



Bumpon™ Protective Products

Molded Shapes Series

SJ-5000 • SJ-5200 • SJ-5300 • SJ-5400

SJ-5500 • SJ-5700 • SJ-6100

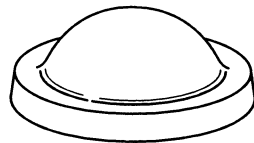
Technical Data

January, 2003

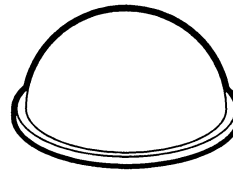
Product Description

3M™ Bumpon™ Protective Products are pressure sensitive adhesive-backed polyurethane products that can be used as feet, stops, spacers, and protectors in many applications.

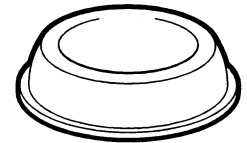
The urethane is a durable, resilient elastomer. The aggressive, high tack pressure sensitive adhesive is protected with a release liner making application fast and easy.



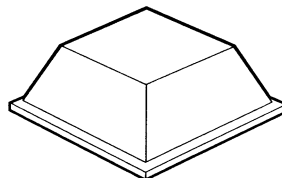
Top Hat



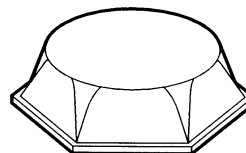
Hemisphere



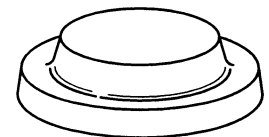
Cylindrical



Tapered Square



Hexagon



Top Hat

Features

Bumpon Protective Products feature a plasticizer-free urethane composition which exhibits:

- Excellent skid resistance
- Long aging resiliency – will not crack or harden
- Abrasion resistance
- Resistance to marring and staining

Application Ideas

Use almost anywhere slamming, scratching, nicking, scuffing, marring, sliding, vibration, or noise could be a problem for your product.

- **Feet** on the bottom of blenders, desk top calculators, electronic cabinetry, telephones, keyboards, foot pedals, scales, clocks, speakers, dispensers, and computers.
- **Stops** for cabinet doors, lids, and drawers.
- **Spacers** for picture frames to provide alignment; for auto glass as an aid in assembly.
- **Protectors** for stacked glass and metal sheets.

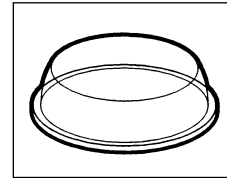
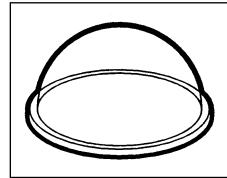
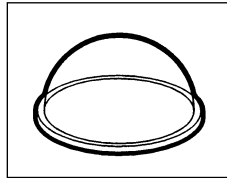
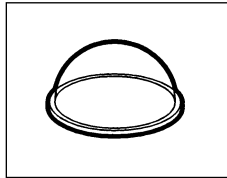
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Transparent and True White

3M™ Bumpon™ Protective Products



Product Number

Bumpon SJ-5302, SJ5402*

Bumpon SJ-5306, SJ-5406*

Bumpon SJ-5303

Bumpon SJ-5312, SJ-5412*

Colors

Transparent, True White*

Transparent, True White*

Transparent

Transparent, True White*

Width inches (mm)

0.312 (7.9)

0.375 (9.5)

0.44 (11.1)

0.50 (12.7)

High inches (mm)

0.085 (2.2)

0.150 (3.8)

0.20 (5.0)

0.14 (3.5)

Form

17x24 Matrix (Bumpon SJ-5302)

6x9 Matrix

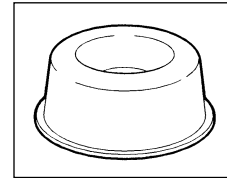
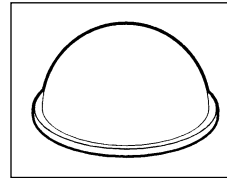
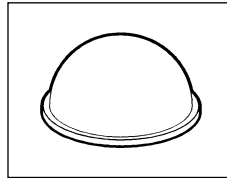
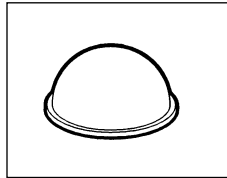
8x7 Matrix

8x7 Matrix

8x18 Matrix (Bumpon SJ-5402)

*Use Bumpon SJ-5400 Series to identify true white products.

Hemisphere



Product Number

Bumpon SJ-5003

Bumpon SJ-5027, SJ-5327**

Bumpon SJ-5017, SJ-5317**

Bumpon SJ-5009, SJ-5309**

Colors

White, Gray, Brown, Black

White, Gray, Brown, Black, Transparent**

White, Gray, Brown, Black, Transparent**

White, Gray, Brown, Black, Transparent**

Width inches (mm)

0.44 (11.1)

0.63 (16.0)

0.75 (19.0)

0.88 (22.3)

High inches (mm)

0.20 (5.0)

0.31 (7.9)

0.38 (9.6)

0.40 (10.1)

Form

8x7 Matrix

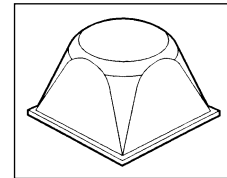
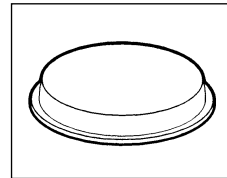
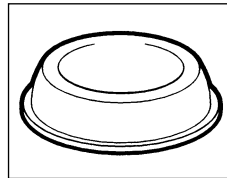
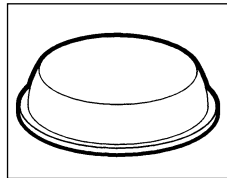
5x8 Matrix

4x10 Matrix

3x8 Matrix

**Use Bumpon SJ-5300 Series to identify transparent products.

Cylindrical



Product Number

Bumpon SJ-5012

Bumpon SJ-5001, SJ-5301**

Bumpon SJ-5744, SJ-5344**

Bumpon SJ-5514

Colors

White, Gray, Brown, Black

Black, Gray, Transparent**

Black, Transparent**

White, Gray, Brown, Black,

Width inches (mm)

0.50 (12.7)

0.50 (12.7)

0.75 (19)

0.81 (20.6)

High inches (mm)

0.14 (3.5)

0.14 (3.5)

0.16 (4.0)

0.52 (13.1)

Form

8x7 Matrix

5x8 Matrix

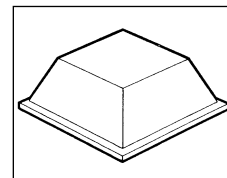
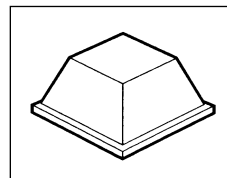
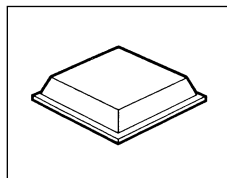
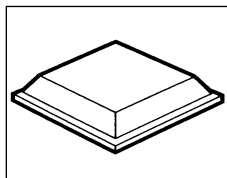
4x10 Matrix

4x1 Matrix

**Use Bumpon SJ-5300 Series to identify transparent products.

Note: All dimensions ± 0.02 inches or ± 0.5 mm measured without the adhesive liner.

Tapered Square



Product Number

Bumpon SJ-5007, SJ-5307**

Bumpon SJ-5008, SJ-5308**

Bumpon SJ-5018, SJ-5318**

Bumpon SJ-5023, SJ-5323**

Colors

Black, Transparent**

White, Gray, Brown, Black, Transparent**

White, Gray, Brown, Black, Transparent**

White, Gray, Brown, Black, Transparent**

Width inches (mm)

0.40 (10.2)

0.50 (12.7)

0.50 (12.7)

0.81 (20.5)

High inches (mm)

0.10 (2.5)

0.12 (3.1)

0.23 (5.8)

0.30 (7.6)

Form

6x9 Matrix

8x10 Matrix

8x10 Matrix

4x9 Matrix

**Use Bumpon SJ-5300 Series to identify transparent products.

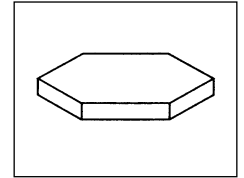
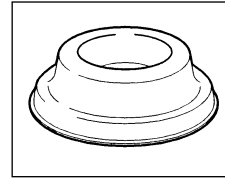
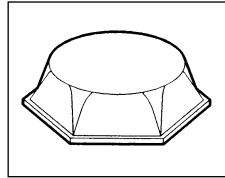
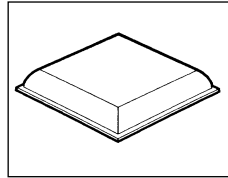
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Others

3M™ Bumpon™ Protective Products

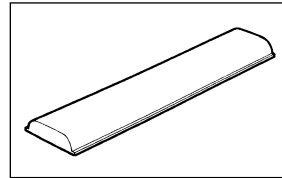
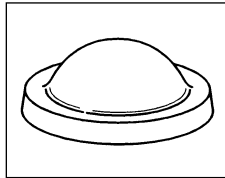
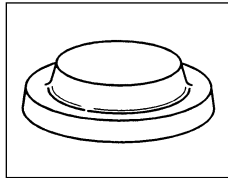


| Product Number | Bumpon SJ-5705 | Bumpon SJ-5077, SJ-5377 | Bumpon SJ-5532 | Bumpon SJ-5201*, SJ-5202* |
|-------------------|----------------|-------------------------|---------------------------|--|
| Colors | Black | Black, Transparent | White, Gray, Brown, Black | Light Brown |
| Width inches (mm) | 1.2 (31.75) | 0.65 (16.5) | 1.88 (47.7) | 0.433 (11.0) |
| High inches (mm) | 0.24 (6.1) | 0.16 (4.0) | 0.66 (16.7) | 0.125 (3.2) (Bumpon SJ-5201) 0.063 (1.6) (Bumpon SJ-5202) |
| Form | Separate Parts | Pads of 39 | Separate Parts | 11x12 Matrix |

*Bumpon SJ-5201 and Bumpon SJ-5202 are die cut parts from Bumpon SJ-5200 Series Rollstock.

Note: Above dimensions ± 0.02 inches or ± 0.5 mm measured without the adhesive liner.

Top Hat



| Product Number | Bumpon SJ-6115 | Bumpon SJ-6125 | Bumpon SJ-5510 Continuous Strip* |
|-------------------------------|----------------|----------------|----------------------------------|
| Colors | Black | Black | Brown, White, Gray, Black |
| Diameter of Brim, inches (mm) | 0.625 (15.9) | 0.625 (15.9) | Width, inches (mm): 0.50 (12.7) |
| Height of Brim, inches (mm) | 0.093 (2.36) | 0.093 (2.36) | Height, inches (mm): 0.15 (3.88) |
| Total Height, inches (mm) | 0.187 (4.75) | 0.250 (6.35) | |
| Form | 5x8 Matrix | 5x8 Matrix | 50' rolls, 5 rolls per case* |

Note: Dimensions for Bumpon SJ-6115 and Bumpon SJ-6125 ± 0.005 inches (± 0.13 mm) for diameter ± 0.015 inches (± 0.38 mm) for height measured without adhesive liner.

*Continuous strip can be cut by the customer to a specific length. The surface has lines that appear every 9" on the strip.

Special Products

Custom Shape and Color

3M can match most colors and customize shapes to your specifications. Call your local 3M sales rep to discuss Bumpon Protective Products to meet your needs.

Adhesive for Special Applications

Foam tape and other special adhesives are available for many custom applications.

Special Easy Strip Packaging

Packaged into strips or die cut and perforated pads can help simplify some assembly operations. Product currently available:

- 3M™ Bumpon™ SJ-5518 die cut perforated on pads of 64
- 3M™ Bumpon™ SJ-5508 die cut and perforated on pads of 64
- 3M™ Bumpon™ SJ-5523 4x1 matrix separated by perforations
- 3M™ Bumpon™ SJ-5514 4x1 matrix separated by perforations

Note: Custom Bumpon products may require a qualifying minimum and/or a one time set-up charge. Call your local 3M sales representative for more information.

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Typical Physical Properties and Performance Characteristics

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

3M™ Bumpon™ Protective Product Series

| 3M Test Method | Bumpon SJ-5000 | Bumpon SJ-5500 | Bumpon SJ-5300 | Bumpon SJ-5200 | Bumpon SJ-6100 |
|---|---|--|--------------------------------------|-------------------|--|
| | Bumpon SJ-5700 | Bumpon SJ-5400 | | | |
| Hardness, Shore A | ASTM-D2240 | 70 | 75 | 25 | 70 |
| Resilience, % | ASTM-D2632, 0.125" sample | 30 | 5 | 20 | 30 |
| Kinetic Coefficient of Friction (Mk) (Dependent on Test Surface) ¹ | ASTM-D1894 | | | | |
| | Stainless Steel | >1 | >1 | — | >1 |
| | Glass | >1 | >1 | — | >1 |
| | Formica® laminate | 0.9-1.4 | 0.9-1.4 | — | 0.9-1.4 |
| | Wood | 0.9-1.4 | 0.9-1.4 | — | 0.9-1.4 |
| Abrasion Resistance (Taber H18, 1kg) g/1000 cycles ² | ASTM-C501 | 1.7-1.9 | 0.13 | — | 0.13 |
| Tensile, lbs/in ² (MPa) ² | ASTM-D412, Die A | 600 (4.1) | 740 (5.1) | 120 (0.8) | 600 (4.1) |
| Elongation, % ² | ASTM-D412, Die A | 100 | 65 | 100 | 100 |
| Dielectric Strength, volts/mil ² | ASTM-D1000 | 200 | 370 | — | 200 |
| Stain Resistance | 3M-24 hours @ 158°F against white paint 7 days exposed to UV. | No Staining | No Staining | No Staining | No Staining |
| Flammability Listing | UL-94HB | Pass; UL Recognized | Pass; Not UL Recognized ³ | Not UL Recognized | Pass; UL Recognized (color black only) |
| Application Temperature | | 40°F (5°C) to 125°F (52°C) | | | |
| Service Temperature | Constant: Intermittent: | -30°F (-34°C) to 150°F (66°C) Up to 225°F (107°C) | | | |
| Solvent and Fuel Resistance | 24 hour immersion | <ul style="list-style-type: none"> • 5% Detergent in water • 25% Ammonia in water • Bleach • Hydrochloric Acid (1 Normal Solution) • Diesel Fuel • Auto Oil • Isopropyl Alcohol • Heptane • Toluol • Lacquer Thinner | | | |
| | | <ul style="list-style-type: none"> No Apparent Effect No Apparent Effect No Apparent Effect No Apparent Effect No Apparent Effect No Apparent Effect Slight Swelling Slight Swelling Considerable Swelling Considerable Swelling | | | |

Notes:

¹Two important laws of friction applicable to Bumpon products are: (1) Friction is independent of the area of contact between solids and (2) friction is proportional to the load between solid surfaces. Thus, if the load (weight) is doubled the force required to cause sliding is also double. This is expressed mathematically as follows: Sliding Force = M_k x weight.

²These properties were run on sheet material from the same materials as the individual Bumpon products

³Bumpon SJ-5300 Series products are not UL listed.

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Relative Adhesive Performance Characteristics

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

3M™ Bumpon™ Protective Product Series

| | Bumpon SJ-5000 Bumpon SJ-5550 Bumpon SJ-5700* | Bumpon SJ-5200 Bumpon SJ-5300 Bumpon SJ-5400 | Bumpon SJ-6100 |
|---------------------|---|--|--------------------------------------|
| Adhesive | Natural Rubber (R-30) ¹ | Acrylic (A-20) ² | Synthetic Rubber (R-25) ³ |
| Initial Adhesion | | | |
| Low Surface Energy | Good | Poor | Excellent |
| High Surface Energy | Good | Fair | Excellent |
| Adhesion (Peel) | | | |
| Low Surface Energy | Good | Poor | Excellent |
| High Surface Energy | Good | Good | Excellent |
| Static Shear | | | |
| 75°F (25°C) | Excellent | Excellent | Excellent |
| 120°F (49°C) | Good | Excellent | Good |
| 158°F (70°C) | Poor | Excellent | Fair |
| Impact Resistance | | | |
| Low Surface Energy | Excellent | Poor | Good |
| High Surface Energy | Excellent | Good | Good |
| Dynamic Shear | Good | Excellent | Good |
| Solvent Resistance | Good | Excellent | Good |
| Age Life | Good | Excellent | Good |

*Some Bumpon SJ-5700 Series custom products may use other adhesives in their construction.

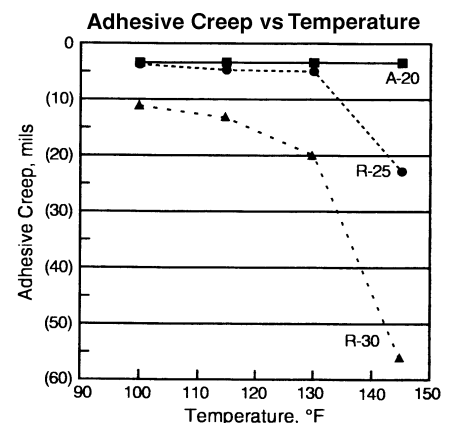
- Natural Rubber (R-30)** - Used in the construction of 3M™ Bumpon Protective Product Series SJ-5000, SJ-5500, and SJ-5700, this high tack adhesive provides excellent initial adhesion. The adhesive has the capability of providing excellent adhesion to a wide variety of surfaces, including many low surface energy surfaces such as polypropylene, polyethylene, and powder coated paints. This adhesive system shows reduced shear properties at elevated temperatures.
- Acrylic (A-20)** - Used in the construction of 3M™ Bumpon Protective Product Series SJ-5200, SJ-5300, and SJ-5400, this high strength adhesive system provides excellent shear strength properties. The adhesive has the capability of providing excellent adhesion to many high surface energy substrates such as metals, ABS, polycarbonate, and acrylic. When adhesion is required on low surface energy/substrates (e.g., polypropylene, polyethylene, etc.), acrylic-based adhesives do not perform as well as rubber-based adhesives.
- Synthetic Rubber (R-25)** - Used in the construction of 3M™ Bumpon Protective Product Series SJ-6100, this very high tack adhesive system provides excellent initial adhesion. The adhesive has the capability of providing excellent adhesion to a wide variety of surfaces, including many low surface energy surfaces such as polypropylene, polyethylene, and powder coated paints. This adhesive system shows reduced shear properties at elevated temperatures.

Adhesive Performance

Static Shear Strength

This figure on static shear illustrates typical performance characteristics of the adhesive systems used on molded Bumpon products

3M Test Method-Inclined Plane Static Shear Test Method; 30° incline, tested on ABS using Bumpon SJ-5312 (A-20), Bumpon SJ-6112 (R-25) and Bumpon SJ-5012 (R-30) products. 2 lb. load per Bumpon products. Measured time of creep: 15 minutes.



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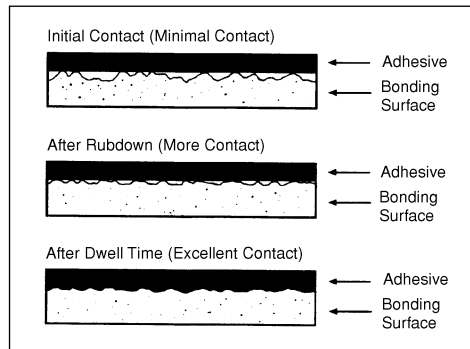
Application Techniques

To obtain maximum adhesion, surfaces must be unified, dry, and free of contaminants. Surface contact is essential to adhesive performance. To maximize contact on a substrate:

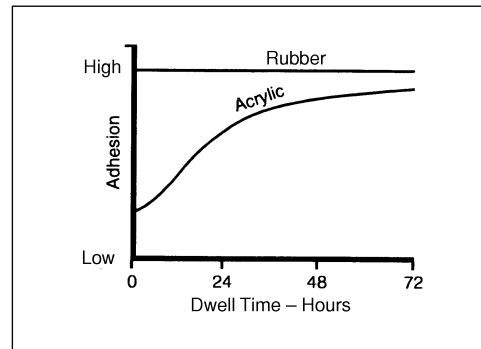
- Clean surfaces with low strength solvent such as isopropyl alcohol (rubbing alcohol) or heptane.*
- Apply firm pressure to help increase the cold flow and contact of the adhesive with the substrate.
- Allow time (dwell) to increase the surface contact and adhesion (see illustrations below).

***Note:** Be sure to follow the manufacturer's precautions and directions for use when using solvents.

Adhesive Surface Contact



Rubber Adhesive (R-30) vs. Acrylic Adhesive (A-20) Bond Build Up



Environmental Exposure

Colored and transparent 3M™ Bumpon™ Protective Products are intended for interior applications where resilience and other physical properties will remain unchanged. When exposed to UV light for extended periods some slight discoloration or yellowing may occur.

Bumpon products may be used outdoors in a protected area with some discoloration possible; colored Bumpon products may chalk.

Simultaneous exposure to high humidity and temperature may degrade (soften) the Bumpon product urethane.

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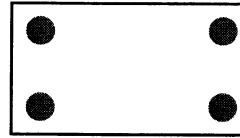
SJ-5000 • SJ-5200 • SJ-5300 • SJ-5400 • SJ-5500 • SJ-5700 • SJ-6100

Product Selections Considerations

Alignment

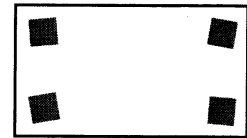
Alignment is more difficult with a rectangular shaped 3M™ Bumpon™ Product when no recess is provided.

Circular shaped product



(top view)

Rectangular shaped product

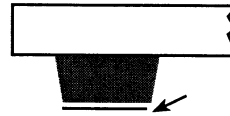


(top view)

Point of Contact

The point of contact provides either a large contact area or a very small (point) contact area depending on the shape of the Bumpon product.

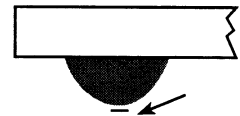
Flat



(side view)

- Increased load capacity
- Better wear resistance

Hemisphere



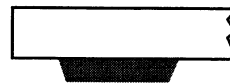
(side view)

- Increased sound dampening
- Increased energy absorption

Profile

The profile is defined by the height and the diameter (or width) of the Bumpon product.

Low Profile



- Increased load capacity
- Less susceptible to being sheared off substrate

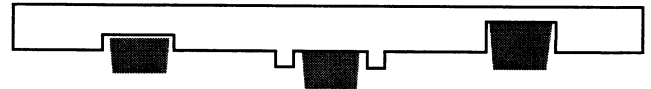
High Profile



- Better heat dissipation
- Not recommended if sideways shearing is possible

Recess

A recess is not necessary; however, there are several benefits to providing a recess.



- Provides target area for the Bumpon product during attachment process
- Improves adhesion performance: impact absorption and shear strength
- Provides neater appearance
- Provides uniform location

Shelf Life

Shelf life is 18 months from date of manufacture when stored in original cartons at 60-80°F (15-27°C) and 40-50% relative humidity.

3M™ Bumpon™ Protective Products

Molded Shapes Series

SJ-5000 • SJ-5200 • SJ-5300 • SJ-5400 • SJ-5500 • SJ-5700 • SJ-6100

Precautionary Information

Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, call 1-800-364-3577 or (651) 737-6501.

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550 or visit www.3M.com/industrialtape. Address correspondence to: 3M Industrial Adhesives and Tapes Division, Building 21-1W-10, 900 Bush Avenue, St. Paul, MN 55106. Our fax number is 651-733-9175. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.

Important Notice

3M MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's application. Please remember that many factors can affect the use and performance of a 3M product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's application.

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ISO 9002

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9002 standards.



Industrial Business
Industrial Adhesives and Tapes Division

3M Center, Building 21-1W-10, 900 Bush Avenue
St. Paul, MN 55106



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

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