versatile aluminum tape. |
| 427 | Silver | Acrylic | Aluminum Foil | 0.07 (2.8) | 0.08 (3.1) | Easy Release Film | 0.12 (4.6) | 55 (50) | 490 (28) | 6 | F.A.R. 25.853(a); UL 723; UL 746C; LT-80 C | -54 to 149 (-65 to 300) | Lined version of 425. |
| 431 | Silver | Acrylic | Aluminum Foil | 0.05 (1.9) | — | — | 0.08 (3.1) | 37.3 (34) | 302 (17) | 3 | F.A.R. 25.853(a) | -54 to 149 (-65 to 300) | Conformable aluminum tape. |
| 433 | Silver | Silicone | Aluminum Foil | 0.05 (2.0) | — | — | 0.09 (3.6) | 43.8 (40) | 350 (20) | 3.5 | F.A.R. 25.853(a); US Gov A-A-59258 | -54 to 149 (-65 to 300) | Silicone adhesive for high temperature resistance. Smooth, easy unwind, clean, straight edges with minimal wrinkling. |
| 433L | Silver | Silicone | Aluminum Foil | 0.05 | 0.08 (3.2) | Easy Release Film | 0.09 (3.5) | 42 (38) | 350 (20) | 3.5 | F.A.R. 25.853(a) | -40 to 316 (-65 to 600) | Lined version of 433. |
| 437 | Silver | Acrylic | Aluminum Foil | 0.07 (2.8) | 0.11 (4.2) | Easy Release Film | 0.20 (8.0) | 164 (150) | 525 (30) | 8 | — | -40 to 100 (-40 to 212) | Dead-soft aluminum foil tape. |
| 438 | Silver | Acrylic | Aluminum Foil | 0.13 (5.0) | — | — | 0.18 (7.2) | 47 (43) | 1033 (59) | 10 | F.A.R. 25.853(a) | -54 to 149 (-65 to 300) | Thickest non-reinforced aluminum tape for heat resistance. Smooth, easy unwind, clean, straight edges with minimal wrinkling. |
| 438L | Silver | Acrylic | Aluminum Foil | 0.13 (5.0) | 0.06 (2.5) | Easy Release Film | 0.18 (7.2) | 47 (43) | 1033 (59) | 10 | F.A.R. 25.853(a) | -54 to 149 (-65 to 300) | |
| 439 | Silver | Acrylic | Aluminum Foil | 0.05 (1.9) | 0.14 (5.7) | Kraft Paper with Silicone Release | 0.08 (3.1) | 37.3 (34) | 302 (17) | 3 | F.A.R. 25.853(a) | -54 to 149 (-65 to 300) | Lined version of 431. |
| 3338 | Silver | Acrylic | Aluminum Foil | 0.13 (5.0) | 0.13 (5.0) | Polycoated Kraft Paper Release | 0.18 (7.0) | 49 (45) | 876 (50) | 21 | — | -54 to 149 (-65 to 300) | 29.9 kg (66 lb.) moisture stable liner. |
| 33801 | Silver | Acrylic | Aluminum Foil | 0.05 (2.0) | 0.13 (5.0) | Polycoated Kraft Paper | 0.10 (4.0) | 43.8 (40) | 350 (20) | 5 | UL 723 | -34 to 218 (-30 to 425) | High temperature acrylic adhesive. |
| 33806 | Silver | Acrylic | Aluminum Foil | 0.076 (3.0) | 0.13 (5.2) | Polycoated Kraft Paper | 0.13 (5.0) | 105 (95) | 525 (30) | 6 | — | -40 to 218 (-40 to 425) | High temperature acrylic adhesive. |

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

3M™ Metal Foil Tapes (cont.)

| Product Number | Colour | Adhesive Type | Backing Material | Backing Thickness mm (mils) | Liner Thickness mm (mils) | Liner Type | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz./in.) | Tensile Strength N/100 mm (lb./in.) | Elongation at Break % | Meets Specifications | Temperature Range °C (°F) | Comments |
|-----------------------------|-------------|--------------------|------------------|-----------------------------|---------------------------|--------------------------------|---------------------------|--------------------------------------|-------------------------------------|-----------------------|----------------------|---------------------------|---|
| ASTM Test Method | | | | D-3652 | | D-3652 | | D-3330 | D-3759 | D-3759 | | | |
| General Purpose | | | | | | | | | | | | | |
| 3311* | Silver | Rubber | Aluminum Foil | 0.05 (2.0) | 0.05 (2.0) | Paper | 0.09 (3.6) | 98 (90) | 298 (17) | 3 | UL 723 | -23 to 82 (-10 to 180) | Designed for maximum adhesion over clean, dry surfaces. |
| 3369 | Silver | Acrylic | Aluminum Foil | 0.028 (1.1) | 0.08 (3.2) | Polycoated Natural Kraft Paper | 0.06 (2.4) | 64 (58) | 197 (11) | 2 | UL 723 | -40 to 121 (-40 to 250) | Thinnest aluminum foil tape. |
| 33803 | Silver | Rubber | Aluminum Foil | 0.05 (1.8) | 0.09 (3.6) | Polycoated Kraft Paper | 0.09 (3.6) | 99 (90) | 263 (15) | 4 | UL 723 | -18 to 79 (0 to 175) | Highest tack rubber adhesive. |
| 97065 | Silver | Acrylic | Aluminum Foil | 0.05 (1.8) | 0.13 (5.2) | Polycoated Kraft Paper | 0.09 (3.4) | 53 (48) | 315 (18) | 3 | — | -40 to 121 (-40 to 250) | Good for die-cut applications. |
| 3380 | Silver | Acrylic | Aluminum Foil | 0.05 (2.0) | 0.08 (3.2) | Natural Kraft Paper | 0.08 (3.3) | 43.8 (40) | 175 (10) | 4 | UL 723 | -34 to 121 (-30 to 260) | Good for narrow slit rolls. |
| 4380 | Silver | Acrylic | Aluminum Foil | 0.05 (2.0) | — | — | 0.08 (3.3) | 43.8 (40) | 175 (10) | 4 | — | -34 to 149 (-30 to 300) | General purpose aluminum foil tape. |
| 34383 | Silver | Acrylic | Aluminum Foil | 0.07 (2.8) | — | — | 0.11 (4.5) | 61 (55) | 542 (30) | 11 | — | -40 to 149 (-40 to 300) | General purpose aluminum foil tape. |
| 3363 | Silver | Acrylic | Aluminum Foil | 0.08 (3.0) | 0.08 (3.2) | Polycoated Natural Kraft Paper | 0.13 (5.0) | 43.8 (40) | 490 (28) | 6 | UL 723 | -40 to 121 (-40 to 250) | Good for narrow slit rolls. |
| 3367 | Silver | Acrylic | Aluminum Foil | 0.08 (3.0) | 0.13 (5.2) | Polycoated Kraft Paper | 0.11 (4.4) | 53 (48) | 525 (30) | 6 | UL 723 | -40 to 121 (-40 to 250) | Good for die-cut applications. |
| Lead Foil | | | | | | | | | | | | | |
| 420 | Dark Silver | Rubber | Lead Foil | 0.12 (4.7) | 0.09 (3.5) | Easy Release Film | 0.17 (6.8) | 49 (45) | 350 (20) | 12 | — | -51 to 107 (-60 to 225) | Lined plating tape. |
| 421 | Dark Silver | Rubber | Lead Foil | 0.10 (4.0) | — | — | 0.16 (6.3) | 34 (31) | 263 (15) | 14 | — | -51 to 107 (-60 to 225) | Self-wound plating tape. |
| 4201 | Dark Silver | Acrylic | Lead Foil | 0.13 (5.0) | 0.13 (5.0) | Polycoated Natural Kraft Paper | 0.17 (6.5) | 43.8 (40) | 350 (20) | 5 | — | -34 to 121 (-30 to 225) | Permanent acrylic adhesive. |
| 34201 | Dark Silver | Rubber | Lead Foil | 0.13 (5.0) | 0.13 (5.3) | Polycoated Natural Kraft Paper | 0.16 (6.3) | 55 (50) | 350 (20) | 5 | — | -18 to 82 (0 to 180) | Removable rubber adhesive. |
| Copper Foil | | | | | | | | | | | | | |
| 3313 | Copper | Conductive Acrylic | Copper Foil | 0.04 (1.4) | 4.3 (0.11) | Glassine Paper | 0.08 (3.0) | 32 (29) | 444 (25) | 3 | UL 510 | -40 to 121 (-40 to 250) | EMI/RFI shielding. |
| 3325 | Copper | Acrylic | Copper Foil | 0.04 (1.5) | 0.13 (5.0) | Polycoated Natural Kraft Paper | 0.08 (3.0) | 43.8 (40) | 491 (28) | 10 | UL 510 | -18 to 107 (0 to 225) | EMI/RFI shielding. |
| 33315 | Copper | Acrylic | Copper Foil | 0.04 (1.5) | 0.13 (5.0) | Natural Kraft Paper | 0.08 (3.3) | 39 (35) | 491 (28) | 5 | — | -34 to 149 (-30 to 300) | "Tinned", corrosion resistant. |
| 33316 | Copper | Conductive Acrylic | Copper Foil | 0.04 (1.5) | 0.10 (4.0) | Glassine Paper | 0.08 (3.0) | 33 (30) | 578 (33) | 6 | UL 510 | -18 to 121 (0 to 250) | "Tinned", corrosion resistant. |
| Stainless Steel Foil | | | | | | | | | | | | | |
| 3361 | Silver | Acrylic | Stainless Steel | 0.05 (2.0) | 4.6 (0.12) | Polycoated Kraft Paper | 0.10 (3.8) | 43.8 (40) | 1751 (100) | 40 | — | -34 to 121 (-30 to 250) | Corrosion resistant. |

*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.

3M™ Metal Foil Tapes (cont.)

| Product Number | Colour | Adhesive Type | Backing Material | Backing Thickness mm (mils) | Liner Thickness mm (mils) | Liner Type | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz./in.) | Tensile Strength N/100 mm (lb./in.) | Elongation at Break % | Meets Specifications | Temperature Range °C (°F) | Comments |
|--------------------------|--------|--------------------|--|-----------------------------|---------------------------|-------------------------|---------------------------|--------------------------------------|-------------------------------------|-----------------------|-----------------------|---------------------------|---|
| ASTM Test Method | | | | D-3652 | | | D-3652 | D-3330 | D-3759 | D-3759 | | | |
| Specialty Foil | | | | | | | | | | | | | |
| 363 | Silver | Silicone | Aluminum Foil Laminated to Glass Cloth | 0.086 (3.4) | — | — | 0.19 (7.3) | 57 (52) | 2364 (135) | 7 | F.A.R. 25.853(a) | -54 to 316 (-65 to 600) | Aluminum foil/glass cloth. Highest temperature metal foil tape. |
| 363L | Silver | Silicone | Aluminum Foil Laminated to Glass Cloth | 0.086 (3.4) | 0.08 (3.0) | Easy Release Film | 0.19 (7.3) | 57 (52) | 2364 (135) | 7 | F.A.R. 25.853(a) | -54 to 316 (-65 to 600) | Lined version of 363. |
| 1430 | Silver | Acrylic | Aluminum Foil Non-Woven Web | 0.13 (5.0) | — | — | 0.14 (5.5) | 24 (22) | 333 (19) | 12 | — | -54 to 106 (-65 to 300) | Aluminum foil/non-woven laminate. Flexible wrapping tape. |
| 3302 | Silver | Conductive Acrylic | Aluminum Foil | 0.05 (2.0) | 0.11 (4.3) | Glassine Paper | 0.09 (3.5) | 33 (30) | 340 (19) | 3 | UL 510 | -40 to 121 (-40 to 250) | Aluminum foil tape. EMI/RFI shielding. |
| 3334 | Silver | Acrylic | Aluminum Foil/Scrim/Polypropylene | 0.14 (5.4) | 0.09 (3.5) | Bleached Glassine Paper | 0.18 (6.9) | 33.9 (31) | 439 (25) | 7 | — | -23 to 79 (-10 to 175) | Works well in very cold and hot temperatures. |
| HVAC Construction | | | | | | | | | | | | | |
| 3320 | Silver | Acrylic | Aluminum Foil | 0.16 (6.0) | 0.10 (4.0) | Poly Coated Kraft | 0.17 (6.7) | 89 (81) | 712 (40) | 2 | UL 723 | -29 to 79 (-20 to 175) | Aluminum foil/scrim/laminate. |
| 3340 | Silver | Acrylic | Aluminum Foil | 0.05 (2.0) | 0.09 (3.5) | Paper | 0.10 (4.0) | 33 (30) | 350 (20) | 4 | UL 181A-P; UL 181B-FX | -34 to 121 (-30 to 250) | Aluminum foil tape for use with rigid and flexible ducts. |
| 3350 | Silver | Acrylic | Silver Polypropylene Film | 0.04 (1.6) | — | — | 0.08 (3.1) | 36 (33) | 631 (36) | 170 | UL 181B-FX | -34 to 110 (-30 to 230) | Polypropylene tape for use with flexible ducts. |
| 3380 | Silver | Acrylic | Aluminum Foil | 0.05 (2.0) | 0.08 (3.2) | Natural Kraft Paper | 0.08 (3.3) | 43.8 (40) | 175 (10) | 4 | UL 723 | -34 to 121 (-30 to 260) | General purpose aluminum foil tape. Go-to product for this market. |
| 3381 | Silver | Acrylic | Aluminum Foil | 0.04 (1.4) | 0.08 (3.2) | Natural Kraft Paper | 0.07 (2.7) | 43.8 (40) | 180 (10) | 5 | UL 723 | -34 to 121 (-30 to 260) | Value grade aluminum foil tape. |
| 3382 | Silver | Acrylic | Aluminum Foil | 0.06 (2.5) | 0.13 (5.2) | PE Coated Kraft | 0.11 (4.2) | 55 (50) | 525 (30) | 25 | — | -40 to 149 (-40 to 300) | Foil/PET laminate, tear resistance. Roof and gutter repair tape. |

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3M™ Sound Damping Foils

Reduce Noise and Vibration in Many Applications

With pressure sensitive viscoelastic acrylic polymer on dead soft aluminum foil, 3M™ Sound Damping Foils quiet noise and reduce vibration in many areas for Aerospace, Automotive, Appliances, Construction and MRO (Maintenance and Repair).

- Reduce structure-borne noise in metal and composite panels and support structures
- Optimized acrylic converts vibrational energy to negligible heat that readily dissipates
- Reduce vibrational fatigue to decrease wear and tear on parts and lower the risk of part loosening and displacement
- Effective damping with as little as 10% surface coverage
- Pressure sensitive for easy self-fixturing application
- Long aging performance
- Good performance over a wide temperature range
- Lined construction provides ability to die-cut product



Applied with a 3M™ Plastic Squeegee PA-1 Wiper to the inside of a car door, 3M™ Damping Foil 2552 effectively damps noise and vibration with as little as 10% surface coverage. Optimized acrylic on a dead soft aluminum constraining layer converts vibrational energy to negligible heat that readily dissipates.



3M™ Damping Foil 435 between the ribs and stringers of an aircraft fuselage helps reduce vibrational fatigue and noise inside the passenger cabin.



3M™ Damping Foil 2552 on the inside of a washing machine reduces structure-borne noise and reduces vibrational fatigue to decrease the risk of part loosening and displacement.

| Product Number | Colour | Adhesive Type | Backing Material | Backing Thickness mm (mils) | Liner Type | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz./in.) | Tensile Strength N/100 mm (lb./in.) | Elongation at Break % | Temperature Range °C (°F) | Meets Specifications | Comments |
|------------------|--------|----------------------|-------------------|-----------------------------|-------------------|---------------------------|--------------------------------------|-------------------------------------|-----------------------|---------------------------|----------------------|--|
| ASTM Test Method | | | | D-3652 | | D-3652 | D-3330 | D-3759 | D-3759 | | | |
| 434 | Silver | Viscoelastic Polymer | Aluminum Foil | 0.14 (5.5) | Polyethylene | 0.19 (7.5) | 71.2 (65) | 876 (50) | 12 | -60 to 20 (-76 to 68) | F.A.R. 25.853(a) | Low temperature vibration damping. |
| 435 | Silver | Viscoelastic Polymer | Aluminum Foil | 0.2 (8.0) | Polyethylene | 0.34 (13.5) | 71.2 (65) | 876 (50) | 12 | -60 to 20 (-76 to 68) | F.A.R. 25.853(a) | Low temperature vibration damping. |
| 436 | Silver | Viscoelastic Polymer | Aluminum Foil | 0.31 (12.0) | Polyethylene | 0.44 (17.5) | 71.2 (65) | 876 (50) | 12 | -60 to 20 (-76 to 68) | F.A.R. 25.853(a) | Low temperature vibration damping. |
| 2542 | Silver | Viscoelastic Polymer | Aluminum Foil | 0.13 (5.0) | Polyethylene | 0.25 (10.0) | 72 (65) | 1102 (63) | 7 | -32 to 80 (-25 to 175) | — | Thinner general purpose vibration damping. |
| 2552 | Silver | Viscoelastic Polymer | Aluminum Foil | 0.25 (10.0) | Polycoated Paper | 0.38 (15.0) | 72 (65) | 2205 (126) | 12 | -32 to 80 (-25 to 175) | ASTM E756-83 | General purpose vibration damping. |
| 4014 | Silver | Viscoelastic Polymer | Aluminum-Urethane | 0.09 (3.0) | Easy Release Film | 6.35 (250) | n/a | n/a | 90 | -70 to 30 (-94 to 86) | F.A.R. 25.853(a) | Foil/foam sheet laminate. |

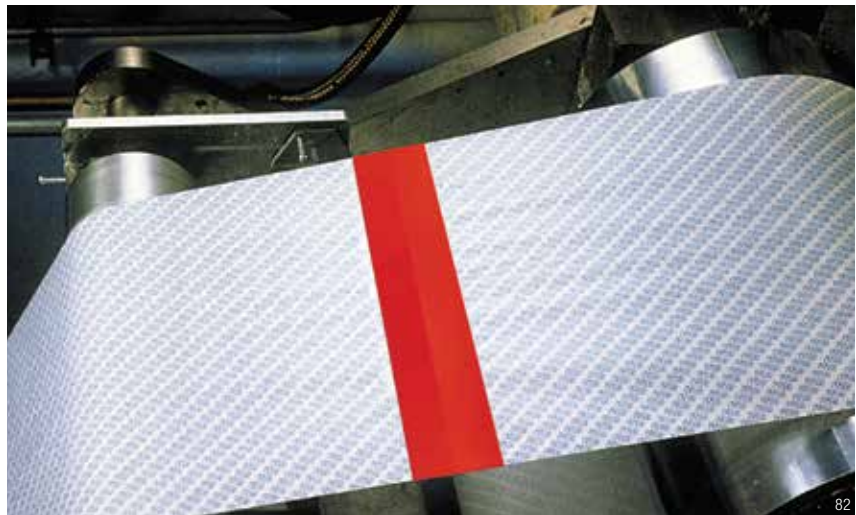
Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes.

3M™ Polyester Tapes

Thin Caliper with Long-Term High Dimensional Strength

With a choice of thin backing calipers and adhesives, this line of tapes meets demanding applications for Graphic Arts, Photography, Metal Finishing and Electronics. Applications range from splicing silicone-treated paper to low profile decorative trim.

- Backing calipers from as thin as 0.023 mm (0.9 mil) up to 0.13 mm (5 mils), all with very high dimensional strength
- Tensile strengths ranging from 3.5 N/mm (0.023 mm) [20 lbs./in. (0.9 mil)] to 24.5 N/mm (0.13 mm) [140 lbs./in. (5 mils)] — some of the strongest backings available
- Pressure sensitive acrylic, rubber, silicone and synthetic rubber blend adhesives to meet specific requirements. For example, acrylic with transparent backing for clarity and long-term holding; silicone for high temperatures and clean removal; rubber for quick adhesion to low surface energy materials



For marking splice location, 3M™ Polyester Tape 850 is available in red, black, white and silver. Transparent is also available to blend with the web stock. Pressure sensitive acrylic adhesive grabs on contact and holds butt splices securely. High tensile strength backing resists web handling stresses.



For butt splices on many low surface energy materials such as polyethylene, 3M™ Super Bond Film Tape 396 provides the thin caliper tensile strength of polyester, and high immediate holding strength of rubber adhesive.



For powder coat paint masking, 3M™ Polyester Tape series 8900 provides popular choices with clean removing high temperature silicone adhesives and different backing thicknesses of tough non-slivering polyester.



With thin caliper and tear resistance, 3M™ Polyester Tape provides tough low-profile reinforcement for punch holes in card stock. Acrylic adhesive resists yellowing in long-term use.



With thin caliper, high tensile strength polyester backing and the excellent shear strength of silicone adhesive, 3M™ Polyester Tape 8402 works well for butt splicing silicone-treated papers.

3M™ Polyester Tapes

| Product | Colour | Adhesive Type | Backing Material | Backing Thickness mm (mils) | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz/in) | Tensile Strength N/100 mm (lb/in) | Elongation at Break % | Temperature Range °C (°F) | Comments |
|--|-------------------|-----------------------|------------------|-----------------------------|---------------------------|------------------------------------|-----------------------------------|-----------------------|---------------------------|--|
| Based on ASTM Test Method: | | | | D-3652 | D-3652 | D-3330 | D-3759 | D-3759 | | |
| General Industrial Tapes | | | | | | | | | | |
| 396 | Transparent | Rubber | Polyester | 0.04 (1.7) | 0.10 (4.1) | 153 (140) | 753 (43) | 140 | 4 to 93 (40 to 200) | Adhesion to low surface energy materials. |
| 850 | Various | Acrylic | Polyester | 0.02 (0.9) | 0.05 (1.9) | 33 (30) | 491 (28) | 120 | -50 to 150 (-60 to 300) | Splicing, holding, sealing. Transparent, Red, Black, White. |
| 853 | Transparent | Acrylic | Polyester | 0.03 (1.1) | 0.06 (2.2) | 50 (46) | 434 (25) | 83 | -50 to 150 (-60 to 300) | L-T-100 F.A.R. 25.853(a) |
| 856 | Transparent | Acrylic | Polyester | 0.03 (1.0) | 0.05 (2.0) | 22 (20) | 438 (25) | 90 | -50 to 150 (-60 to 300) | Label protection. Edge and hole reinforcing. |
| 8411 | Transparent | Acrylic | Polyester | 0.03 (1.0) | 0.04 (1.5) | 23 (21) | 456 (26) | 120 | -50 to 150 (-60 to 300) | Edge and hole reinforcing. |
| 8412 | Transparent | Acrylic | Polyester | 0.12 (4.7) | 0.16 (6.3) | 36 (33) | 2450 (140) | 180 | -50 to 150 (-60 to 300) | Heavy-duty edge and hole reinforcing. |
| Protective Tapes | | | | | | | | | | |
| 335 | Pink | Rubber | Polyester | 0.02 (0.9) | 0.04 (1.5) | 0.5 (13) | 455 (26) | 115 | 4 to 65 (40 to 150) | Low tack protective tape. Pink in colour. |
| 336 | Transparent | Rubber | Polyester | 0.02 (0.9) | 0.04 (1.5) | 0.5 (13) | 455 (26) | 115 | 4 to 65 (40 to 150) | Low tack protective tape. Transparent. |
| High Temperature Masking and Liner Splicing Tapes | | | | | | | | | | |
| 8401 | Translucent Cream | Silicone/Rubber Blend | Polyester | 0.03 (1.0) | 0.05 (1.9) | 24 (22) | 595 (34) | 100 | -50 to 150 (-60 to 300) | Splicing many release coated paper. |
| 8402 | Translucent Green | Silicone | Polyester | 0.02 (0.9) | 0.05 (1.9) | 26 (24) | 438 (25) | 100 | -50 to 218 (-60 to 425) | Adheres well to silicone. |
| 8403/8403L | Translucent Green | Silicone | Polyester | 0.04 (1.4) | 0.06 (2.4) | 29 (27) | 806 (46) | 150 | -50 to 218 (-60 to 425) | Adheres well to silicone. 8403L is lined version. |
| 8901 | Blue | Silicone | Polyester | 0.02 (0.9) | 0.06 (2.4) | 31 (29) | 455 (26) | 115 | -50 to 204 (-60 to 400) | High temperature coating. |
| 8902 | Blue | Silicone | Polyester | 0.05 (2.0) | 0.08 (3.5) | 40 (37) | 805 (46) | 100 | -50 to 204 (-60 to 400) | High temperature coating. |
| 8905 | Blue | Silicone | Polyester | 0.12 (5.0) | 0.17 (6.5) | 28 (26) | 1920 (110) | 115 | -50 to 204 (-60 to 400) | High temperature coating. |
| 8911 | Transparent | Silicone | Polyester | 0.02 (0.9) | 0.05 (2.3) | 29 (26) | 440 (26) | 110 | -50 to 204 (-60 to 400) | High temperature label protection. |
| 8991/8991L | Blue | Silicone | Polyester | 0.03 (1.0) | 0.06 (2.4) | 34 (31) | 374 (21) | 49 | -50 to 204 (-60 to 400) | Thin tapes, powder coat masking, high temperature applications. 8991L is lined version. |
| 8992/8992L | Green | Silicone | Polyester | 0.05 (2.0) | 0.08 (3.2) | 48 (44) | 642 (37) | 46 | -50 to 204 (-60 to 400) | Powder coat and anodized masking, high temperature applications. 8992L is lined version. |
| Photo Film Splicing Tapes | | | | | | | | | | |
| 8421 | White | Rubber | Polyester | 0.04 (1.4) | 0.06 (2.5) | 54 (50) | 754 (43) | 140 | -50 to 150 (-60 to 300) | Photo film splicing. |
| 8422 | Black | Rubber | Polyester | 0.04 (1.4) | 0.06 (2.5) | 54 (50) | 754 (43) | 140 | -50 to 150 (-60 to 300) | Photo film splicing. |
| 8429 | Yellow | Rubber | Polyester | 0.05 (2.0) | 0.08 (3.2) | 75 (69) | 948 (54) | 130 | -50 to 150 (-60 to 300) | Photo film splicing. |
| Reflective Tapes | | | | | | | | | | |
| 850 | Silver | Acrylic | Polyester | 0.02 (0.9) | 0.05 (1.9) | 46 (42) | 491 (28) | 120 | -50 to 150 (-60 to 300) | Splicing, holding, sealing, decorating, silver colour-coding. |
| 8437 | Silver | Acrylic | Polyester | 0.02 (0.9) | 0.05 (2.1) | 44 (40) | 350 (20) | 70 | 4 to 93 (40 to 200) | Low emissivity. |

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3M™ PTFE and UHMW-PE Tapes

Low Coefficients of Friction With Choice of Other Characteristics

3M™ PTFE and UHMW-PE Tapes meet many application requirements for Printing, Aerospace, Automotive and MRO (Maintenance and Repair).

3M™ PTFE Tapes

- Low coefficient of friction to help improve web processing
- Resists up to 260°C (500°F) for long performance on heat sealing machines
- Anti-stick for easy cleanup of hot plastic
- Chemical-resistant barrier
- Silicone-free adhesive available

3M™ UHMW-PE Tapes

- Abrasion resistant to protect chutes, guide rails, and containers from wear
- Low coefficient of friction for “slip plane” effect between surfaces to reduce noise
- Anti-stick for ready release of many inks and adhesives



For automotive noise reduction, 3M™ UHMW-PE Tape 5425 provides a “slip plane” effect between incompatible surfaces to help reduce squeaks and rattles.

90



Conformable 3M™ PTFE Tape helps the movement of web materials in many types of roller wrapping applications.

91



Corrugated boxes slide more easily down a chute lined with abrasion-resistant 3M™ UHMW-PE Tapes.

92



In shrink wrapping operation, 3M™ PTFE Glass Cloth Tape 5451 helps protect the bar underneath where the hot wire seals the plastic film.

93

3M™ Slick Surface Tapes — Performance Comparison

| Attribute | Good | Better | Best |
|-------------------------------|-----------------------|-----------------------|-----------------------|
| Heat Resistance | UHMW-PE Tape | PTFE Film Tape | PTFE Glass Cloth Tape |
| Wear Life | PTFE Film Tape | PTFE Glass Cloth Tape | UHMW-PE Tape |
| Conformability | PTFE Glass Cloth Tape | UHMW-PE Tape | PTFE Film Tape |
| Low Friction Coefficient | UHMW-PE Tape | PTFE Glass Cloth Tape | PTFE Film Tape |
| Anti-stick/Solvent Resistance | PTFE Glass Cloth Tape | UHMW-PE Tape | PTFE Film Tape |

3M™ PTFE Tapes

| Product | Colour | Adhesive Type | Backing Material | Backing Thickness mm (mils) | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz/in) | Tensile Strength N/100 mm (lb/in) | Elongation at Break % | Temperature Range °C (°F) | Comments |
|----------------------------|-------------|---------------|------------------|-----------------------------|---------------------------|------------------------------------|-----------------------------------|-----------------------|---------------------------|--|
| Based on ASTM Test Method: | | | | D-3652 | D-3652 | D-3330 | D-3759 | D-3759 | | |
| Glass Cloth | | | | | | | | | | |
| 5151/ 5151L/ 5151PL | Light Brown | Silicone | PTFE GC | 0.08 (3.0) | 0.13 (5.3) | 36 (33) | 1925 (110) | 5 | -73 to 260 (-100 to 500) | General purpose PTFE glass cloth tape. 5151L is a lined version of 5151. 5151PL is a thicker, premium liner. |
| 5153/ 5153L | Light Brown | Silicone | PTFE GC | 0.15 (5.8) | 0.20 (8.0) | 47 (43) | 5075 (290) | 5 | -73 to 260 (-100 to 500) | General purpose PTFE glass cloth tape. 5153L is a lined version of 5153. |
| 5451 | Brown | Silicone | PTFE GC | 0.08 (3.2) | 0.14 (5.6) | 31 (28) | 1760 (100) | 5 | -73 to 260 (-100 to 500) | Heat seal tape. |
| 5453 | Brown | Silicone | PTFE GC | 0.15 (6.0) | 0.21 (8.2) | 56 (55) | 3065 (175) | 5 | -73 to 260 (-100 to 500) | Heat seal tape. |
| Skived Film | | | | | | | | | | |
| 5180 | Grey | Silicone | PTFE | 0.05 (2.0) | 0.09 (3.5) | 28 (25) | 525 (30) | 100 | -54 to 260 (-65 to 500) | General purpose PTFE skived film tape. |
| 5181 | Grey | Silicone | PTFE | 0.13 (5.0) | 0.17 (6.5) | 39 (35) | 1300 (75) | 100 | -54 to 260 (-65 to 500) | General purpose PTFE skived film tape. |
| 5480 | Grey | Silicone | PTFE | 0.05 (2.0) | 0.09 (3.7) | 22 (20) | 473 (27) | 140 | -54 to 260 (-65 to 500) | Roller wrapping tape. |
| 5481 | Grey | Silicone | PTFE | 0.13 (5.0) | 0.17 (6.8) | 35 (32) | 858 (49) | 335 | -54 to 260 (-65 to 500) | Heavy-duty roller wrapping tape. |
| Extruded Film | | | | | | | | | | |
| 5490 | Grey | Silicone | PTFE | 0.05 (2.0) | 0.09 (3.7) | 29 (27) | 385 (22) | 150 | -54 to 260 (-65 to 500) | Lay-flat backing. |
| 5491 | Grey | Silicone | PTFE | 0.13 (5.0) | 0.17 (6.7) | 38 (35) | 700 (40) | 200 | -54 to 260 (-65 to 500) | Lay-flat backing. |
| 5498 | Brown | Rubber | PTFE | 0.05 (2.0) | 0.10 (4.0) | 53 (48) | 332 (19) | 105 | 4 to 149 (40 to 300) | Non-silicone adhesive. |

3M™ UHMW-PE Tapes

| Product | Colour | Adhesive Type | Backing Material | Backing Thickness mm (mils) | Liner Type | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz/in) | Tensile Strength N/100 mm (lb/in) | Elongation at Break % | Temperature Range °C (°F) | Comments |
|----------------------------|-------------|---------------|------------------|-----------------------------|---------------------------|---------------------------|------------------------------------|-----------------------------------|-----------------------|---------------------------|--|
| Based on ASTM Test Method: | | | | D-3652 | | D-3652 | D-3330 | D-3759 | D-3759 | | |
| 5421 | Transparent | Rubber | UHMW-PE | 0.13 (5.0) | 60# Densified Kraft Paper | 0.17 (6.7) | 28 (26) | 526 (30) | 275 | -34 to 107 (-30 to 225) | General purpose tape to protect plastic and metal chutes, guide rails and containers from wear. |
| 5423 | Transparent | Rubber | UHMW-PE | 0.25 (10.0) | 60# Densified Kraft Paper | 0.30 (11.7) | 28 (26) | 963 (55) | 300 | -34 to 107 (-30 to 225) | Excellent abrasion resistance and low coefficient of friction makes this an effective solution for noise and vibration problems. |
| 5425 | Transparent | Acrylic | UHMW-PE | 0.08 (3.0) | 55# Densified Kraft Paper | 0.13 (5.0) | 33 (30) | 788 (45) | 100 | -34 to 107 (-30 to 225) | Solvent resistant adhesive with low coefficient of friction and abrasion resistance. |
| 5430 | Transparent | Acrylic | UHMW-PE | 0.13 (5.0) | 55# Densified Kraft Paper | 0.18 (7.0) | 82 (75) | 696 (40) | 175 | -34 to 107 (-30 to 225) | High tack adhesive. |
| 9324 | Black | Acrylic | UHMW-PE | 0.13 (5.0) | 55# Densified Kraft Paper | 0.17 (6.5) | 82 (75) | 696 (40) | 175 | -34 to 107 (-30 to 225) | Black version of 5430 tape. |
| 9325 | Transparent | Acrylic | UHMW-PE | 0.08 (3.0) | 55# Densified Kraft Paper | 0.13 (5.0) | 55 (50) | 696 (40) | 175 | -34 to 107 (-30 to 225) | Thin version of 5430 tape. |

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

3M™ Vinyl and Polyethylene Tapes

Mark, Identify, Colour-Code, Seal Seams and More

These rugged tapes adhere aggressively and remove cleanly from most surfaces for a wide variety of applications in Automotive, MRO (Maintenance and Repair), Construction, Marine, Commercial Vehicle, and other industries.

Applications include marking hazards and aisles, colour coding of pipes, fine line paint masking, decorative trim, high visibility splicing and more.

- “Colour throughout” construction resists scrapes, wear, weathering and chemicals
- Wide variety of colours plus transparent
- Flexible backing with aggressive adhesive bonds, conforms and seals even on irregular surfaces
- Removes cleanly without leaving adhesive behind to clean up
- Stretches to mold to contours

See our lane marking applicators on page 45.



3M™ Vinyl Tapes clearly mark lanes, corridors and hazardous or no-go areas in factories, warehouses and hospitals. Durable vinyl backing resists abrasion, scuffing, moisture, weathering, acids and alkaline chemicals for long service life.



Red 3M™ Vinyl Tape immediately identifies fire protection equipment and apparatus, including fire extinguishers, alarm boxes and blanket boxes.



For colour-coding pipes with 3M™ Vinyl Tapes, select from either nine vivid colours or transparent to let underlying colour show through. Backing is coloured throughout to help maintain ready visibility.



For fine line paint masking, 3M™ Vinyl Tape 471 provides sharp paint lines and the clean removal of a firm rubber adhesive.



To highlight low hanging objects, protruding equipment, or steps, 3M™ Vinyl Tape 5702 combines yellow and black for a striped combination that calls for attention.



Orange 3M™ Vinyl Tape identifies dangerous machine parts that may cause injury when enclosure doors are open or guards removed.

3M™ Vinyl Tapes

| Product Number | Colour | Adhesive Type | Backing Material | Backing Thickness mm (mils) | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz./in.) | Tensile Strength N/100 mm (lb./in.) | Elongation at Break % | Temperature Range °C (°F) | Comments |
|---|--------------|---------------|------------------|-----------------------------|---------------------------|--------------------------------------|-------------------------------------|-----------------------|---------------------------|--|
| Premium Performance Vinyl Tapes | | | | | | | | | | |
| 471 | Various | Rubber | Vinyl | 0.10 (4.1) | 0.13 (5.2) | 28 (26) | 270 (14) | 150 | 4 to 77 (40 to 170) | Conformable and clean removal. Black, Blue, Brown, Green, Orange, Purple, Red, Transparent, White, Yellow. MIL-STD 2041D (SH). |
| 4712 | Various | Rubber | Vinyl | 0.10 (4.1) | 0.13 (5.2) | 25 (23) | 270 (14) | 150 | 4 to 77 (40 to 170) | Lined version of 471 tape. MIL-STD 2041D (SH). Colours same as 471. |
| 471+ | Indigo | Rubber | Vinyl | 0.10 (4.1) | 0.13 (5.3) | 38.3 (35) | 243 (13.9) | 191 | Up to 121 (Up to 250) | Superior conformability, sharp paint lines, clean removal. |
| 472 | Black | Rubber | Vinyl | 0.23 (9.0) | 0.26 (10.4) | 25 (23) | 560 (32) | 270 | Up to 107 (Up to 225) | Abrasion and high temperature resistant. |
| 477 | Transparent | Rubber | Vinyl | 0.15 (6.0) | 0.18 (7.2) | 26 (24) | 420 (24) | 230 | 4 to 77 (40 to 170) | Abrasion resistant. |
| General Purpose Vinyl Tapes | | | | | | | | | | |
| 764 | Various | Rubber | Vinyl | 0.10 (4.1) | 0.13 (5.0) | 21 (18) | 228 (13) | 180 | 15 to 27 (60 to 85) | Non-critical applications. Black, Blue, Brown, Grey, Green, Orange, Purple, Red, Transparent, White, Yellow. |
| Safety Stripe Tapes | | | | | | | | | | |
| 5700 | Black/White | Rubber | Vinyl | 0.11 (4.2) | 0.14 (5.5) | 21 (19) | 260 (15) | 170 | 4 to 77 (40 to 170) | Critical applications. Adhesive side printing for long-life. |
| 5702 | Black/Yellow | Rubber | Vinyl | 0.11 (4.2) | 0.14 (5.5) | 21 (19) | 260 (15) | 170 | 4 to 77 (40 to 170) | Critical applications. Adhesive side printing for long-life. |
| 766 | Black/Yellow | Rubber | Vinyl | 0.10 (4.1) | 0.13 (5.0) | 21 (18) | 228 (13) | 180 | 15 to 27 (60 to 85) | Non-critical marking applications. |
| 767 | Red/White | Rubber | Vinyl | 0.10 (4.1) | 0.13 (5.0) | 21 (18) | 228 (13) | 180 | 15 to 27 (60 to 85) | Non-critical marking applications. |
| Electroplating and Anodizing Tapes | | | | | | | | | | |
| 470 | Tan | Rubber | Vinyl | 0.16 (6.3) | 0.18 (7.1) | 40 (37) | 350 (20) | 180 | Up to 77 (Up to 170) | Conformable and abrasion resistant for masking various surfaces during electroplating and anodizing. |
| 484 | Tan | Rubber | Vinyl | 0.14 (5.6) | 0.17 (6.7) | 24 (22) | 402 (23) | 220 | Up to 77 (Up to 170) | Lower adhesion than 470 tape. |
| 4731 | Various | Rubber | Vinyl | 0.15 (5.8) | 0.18 (7.0) | 22 (20) | 300 (17) | 230 | 4 to 77 (40 to 170) | Electroplating. Blue, Grey, Orange, Purple, White, Yellow. |

3M™ Polyethylene Tapes

| Product Number | Colour | Adhesive Type | Backing Material | Backing Thickness mm (mils) | Total Thickness mm (mils) | Adhesion to Steel N/100 mm (oz./in.) | Tensile Strength N/100 mm (lb./in.) | Elongation at Break % | Temperature Range °C (°F) | Comments |
|---------------------------|-------------|---------------|------------------|-----------------------------|---------------------------|--------------------------------------|-------------------------------------|-----------------------|---------------------------|--|
| Polyethylene Tapes | | | | | | | | | | |
| 480 | Transparent | Acrylic | Polyethylene | 0.10 (4.1) | 0.13 (5.1) | 24 (22) | 210 (12) | 520 | -7 to 76 (20 to 170) | Acrylic adhesive. |
| 483 | Various | Rubber | Polyethylene | 0.10 (3.9) | 0.13 (5.0) | 21 (18) | 175 (10) | 300 | Up to 77 (Up to 170) | Available in Black, Blue, Green, 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.

3M™ Gripping Materials

Increase Friction and Reduce Slippage in Dry, Wet and Oily Conditions

When getting a grip is a performance requirement, strengthen your competitive advantage with 3M™ Gripping Material products. This 3M innovation utilizes 3M patented micro-replication technology to add thousands of micro gripping fingers on one side of a flexible backing to enhance control and improve gripping performance. Customers will see a noticeable increase in holding power, while using less force, no matter what the end use application. Ultimately this can lead to enhanced performance and decreased fatigue.

Adhesives-backed versions stick on contact to many metals, plastics and sealed woods for a fast, easy increase in traction for applications such as fishing rods, ATV handlebars and forklift steering wheels.

Plain-backed versions offer some stretch and are designed for sew-on applications such as sports gloves or work gloves, where improved grip is a performance advantage.

Molded grips can be custom designed and manufactured for different high volume applications.

Performance Features:

- Increases friction to reduce slippage even in wet or oily conditions
- Immediate release when the hand lets go
- Abrasion and puncture resistant
- Water and oil resistance for secure attachment
- Performs across a broad temperature range from -40 to 71°C (-40 to 160°F) indoors and out



The unique micro-replicated surface structure of 3M™ Gripping Materials is engineered to provide different levels of friction, and when mated, create unmatched holding power, even in wet and oily environments.

| Product | Colour | Durability 1-10: Low-High | Friction 1-10: Low-High | | Tactility 1-10: Soft-Firm | Thickness mm (mils) without liner | Weight g/m ² (oz/yd ²) without liner | Temperature Use Range °C (°F) | Chemical Resistance | UV Resistance | Size |
|--|--------|---------------------------------|----------------------------|---------|---------------------------------|---|---|-------------------------------------|------------------------|------------------|--|
| | | | Mated | Unmated | | | | | | | |
| Plain-backed: Washable nylon knit with moderate stretch for sew-on applications | | | | | | | | | | | |
| GM110 | Black | 10 | 10 | 3 | 10 | 0.8 (33) | 366 (10.7) | -40 to 71 (-40 to 160) | 10 | 10 | 61 cm x 65.8 m (24" x 72 yd) |
| GM530 | Black | 9 | 10 | 5 | 8 | 0.8 (33) | 366 (10.7) | -40 to 71 (-40 to 160) | 8 | 8 | 61 cm x 65.8 m (24" x 72 yd) |
| GM613 | Grey | 1 | 7 | 10 | 1 | 0.8 (33) | 366 (10.7) | -40 to 71 (-40 to 160) | 3 | 5 | 61 cm x 65.8 m (24" x 72 yd) |
| GM630 | Grey | 5 | 8 | 9 | 4 | 0.8 (33) | 366 (10.7) | -40 to 71 (-40 to 160) | 5 | 5 | 61 cm x 65.8 m (24" x 72 yd) |
| GM640 | Black | 8 | 9 | 7 | 6 | 0.8 (33) | 366 (10.7) | -40 to 71 (-40 to 160) | 7 | 5 | 61 cm x 65.8 m (24" x 72 yd) |
| Adhesive-backed: 3M pressure sensitive acrylic for bonding to high and low surface energy materials | | | | | | | | | | | |
| GM400 | Black | 10 | 10 | 3 | 10 | 0.8 (33) | 440 (12.9) | -40 to 71 (-40 to 160) | 10 | 10 | 2.54 cm x 65.8 m (1" x 72 yd) or 61 cm x 65.8 m (24" x 72 yd) |
| GM531 | Black | 9 | 10 | 5 | 8 | 0.8 (33) | 440 (12.9) | -40 to 71 (-40 to 160) | 8 | 8 | 2.54 cm x 65.8 m (1" x 72 yd) or 61 cm x 65.8 m (24" x 72 yd) |
| GM614 | Grey | 1 | 7 | 10 | 1 | 0.8 (33) | 440 (12.9) | -40 to 71 (-40 to 160) | 3 | 5 | 2.54 cm x 65.8 m (1" x 72 yd) or 61 cm x 65.8 m (24" x 72 yd) |
| GM631 | Grey | 5 | 8 | 9 | 4 | 0.8 (33) | 440 (12.9) | -40 to 71 (-40 to 160) | 5 | 5 | 2.54 cm x 65.8 m (1" x 72 yd) or 61 cm x 65.8 m (24" x 72 yd) |
| GM641 | Black | 8 | 9 | 7 | 6 | 0.8 (33) | 440 (12.9) | -40 to 71 (-40 to 160) | 7 | 5 | 2.54 cm x 65.8 m (1" x 72 yd) or 61 cm x 65.8 m (24" x 72 yd) |
| GM731 | Clear | 10 | 10 | 3 | 10 | 0.8 (33) | 440 (12.9) | -40 to 71 (-40 to 160) | 10 | 7 | 2.54 cm x 65.8 m (1" x 72 yd) or 61 cm x 65.8 m (24" x 72 yd) |

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

Splicing and Repulpable Tapes

For when you need to splice it up.

We offer a wide range of repulpable and non-repulpable tapes for every kind of splice so you can continue your production pace at full speed. Our products are designed to provide dependable splices. From temporary to permanent adhesion needs, our tape experts can help you select the best tape for your demanding application.

3M™ Splicing and Repulpable Tapes

Tapes for Paper Mills, Printers, Converters and Newspapers

From core starting to roll closing/tabbing and all the splices in-between, this totally repulpable line offers choices for the dependability you need to keep production at full speed. Backings and adhesives are engineered for optimum strength on every type of splice: flying, overlap, butt and general purpose.

Temporary Tapes

Good shear strength, high tack and reliable heat resistance

Permanent Tapes

High shear strength to stay with paper through sheeting, printing, slitting and perforating



3M™ Repulpable Splittable Flying Splice Tape eliminates the time and work of “V” and “W” patterns with a straight across flying splice. Advanced coating provides a smooth and consistent opening force. A fibre-free break open means less blanket cleanup.



High tack 3M™ Temporary Single Coated Repulpable Tapes are available in white, blue, and kraft for dependable core starting, roll closing and butt splicing.



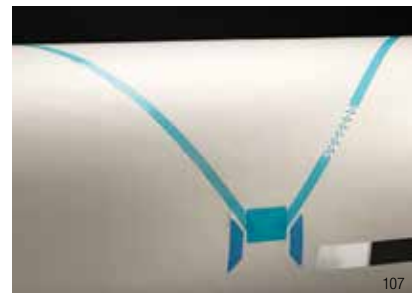
3M provides a complete line of core starting tapes that are easy to use and stick reliably every time.



For finished mill overlap splicing, 3M™ Repulpable Permanent Tape provides high shear strength without adhesive oozing or bleed through.



One simple splice with 3M™ Splittable Flying Splice Tape replaces complex patterns.



For “V” and “W” pattern splices, the 3M™ Splicing System provides all the splicing products you need.

3M™ Repulpable Splicing Tapes for the Paper Mills

| Product | Colour | Comments | Tape Thickness mm (mils) | Tape Structure | | Liner | | Heat Resistance °C (°F) | FDA Compliant† |
|---------------------------------------|------------------|--|-----------------------------|-----------------|------------|-------|------------------------|----------------------------|----------------|
| | | | | Backing/Carrier | Adhesive | Type | Thickness mm (mils) | | |
| Permanent Double Coated | | | | | | | | | |
| 405 | Lt. Green | Excellent for raw and starch-treated papers | 0.08 (3.0) | Tissue Carrier | Repulpable | UPVC | 0.04 (1.7) | 200 (400) | — |
| 900 | Blue | Recommended for light weight coated papers | 0.06 (2.5) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 200 (400) | Yes |
| 900B | Blue | Recommended for supercalendered papers | 0.06 (2.5) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 200 (400) | Yes |
| Permanent Single Coated | | | | | | | | | |
| 901 | Lt. Green | Excellent for raw and starch-treated papers | 0.10 (4.0) | Paper | Repulpable | UPVC | 0.04 (1.7) | 200 (400) | — |
| 910 | Blue | Recommended for coated and uncoated papers and paperboard | 0.10 (4.0) | Paper | Repulpable | — | none | 200 (400) | Yes |
| 914 | Blue | Recommended for high speeds, digital business forms, perforated splicing tape | 0.10 (4.0) | Paper | Repulpable | — | none | 200 (400) | Yes |
| 9103 | Blue | Printable, coatable backing | 0.11 (4.5) | Paper | Repulpable | Paper | 0.07 (2.9) | 200 (400) | Yes |
| 9114 | Blue | The easiest way to make a butt splice; Printable | 0.11 (4.5) | Paper | Repulpable | Paper | 0.07 (2.9) | 200 (400) | Yes |
| 9960 | Blue | Thinnest butt splicing tape for light weight uncoated and coated and supercalendered papers | 0.06 (2.2) | Paper | Repulpable | Paper | 0.07 (2.9) | 180 (350) | Yes |
| 9969 | Blue/White | Very thin butt splicing/cover tape for uncoated, newsprint and most coated papers | 0.06 (2.2) | Paper | Repulpable | Paper | 0.07 (2.9) | 180 (350) | Yes |
| Adhesive Transfer Tape | | | | | | | | | |
| R3037 | Blue | Thinnest, fibre reinforced adhesive transfer tape | 0.05 (2.0) | None | Repulpable | Paper | 0.08 (3.3) | 120 (250) | Yes |
| Temporary Double Coated | | | | | | | | | |
| 906 | Blue/White | Flying splice at the Off-Machine Coater (OMC) | 0.08 (3.0) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 200 (400) | Yes |
| 9069 | Blue | Excellent for newsprint or directory stock | 0.09 (3.5) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 200 (400) | — |
| 9977 | Blue | High strength tissue for flying splices where extra strength is needed | 0.10 (4.0) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 200 (400) | — |
| R3227 | Blue/White | General purpose temporary splicing | 0.09 (3.5) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 200 (400) | Yes |
| R3257 | White | Thin tissue, very high tack | 0.11 (4.1) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 200 (400) | Yes |
| R3287 | White | Heavy tissue, very high tack | 0.14 (5.5) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 200 (400) | Yes |
| Temporary Single Coated | | | | | | | | | |
| R3127 | Blue/White/Kraft | General purpose, excellent holding power | 0.11 (4.5) | Paper | Repulpable | — | none | 200 (400) | Yes |
| R3177 | Blue/White/Red | Heavy duty, extensible repulpable backing | 0.16 (7.0) | Paper | Repulpable | — | none | 200 (400) | Yes |
| R3187 | Blue/White/Kraft | General purpose, strong repulpable backing | 0.19 (7.5) | Paper | Repulpable | — | none | 200 (400) | Yes |
| Splittable Flying Splice (SFS) | | | | | | | | | |
| R3345 | Blue | Thin SFS tape for flying splices through supercalendering operations, and permanent butt splices for light weight coated papers | 0.12 (4.8) | Paper | Repulpable | Paper | 0.07 (2.9) | 200 (400) | — |
| R3375 | Blue | Strong SFS tape for flying splices on heavy papers and high tension web processing through supercalendering operations | 0.16 (6.5) | Paper | Repulpable | Paper | 0.07 (2.9) | 200 (400) | — |
| R3379 | Blue | Repulpable Splittable Flying Splice Tape is used for high speed splicing conditions when high tack is required and to compensate for roll profile issues | 0.18 (7.5) | Paper | Repulpable | Paper | 0.07 (2.9) | 200 (400) | — |
| R9996 | Blue | Thinnest SFS tape for splicing applications in paper mills and paper converting coating operations | 0.12 (4.8) | Paper | Repulpable | Paper | 0.07 (2.9) | 200 (400) | — |
| R9999 | Blue | Repulpable Splittable Flying Splice Tape for heavyweight papers in manual and automatic splicing equipment, with moderate speed | 0.17 (6.7) | Paper | Repulpable | Paper | 0.07 (2.9) | 200 (400) | — |

†All components of the adhesive and backing meet the requirements of indirect food additive regulations as described under 21 CFR 176.170 (Components of paper and paperboard in contact with aqueous and fatty food) and 21 CFR 176.180 (Components of paper and paperboard in contact with dry foods).

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

3M™ Splicing Tapes for the Printing Industry

| Product | Colour | Comments | Tape Thickness mm (mils) without liner | Tape Structure | | Liner | | Heat Resistance* °C (°F) | FDA Compliant† |
|--|----------------------|---|--|---------------------|------------|-------|------------------------|--------------------------------|-------------------|
| | | | | Backing/ Carrier | Adhesive | Type | Thickness mm (mils) | | |
| Repulpable Adhesive Transfer Tape | | | | | | | | | |
| R3037 | Blue | Thinnest, fibre reinforced adhesive transfer tape | 0.05 (2.0) | None | Repulpable | Paper | 0.08 (3.3) | 120 (250) | Yes |
| Repulpable Single Coated | | | | | | | | | |
| R3127 | Blue/ White/Kraft | General purpose, excellent holding power | 0.11 (4.5) | Paper | Repulpable | — | none | 200 (400) | Yes |
| R3187 | Blue/ White/Red | General purpose, strong repulpable backing | 0.19 (7.5) | Paper | Repulpable | — | none | 200 (400) | Yes |
| R3177 | Blue/ White/Red | Heavy duty, extensible repulpable backing | 0.16 (7.0) | Paper | Repulpable | — | none | 200 (400) | Yes |
| Repulpable Double Coated | | | | | | | | | |
| 913 | Blue | Paster tape for splices at newspaper printers | 0.09 (3.5) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 200 (400) | — |
| 9038 | Blue/White | General purpose plus flying splice tape for commercial printers and corrugators | 0.09 (3.5) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 180 (350) | Yes |
| 9069 | Blue | Excellent for newsprint or directory stock | 0.09 (3.5) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 200 (400) | — |
| R3227 | Blue/White | For zero speed splicing | 0.09 (3.5) | Tissue Carrier | Repulpable | Paper | 0.08 (3.2) | 200 (400) | Yes |
| Splittable Flying Splice (SFS) | | | | | | | | | |
| R5348 | Blue | Use with light- to medium-weight papers running through medium-temperature ovens | 0.11 (5.0) | Paper | Repulpable | Paper | 0.07 (2.9) | 180 (350) | — |
| R7359 | Blue | Use with light- to heavy-weight papers running at high speeds and high temperatures | 0.17 (6.6) | Paper | Repulpable | Paper | 0.07 (2.9) | 200 (400) | — |
| R7369 | Blue | Use with light- to heavy-weight paper on wide web rolls to help compensate for roll profile variations running at high speeds and high temperatures | 0.19 (7.4) | Paper | Repulpable | Paper | 0.07 (2.9) | 200 (400) | — |
| 9990N | Blue | Splittable flying splice (SFS) system with metalized layer for auto-sensing splice detection applications | 0.14 (5.5) | Aluminized Paper** | Repulpable | Paper | 0.05 (2.2) | 180 (350) | — |
| R9993 | Blue | All in one tabbing and splicing tape for heatset printing applications | 0.11 (5.0) | Paper | Repulpable | Paper | 0.07 (2.9) | 200 (400) | — |

*As tested in laboratory. Results may vary depending on machine and web tensions, nature of paper surface, application pressure, etc. which are outside of 3M's control.

**Non-repulpable, screenable aluminized sensor strip.

†All components of the adhesive and backing meet the requirements of indirect food additive regulations as described under 21 CFR 176.170 (Components of paper and paperboard in contact with aqueous and fatty food) and 21 CFR 176.180 (Components of paper and paperboard in contact with dry foods).

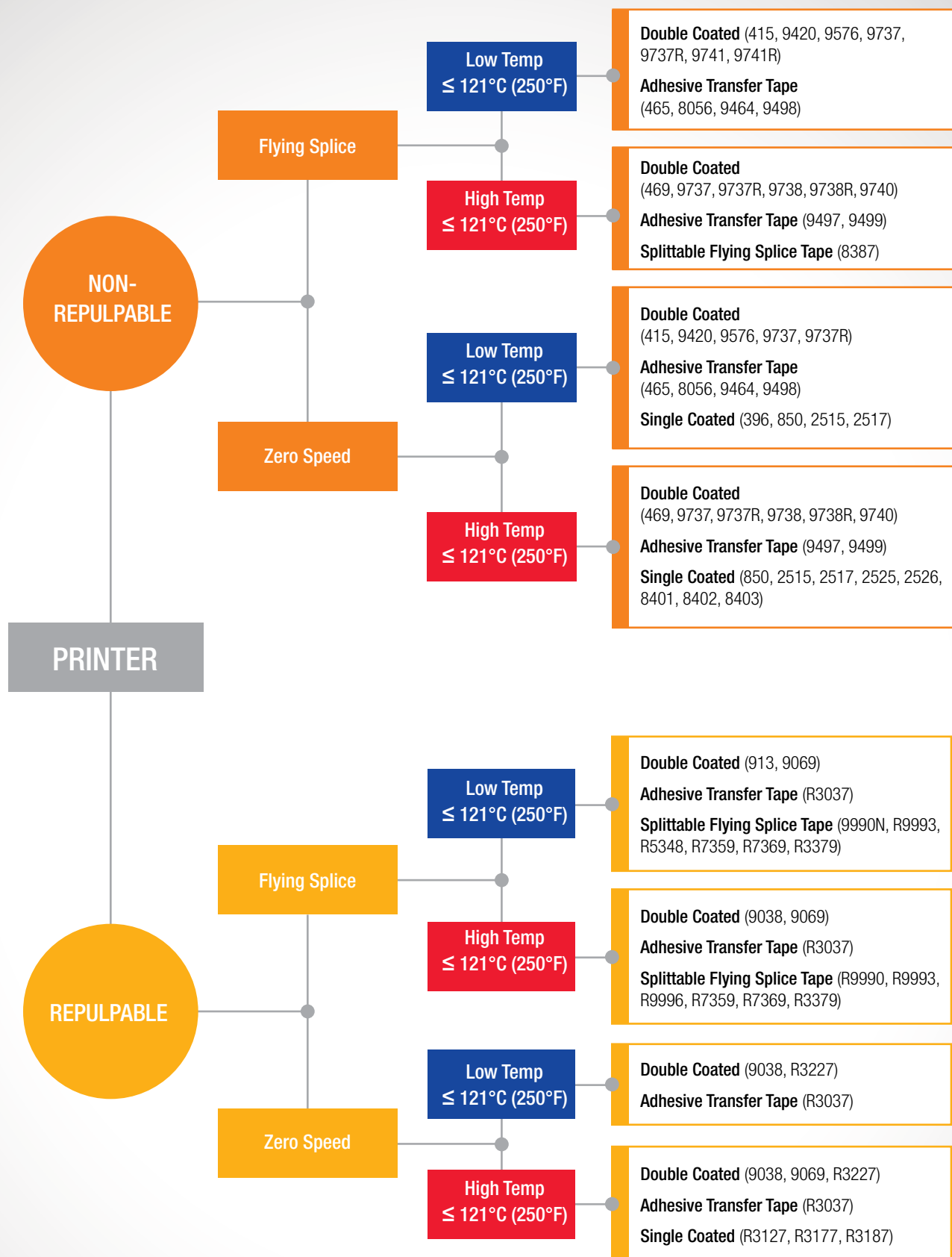
3M™ Non-Repulpable Splicing Tapes (All tapes in this chart can be considered for zero speed or flying splices)

| Product | Product Description | Tape Thickness mm (mils) without liner | Carrier | | Colour | Adhesion N/25 mm (oz/in) | Heat Resistance* (Short-term) °C (°F) | Go-To Application | |
|----------------------------------|---|--|------------------------|------------------|----------------------|--------------------------------|--|-------------------|------------------|
| | | | Thickness mm (mils) | Type | | | | Zero Speed | Flying Splice |
| Based on ASTM Test Method | | D-3652 | D-3652 | | | D-3330 | | | |
| Adhesive Transfer Tape | | | | | | | | | |
| 465 | High tack, excellent adhesion to most paper stocks, flexible to -51°C (-60°F) | 0.05 (2.0) | — | none | Clear | 6.8 (25) | 121 (250) | | |
| 9498/9464 | Low temperature splicing | 0.05 (2.0) | — | none | Clear/Red | 6.0 (20) | 121 (250) | ■ | |
| 9499/9497 | High temperature splicing | 0.05 (2.0) | — | none | Clear/Red | 12.5 (45) | 177 (350) | ■ | |
| Double Coated Tapes | | | | | | | | | |
| 415/9420 | High tack adhesion to paper and many other surfaces | 0.10 (4.0) | 0.01 (0.5) | Polyester | Clear/Red | 6.8 (25) | 82 (180) | | |
| 469 | High temperature, high tack | 0.14 (5.5) | 0.02 (1.0) | Tissue | Red | 16.7 (60) | 177 (350) | | ■ |
| 9086 | Easy tearing, easy handling, thick high tack adhesive, very conformable | 0.19 (7.5) | 0.03 (1.5) | Non-Woven Tissue | Clear | 40.0 (146) | 121 (250) | | |
| 9088 | High temperature resistance, high tack and shear strength | 0.20 (8.3) | 0.01 (0.5) | Polyester | Clear | 37.5 (137) | 150 (300) | | |
| 9576 | Medium tack for general splicing and roll closing | 0.10 (4.0) | 0.02 (1.0) | Polypropylene | Red/Black/ Yellow | 13.5 (30) | 75 (165) | | |
| 9737/9737R | Thin PET carrier, aggressive and versatile tape for many surfaces | 0.09 (3.5) | 0.01 (0.5) | Polyester | Clear/Red | 16.7 (60) | 150 (300) | ■ | ■ |
| 9738/9738R | Non-woven tissue carrier, aggressive and versatile tape for many surfaces | 0.11 (4.3) | 0.03 (1.3) | Non-Woven Tissue | Clear/Red | 16.7 (60) | 150 (300) | ■ | ■ |
| 9740 | High performance over a wide range of temperatures, high peel, tack, and shear properties, performance grade splicing for corrugators | 0.09 (3.5) | 0.01 (0.5) | Polyester | Clear | 21.2 (70) | 218 (425) | | ■ |
| 9741/9741R | Thick tape adheres to a wide variety of substrates, super aggressive for low surface energy substrates | 0.17 (6.5) | 0.01 (0.5) | Polyester | Clear/Red | 34.0 (120) | 93 (200) | | |

*As tested in laboratory. Results may vary depending on machine and web tensions, nature of paper surface, application pressure, etc. which are outside of 3M's control.

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

3M Splicing Tapes Selection Guide



Temperature ratings are dependent on oven time, web tension, web speed and substrate thickness. See data page for exact temperature rating.

Equipment

Easy to use.

Fast and effective.

From hand-held to walk-behind, or custom-mounted to portable, our applicators and dispensers are specially designed for use with 3M Masking and Surface Protection Products.

3M™ Lane Marking Applicators

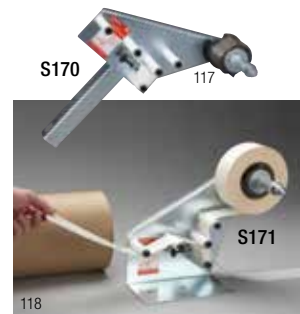
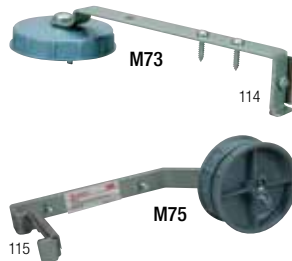


3M™ Lane Marking Applicator M1



| Product | Product Name | Product Description | Colour |
|---------|---------------------------------|---|--------|
| M1 | 3M™ Lane Marking Applicator M1 | 3M™ Lane Marking Applicator M1 is used to apply vinyl tape to floor surfaces in manufacturing and commercial plants. General use. | Red |
| M77 | 3M™ Lane Marking Applicator M77 | 3M™ Lane Marking Applicator M77 is used to apply vinyl tape to floor surfaces in manufacturing and commercial facilities. Heavy duty. | Red |

3M™ Tape Dispensers



| Product | Product Name | Product Description | Colour |
|---------|---|---|--------|
| H330 | 3M™ Dispenser for Flashing Tape H330 | A hand-held dispenser that provides a quick and easy method to apply 3M™ All Weather Flashing Tape 8067 and 3M™ Sealing Tape 8777. Accommodates up to a 15.24 cm (6") wide tape on a 7.62 cm (3") core. | Red |
| H331 | 3M™ Dispenser for Flame Retardant Tape H331 | A hand-held dispenser that provides a quick, easy and inexpensive method to apply 3M™ Glass Cloth Tape 398FR and 3M™ Flame Retardant Glass Cloth Tape 399FR. Accommodates up to a 15.24 cm (6") wide tape on a 7.62 cm (3") core. | Grey |
| M73 | 3M™ Utility Bracket Dispenser M73 | Utility bracket dispensers can be custom-mounted on walls, equipment, tables, and to the sides of work stations. This model holds 0.635 cm (1/4") to 2.54 cm (1") wide. | Blue |
| M75 | 3M™ Utility Bracket Dispenser M75 | Utility bracket dispensers can be custom-mounted on walls, equipment, tables, and to the sides of work stations. This model holds 0.635 cm (1/4") to 5.08 cm (2") wide. | Blue |
| RTA500 | 3M™ Repulpable Tape Applicator RTA500 | A hand-held tape dispenser designed to dispense 3M™ Lined Repulpable Tapes, while simultaneously removing the liner. | Tan |
| S170 | 3M™ Set Change Dispensing System S170 | Use for dispensing repulpable core starting tape while removing liner. Accommodates up to 5.08 cm (2") wide tape. | Silver |
| S171 | 3M™ Set Change Dispensing System S171 | Table top version. Use for dispensing repulpable core starting tape while removing liner. Accommodates tape up to 5.08 cm (2") wide. | Silver |

See our vinyl tapes on page 37.

3M™ Dispensers for Large Area Masking



| Product | Product Name | Product Description |
|---------|---|---|
| 06781 | Scotch® Cart Masker 06781 | Portable masker provides a convenient method to adhere masking tape to the edge of masking paper for paint masking. Features two paper dispensing stations. Up to 60.9 cm (24") wide paper. |
| 06780 | 3M™ Overspray Protective Sheet Masker 06780 | Portable masker designed to dispense sheeting. Allows for easy hand cutting of plastic sheeting. |
| 06864 | Scotch® Slimline Apron Taper 06864 | Dispenses three widths of masking paper up to 45.7 cm (18") wide. Side hooks hold different tape widths for special needs. |
| 06865 | Scotch® Apron Taper 18" 06865 | Provides a convenient method for adhering masking tape to the edge of masking paper for paint masking. |
| 06866 | Scotch® Apron Taper 36" 06866 | Features top loading, and easy operation and adjustment. |

| | |
|--|--|
| <p>3M Tape Dispenser Replacement Parts</p> <p>Dispenser Parts 241 Venture Drive Amery, WI 54001 Phone: 1-800-344-9883 Fax: 715-268-8153</p> | <p>Replacement Blades</p> <p>Atscott Manufacturing Company, Inc. 1150 Holstein Drive N.E. Pine City, MN 55063 Phone: 320-629-2501, ext. 116 www.atscott.com</p> |
|--|--|

Technical Appendix for Protective Tapes

3M™ Protective Tapes

The 3M™ Protective Tape Products Selection Guide is a quick reference of standard 3M™ Protective Tape Products to help the user select appropriate tapes for consideration and evaluation in their applications. Products are colour-coded by product family for easy reference.

Please remember that many factors can affect the use and performance of a 3M™ Protective Tape Product in a particular application:

- Surface texture of substrate
- Surface preparation of substrate (including use of solvents)
- Method and conditions of tape application
- Time and environmental conditions
- Storage conditions

It is essential that the user evaluate the 3M™ Protective Tape Product to determine whether it is suitable for a particular purpose to meet the user's expectation.

Protective Tape Product Families

Polyethylene Tapes

- Better transparency
- Good abrasion resistance
- Cost effective

UV Tapes — Clear and Blue

- Outdoor UV resistance for up to 5 months
- Available in transparent and blue

UV Tapes — Co-Extruded Black/White

- Enhanced outdoor UV resistance for up to 9 months

Carpet Tapes

- Good transparency
- Easy unwind

Fire Retardant Tapes

- Complies with many fire-retardant tests
- Stays in place during use
- Removes cleanly

Co-Extruded “A” Tapes

The best choice in a 3M™ Protective Tape

- Excellent conformability
- Enhanced abrasion and puncture resistance
- Good heat resistance

Polypropylene Tapes

- Good abrasion resistance
- Good heat resistance
- Good short-term outdoor UV resistance

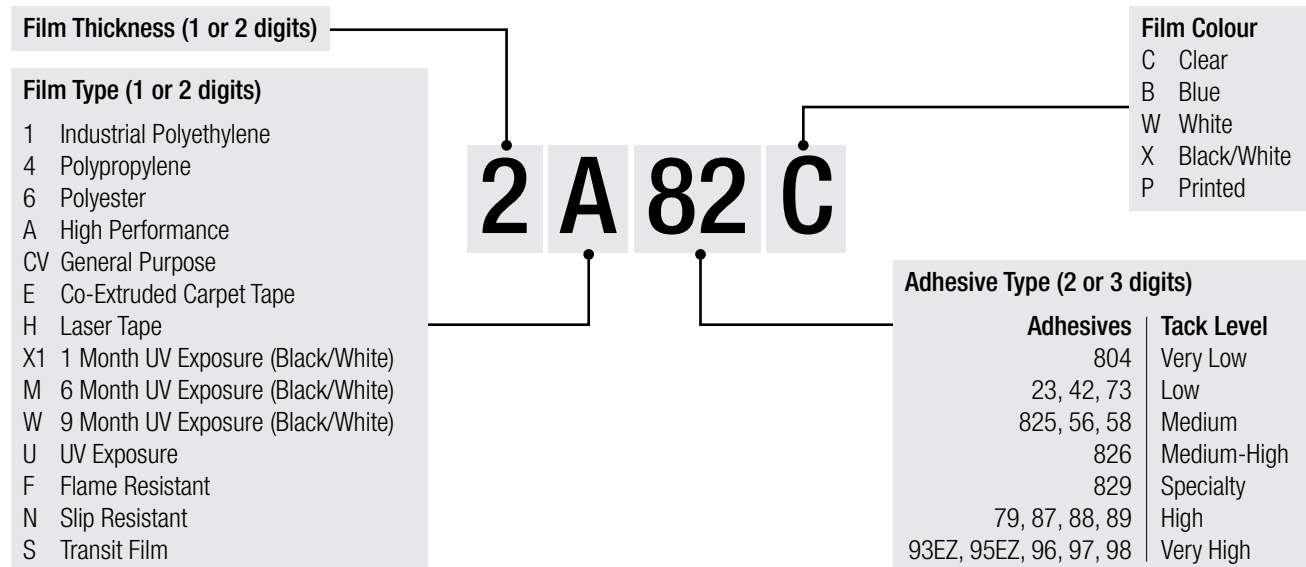
Polyester Tapes

- Best optical clarity
- Excellent heat resistance
- Excellent puncture resistance

Self Sealing Films

- Clear film that seals to itself
- Ideal for packaging small parts
- Tamper-proof packaging

3M Temporary Surface Protection Tape Product Identification



Glossary

This glossary is compiled by the Pressure Sensitive Tape Council (PSTC) and 3M (terms identified with an asterisk). PSTC is the North American trade association for tape manufacturers and affiliate suppliers, dedicated to helping the industry produce quality pressure sensitive adhesive tape products in the global marketplace. Visit www.pstc.org for more information.

Abrasion Resistance

The ability of a tape to withstand rubbing and still function satisfactorily.

Accelerated Aging

A means whereby the deterioration of a tape encountered in natural aging may be accelerated and reproduced in the laboratory.

Accelerated Weathering (Weathering)

Exposure in a chamber to ultraviolet light, heat, and water whereby the effect of outdoor exposure on a tape can be approximated.

Acrylic Adhesive*

A pressure sensitive, viscoelastic blend of acrylic-based materials which may be modified by tackifying additives. Acrylic adhesives are a very broad class of materials and come in many types to achieve different properties.

Adhesion to Backing

The bond produced to the backing of the same tape or another tape backing.

Adhesive Deposit or Residue

Adhesive that is pulled away from the tape upon removal and remains on the surface to which it has been applied.

Adhesive Transfer

When the adhesive on a tape either splits or transfers completely from the backing on to the surface it has been applied to either during unwind or removal, resulting in tacky areas on the surface.

Anchorage

The specific adhesion of a pressure sensitive adhesive to a face material or an anchor coat.

AOC*

Aircraft On Ground

Article Letters

Letters if a MSDS does not exist on a product.

Backing

A relatively thin flexible material to which the adhesive is applied. Theoretically, any material that is reasonably flat, thin and flexible can be used as a tape backing.

Backsize

An occlusive coating applied to the non-pressure sensitive side of a porous backing, such as paper, in order to provide a satisfactory surface that the pressure sensitive adhesive side can contact when the tape is wound into a roll.

Bleed-through (Bleeding)

Penetration through the tape of a colouring material (paint, etc.) onto the surface to which the tape is applied.

Blocking

Adhesion between the sheets of the plies of rolls of coated material, usually due to extreme conditions of pressure, temperature or humidity.

BSR*

An acronym for Buzz, Squeak and Rattle.

Bursting Strength

The ability of a tape to resist damage when a force is applied evenly and perpendicularly to the surface of a tape.

Butt Splice (Butt Joint)*

Splices made on certain converting equipment (especially in heavy basis weight paper, boards, etc.). The trimmed ends of the web do not overlap but are held together end-to-end with single-sided adhesive tape, or in some similar fashion. A strip of paper or tape may also be laminated on one or both sides to form a continuous web.

Caliper

The thickness (as of a sheet of paper) measured under specified conditions. See also THICKNESS.

Carrier

A webstock that holds a pressure sensitive adhesive, especially used to refer to double-faced or double coated tapes.

CID*

In relation to military specs = Commercial Item Description.

Clean Removal*

When a tape is expected to remove cleanly from the substrate after a period of time.

Coating Weight

The weight of a coating per unit area. In SI-units expressed as grams per square metre (g/m²).

Co-extruded*

Refers to film extruded in individual layers with the possibility of different raw materials in each layer providing unique combined film properties.

Cohesion (Cohesive Strength, Internal Bond)

The ability of the adhesive to resist shear stress and splitting. Good cohesion is necessary for clean removal.

Cold Flow

The tendency of a pressure sensitive adhesive to act as a heavy viscous liquid over long periods of time. Such phenomena as oozing and increase in adhesion with time are the result of this characteristic.

Colour Stability

The ability of a tape to retain its original colour, particularly when exposed to light.

Conformability*

The ability for a tape to make arcs, circles, go into depressions, go over protrusions and still stay in one piece without slivering, tape lifting, necking down.

*Compiled by 3M.

Glossary (cont.)

Controlled Unwind*

When a balance is achieved between too low of an unwind, allowing the tape to prematurely unwind from its own backing, or too high, causing premature slivering or breaking when unwinding from its roll.

Corona Resistance

The ability of an elastomeric adhesive, coating, or sealer acting as an insulator to withstand the effects of high voltage discharge. Indications of failure appear as surface cracks.

Cratering*

A paint defect that when viewed under a microscope resembles a crater with a depression in the centre and a raised rim around the perimeter. This usually is caused by a surface contaminant like a particle of dirt, gel particle or a surface tension change like from an oil drop or silicone contamination.

Creep

The slow movement of the adhesive or backing under shear stress.

Crepe Paper*

Paper with a crinkled or puckered texture. This allows the paper to stretch or elongate making it useful to curve and conform to irregular surfaces better than flat paper.

Cross-linking

Developing a three-dimensional molecular structure in an adhesive normally activated by heat or irradiation. An improvement in shear resistance, high temperature resistance, and oil or solvent resistance will normally result.

Cure

To alter the properties of an adhesive by chemical reaction, which may be condensation, polymerization, or vulcanization. Usually accomplished by the action of heat and catalysts, alone or in combination, with or without pressure.

Curl

The tendency of paper by itself or in a laminate to bend or partly wrap around the axis of one of its dimensions.

Dead Soft Aluminum*

Aluminum that has had no annealing or hardening.

Dead Stretch*

The ability for a tape to be pressed into a depression and stay in place as if it were "dead" or without "memory/recovery."

Delamination

A separation or splitting of the tape such as separation of the backing into two distinct layers, separation between laminations of a tape consisting of more than one backing, separation between filaments and backing of a filament reinforced tape, or separation of the adhesive from the backing.

Dewetting*

When a paint appears to bead up or not flow out on a surface, like water on a freshly waxed car.

Dielectric Strength

The measure of the maximum voltage stress that a single layer of tape can withstand before dielectric failure occurs, the test being carried out under prescribed conditions.

Dimensional Stability

That property of a material that relates to the constancy of its dimensions, particularly in relation to external influences such as moisture or temperature.

Double Coated

An adhesive applied to both sides of a carrier.

Double Process*

A sandblasting procedure in which frosting is done first and sunk lines are done last. This requires frosted areas to be uncovered and recovered for the frosting process.

Edge Curl

The peeling back or lifting of the outer edge of an applied tape in a curved manner.

Edge Lift

The tendency for the edge of an adhesive label to lift from a surface to which it has been adhered.

Edge Seepage*

When paint gets under the edge of a tape, often appearing as hairlines of paint perpendicular to the tape edge.

Elasticity

The extensible property of adhesive films or adhesive interfaces to contract and expand in such a manner as to overcome the differential contraction and expansion rates that the bonded adherents may exhibit.

Elastomer

An elastic, polymeric substance, such as natural or synthetic rubber.

Electrolytic Corrosion Factor

A measure of the tape's corrosive effect on an electrical conductor, particularly copper. This is particularly important in the selection of tapes for electrical insulation.

Elongation (Stretch, Ultimate Elongation)

The distance a tape will stretch in the machine or cross direction before breaking under controlled conditions, expressed as a percentage of original length. Elongation is not necessarily an indication of conformability.

Emissivity*

All solid surfaces emit radiant energy. The emissivity of a material is a ratio of the actual energy emitted from that surface to the maximum possible, or "black body", radiant energy. The maximum possible emissivity is unity and it is a unit-less parameter.

Enamel Paint*

A broad classification of free-flowing pigmented finishing materials which dry to a smooth, hard finish and usually possess a gloss.

ESD*

ElectroStatic Discharge

Extruded*

A manufacturing process where material is forced through a nozzle (like extruded film or backing). Better for lay-flat than skived.

Face Stock

Any paper, film, fabric, laminate, or foil material suitable for converting into pressure sensitive material stock. In the finished construction this web is bonded to the adhesive layer and becomes the functional part of the tape construction.

Fall-off

When a tape pulls completely from the surface to which it is applied and drops off.

*Compiled by 3M.

Glossary (cont.)

F.A.R. 25.853(a)*

Federal Aviation Regulation 12-second vertical burn test.

Fatigue

A weakness resulting from stress created by repeated flexing or impact force upon the adhesive-adherent interface.

Filaments

Thin, longitudinal yarns or threads of glass, polyester, nylon or other high strength materials.

Fine Line*

Tapes that are used in the painting industry to give a very sharp paint line. Usually made with plastic type backings that are both smooth and conformable.

Flame Resistance

The ability of a tape to withstand exposure to flame. Fireproof materials will not burn even when exposed to flame. Flame-resistant (fire-retardant, self-extinguishing) materials will burn when exposed to flame, but will not sustain the burn after the flame is removed.

Flame Retardant*

Serving or tending to retard 1) slows flame propagation 2) meets industry regulations 3) is not flameproof 4) is not necessarily high temp performance.

Flatback Paper*

Paper with a flat (not crinkled) texture. This allows the paper to retain its original shape making it useful for maintaining a straight line and smooth backing feel.

Fluting

Distortion of a roll of tape such that the layers no longer form a circle.

Frosting*

Lightly removing the polish from a monument by using abrasive to give texture and a white contrast to the engraving.

Gapping

Openings between layers of tape within a finished roll.

General Paint Masking*

Where the paint line is important, but not critical to function or appearance on the finished part.

General Purpose Holding*

Where a tape is expected to temporarily hold miscellaneous items, such as during an assembly process.

Gloss

A light reflection characteristic of tape backings, usually expressed by such terms as glossy, low gloss, matte, etc.

Gross Masking*

Any material like paper or plastic that can be used to cover a large area, usually held in place with tape, that protects the area from paint overspray.

Hand-cut*

Cutting/carving design by hand to achieve desired pattern in sandblast stencil rubber.

Heat Seal

An adhesive film intended to be reactivated by the application of physical or chemical changes caused by exposure to high temperatures.

High Holding Strength — Masking*

Where a masking tape is expected to hold for long periods of time (several hours) to a surface to be painted or hold large areas of gross masking materials.

High Temperature Masking*

Where a masking tape is expected to withstand bake oven temperatures up to 149°C (300°F) for 30 minutes.

High Unwind*

When a tape is very difficult to unwind from its own roll. Can result in slivering off the roll.

High-Speed Unwind

A term referring to the process of unwinding or dispensing of tapes at a relatively high rate of speed, usually over 15 metres per minute.

Holding Power (Shear Adhesion, Shear Resistance)

The ability of a tape to resist static forces applied in the same plane as the backing. Usually expressed in a time required for a given weight and length of tape to shear free from a vertical panel.

Hot Melt (Pressure Sensitive Adhesive)

A pressure sensitive adhesive, applied to the backing in hot liquid form, which then cools to form a conventional pressure sensitive adhesive.

Humidity

The moisture content of the air. Actual humidity is the number of grams of moisture in the air at any given time. Relative humidity is the percent of moisture relative to the maximum that air at any given temperature can retain without precipitation.

Hygroscopic

A tendency of some materials to readily absorb moisture from the atmosphere.

Impact Resistance (Shock Resistance)

The ability of a tape to resist sudden impacts, pulls, or shocks as may sometimes be encountered by packages in transit.

Imprinting (Ghosting)*

Can occur when a vapour barrier, such as plastic sheeting, is placed over a painted surface and exposed to heat and/or UV. Moisture trapped under the plastic can't evaporate so it is driven back into the paint, leaving an imprint.

Insulation Resistance

The ability of tape to prevent the flow of electrical current across its surface, usually measured on the backing.

Label Stock

Pressure sensitive insulation materials furnished in roll or sheet form with liner, which can be later printed, frequently die-cut, and intended for use as labels.

Lacquer*

Various clear or coloured synthetic organic coatings that typically dry to form a film by evaporation of a solvent, frequently a solution of cellulose derivative (as nitrocellulose).

Lap Joint

A joint made by lapping one material over another to provide a mated area that can be joined with an adhesive.

Latent Stain

A stain in a surface to which tape has been applied, which does not become noticeable until some time after the tape is removed, usually after the surface has been exposed to sunlight or heat.

*Compiled by 3M.

Glossary (cont.)

Latex Paint*

A water emulsion of plastic, obtained by polymerization, used especially in coatings that can recombine to form a thin film.

Leader Tape*

Used to splice photographic film leaders together for film processing.

Lifting

A situation where a section of tape has been pulled away from the surface to which it has been applied.

Low Adhesion Backsize (LAB)*

Surface treatment on the back (non-adhesive coated side) of a tape that allows tape to unwind when in roll form. It also helps coatings like paint to stick to its surface to prevent paint flaking.

Low Tack Masking*

Where a very low removal force is desired, often for use on delicate surfaces.

Low Temperature Masking*

Where a masking tape is expected to withstand bake oven temperatures up to 93°C (200°F) for 30 minutes.

Medium Temperature Masking*

Where a masking tape is expected to withstand bake oven temperatures up to 121°C (250°F) for 30 minutes.

Metal Foil

Thin, flexible sheets of metal, such as aluminum, copper and lead, used as tape backings because of their inherent properties such as weather resistance, electrical conductivity, reflectivity, etc.

Moisture Vapour Transmission Rate

A measure of the rate of water vapor transmission through a pressure sensitive product usually measured in grams per square metre per 24 hours.

Necking Down*

When a tape's width is reduced (usually due to stretching or elongating the tape) resembling the neck of a beverage bottle.

Nomograph*

A graphical means of representing properties of a material or system as a function of multiple parameters. A nomograph is used to describe the storage modulus and loss factor of viscoelastic damping materials as a function of temperature and frequency.

NPE*

An NPE number is used to designate an experimental product. NPE products are often provided to customers for evaluation purposes only, and may or may not be commercialized.

Off-Core

A roll of tape in which the layers are in correct alignment, but the tape is displaced sideways on the core.

Off-Site Blasting*

Process where names and dates are blasted onto monument surface after installation of monument.

Oozing

A "squeezing out" of the adhesive from under the backing. Occurrence when a tape in a roll form causes the edges of the roll to become tacky.

Opacity

The ability of a tape to prevent the transmission of light.

Opaque*

Cannot be seen through.

Out-Gassing

The release of volatile components under heat or vacuum.

Overspray*

Light coating of paint, usually from excess airborne paint, that can drift onto adjacent surfaces that should not be coated.

Overlap Joint (Overlap Splice, Lap Splice, Lap Join or Lap Joint)*

A type of adhesive joint, used normally on roll goods, in which the surface of one edge of the product extends over the edge of the product to be spliced normally at least 1.3 cm (one half inch), and is spliced with a single coated tape, adhesive or double coated tape.

Paint Flaking*

The breaking of paint (that has been dried on the back of a tape) into small pieces such that when the tape is flexed, as during removal from a job, it falls off the back of the tape.

Pattern Coated

A term that refers to the width and spacing arrangement of strips of adhesive laid down parallel to machine direction and across the width of pressure sensitive stock during its production.

PCB*

Printed Circuit Board

PE*

The abbreviation for polyethylene. Usually extruded in a single (mono) layer.

Peel Adhesion

The force per unit width required to break the bond between a pressure sensitive adhesive tape and the surface to which it has been applied when the tape is peeled back at a controlled angle at a standard rate and condition.

PET*

Abbreviation for polyester.

Picking and Weeding*

The process of removing the cut stencil pieces prior to sandblasting.

Plastic Sheet*

Large area plastic film used to cover or protect a surface or area from airborne particles.

Plasticization

The softening of an adhesive when exposed to migrating plasticizers or oils.

Plotters/Cutters*

Computerized machines that cut lettering and designs into sandblast stencil are called plotters. There are IBM compatible plotters that require a "T" punch, Gerber plotters that require a "S" punch and friction plotters that require no punch.

PP*

Abbreviation for polypropylene. Usually manufactured as a single (mono) layer via a casting process.

*Compiled by 3M.

Glossary (cont.)

PPAP*

Production Part Approval Process — an automotive market requirement that can increase a product's chances of meeting specifications.

Pressure Sensitive

A term commonly used to designate a distinct category of adhesive tapes and adhesives which in dry form (solvent/water free) are aggressively and permanently tacky at room temperature and that firmly adhere to a variety of dissimilar surfaces upon mere contact without the need of more than finger or hand pressure. These products require no activation by water, solvent, or heat in order to exert a strong adhesive holding force toward such materials as paper, plastic, glass, wood, cement, and metal. They have sufficient cohesive holding power and elastic nature so that, despite their aggressive tackiness, they can be handled with the fingers and removed from smooth surfaces without leaving a residue.

Priming

Application of a thin layer of adhesive-like material to a backing that serves as a bonding agent between the backing and the final adhesive coat.

PTFE*

Abbreviation for polytetrafluorethylene.

Quick Stick (Finger Tack, Initial Adhesion, Wet Grab)

See TACK.

Release Force

The measure of the force required to separate a unit width of pressure sensitive tape from a release coated surface at a controlled angle and speed.

Release Liner

A web of sheet material used as a protective liner, which covers the adhesive side of the tape. It is removed prior to application. Most frequently found on double-sided tapes and label stocks.

Repulpable*

Paper tapes that can be recycled to the process without contamination of the broke pulp.

Resonant Vibration*

A condition of oscillation caused when a small amplitude of periodic input has a frequency approaching one of the natural frequencies of the driven system. Resonant frequencies are determined by the physical parameters of the object or system. i.e. Marching troops “break step” when marching over a bridge such as to not to vibrate the bridge in resonance in the event the natural frequency of the bridge structure matches the frequency of the troops marching in step.

Rewinding

The operation of winding the webstock from the reel onto a core to produce rolls of the desired width, diameter and tension.

Rope Stock

A smooth paper made wholly or largely of hemp fibre for tensile strength.

Rubber Adhesive*

A pressure sensitive, viscoelastic blend of polymeric rubber-based materials and tackifying resin. The rubber materials may be natural or synthetic. Rubber adhesives are a very broad class of materials and come in many types to achieve different properties.

Sandblast Filler*

Adhesive that is brushed on monuments to assure firm adhesion of stencil.

Saturation (Impregnation)

Adding materials (saturant) to the backing for improvement of physical properties and resistance to various deleterious environments.

Self-Seal

An adhesive joint that is accomplished by coating both adherent surfaces, and bringing them under pressure; an elastomeric adhesive (cohesive) used on envelope flaps, box closures, etc, whereby the adhesive film will bond only to itself.

Shear Adhesion

The time required, under specified test conditions (surface area, weight load), to slide a standard area of pressure sensitive tape from a standard flat surface in a direction parallel to the surface.

Shear Strength After Solvent Immersion

The force required to separate a bond by shear force after immersion in a typical varnish solvent under designated conditions.

Sheet Resistivity*

A measure of electrical resistivity obtained by measuring the voltage drop across two opposite sides of a square planer area at known current. The geometry of this measurement allow a square of any size to be used. Sheet resistivity is commonly used to measure the electrical characteristics of thin films. Units are ohms or more commonly ohms/square.

Silicone Adhesive*

A pressure sensitive, viscoelastic blend of polymeric silicone-based materials and a silicone tackifying resin. Silicone adhesives are typically higher temperature performing pressure sensitive adhesive materials.

Single Faced (Coated)

A tape to which a pressure sensitive adhesive is applied to only one side of the backing.

Single Process*

A sandblasting procedure in which sunk lines are sandblasted first and frosting is done last.

Sinking/Blasting*

Blowing sandblast abrasive at areas where the rubber has been removed to create recessed lines 1.3 cm (one half inch) deep.

Skived*

A manufacturing process where material is shaved (like shaving off a layer of soap). Usually better for wrapping than extruded material.

Slip Sheet or Interliner

See RELEASE LINER.

Slivering

When the tape tears or breaks into small pieces, either on unwind or on removal from a surface.

Slot Feed*

A punched “S” pattern using several round holes and a long, oblong slot hole.

Solvent/Chemical Resistant*

Ability to resist common solvents or chemicals.

*Compiled by 3M.

Glossary (cont.)

Solvent Trap*

When a freshly painted surface is painted or taped over too quickly not allowing the solvent to evaporate. Can result in a haze, surface takes on the shape of what ever touches it, adhesive transfer due to solvents attacking the adhesive on the tape.

Splice*

A joint made in a continuous sheet of paper with a glue or adhesive-type tape when there is a break in the web caused by winding or rewinding into a roll.

Static Charge*

Static (or sometimes electro-static) charge is electrical charge that has typically been generated by the tribocharging that results from the separation of two dissimilar materials. It may also occur as the result of previous direct contact with a power source. Usually measured in volts.

Static Dissipative*

A class of materials with sufficient electrical conductivity to dissipate or bleed static charge prior to an ESD "event" or rapid discharge of energy. Static dissipative materials have electrical resistivities in-between semi-conductors and insulators, typically between 1E09 ohms/sq and 1E12 ohms/sq.

Stencil Press*

A machine that presses and cuts plastic letters into rubber stencil.

Subsequent Adhesion

The force required to remove a unit width of pressure sensitive tape from a standard panel after it has been in contact with a release liner for a given period of time. This must be compared with the adhesion of the same tape that has not been in contact.

Sunk Lines*

Individual lines about 1.6 mm (1/16") wide or larger that create lettering and designs.

Sunlight Exposure — up to 7 days*

When exposure to direct sunlight is expected, even on a transparent surface like glass.

Surface Energy (Surface Wetting Ability)

The measure of surface tension in dynes. The lower the surface energy of a substrate, the more difficult it becomes for an adhesive or coating to wet out that surface.

Surface Treating

Any method of treating a polyolefin so as to alter the surface and render it receptive to inks, paints, lacquers and adhesives such as chemical, flame and electronic oxidation.

Tack

The property of a pressure sensitive adhesive that allows it to adhere to a surface under very slight pressure. It is determined by the ability of the adhesive to wet quickly the surface it contacts.

Tape Lifting*

When a tape prematurely releases from a surface after it has been firmly rubbed down to the surface.

Tear Resistance

The force required to propagate a tear in a tape in a given direction after the tear has been initiated.

Telescoping

A sideways sliding of the tape layers, one over another, such that the roll looks like a funnel or a telescope, usually occurring over a period of time.

Tensile Strength

The force required to break a unit width of tape by controlled pulling on opposite ends of the piece.

Thermal Conductivity*

The rate of thermal energy transfer through a material by conduction.

Thickness (Caliper, Gauge)

The perpendicular distance from one surface of either a tape, backing or adhesive to the other, usually expressed in millimetres, thousandths of an inch or mils. This is usually measured under controlled slight pressure with a special gauge.

Tractor Feed*

A punched "T" pattern using round holes.

Transfer Tape

A pressure sensitive adhesive unsupported applied to a two-side release coated liner.

TSCA*

Toxic Substances Control Act

UHMW-PE Film*

Ultra High Molecular Weight.

UL Listed*

Underwriter Laboratory certification of products for product compliance for public safety (i.e. electronics, heating and ventilation, etc.) as well as businesses for compliance to industry standards (i.e. ISO).

UL 181*

UL181A, UL181B, and UL181B-FX are different in that those must be UL Listed and that information must be printed on the tape surface. HVAC/R contractors often deal with UL 181A (maybe foils) and UL 181 F-FX.

UL 723*

UL 723 deals mainly with flammability.

Unwind or Unwind Adhesion

The force required to remove tape from a roll under prescribed conditions.

Use on Masking Machines*

When tape and a gross masking material are automatically dispensed on a piece of equipment and applied to each other for large area protection from paint overspray.

Varnish*

A liquid preparation that when spread and allowed to dry on a surface forms a hard lustrous typically transparent coating.

Water Penetration Rate (WPR)

The weight of water transmitted through a controlled area of tape under a specified time and conditions.

Water Vapour Transmission (WVTR)

The weight of water vapour allowed through a controlled area of tape within a specified time period and under controlled conditions.

*Compiled by 3M.

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