



# Hook and Loop Fasteners Trial Bags

|                 |  |
|-----------------|--|
| TB3000          | Back to back, self mating                |
| TB3401/TB3402   | No adhesive, sew-on                      |
| TB3506/TB3507   | Thin with General Purpose Acrylic PSA    |
| TB3526N/TB3527N | High Performance Rubber PSA              |
| TB3530/TB3531   | General Purpose Rubber PSA               |
| TB3546/TB3547   | General Purpose Acrylic PSA              |
| TB3571/TB3572   | High Performance Acrylic PSA             |
| TB3576/TB3577   | Polyester w/High Performance Acrylic PSA |

Technical Data

August, 2011

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## Product Description

3M™ Hook and Loop Fasteners consist of hooks and loops which engage to form a quick fastening attachment and offer advanced closure alternatives to zippers, screws, snaps, hooks, etc. They offer greater design flexibility, faster product assembly, smoother and cleaner exterior surfaces and improved product performance in many applications by simply pulling the strips apart by hand to disengage.

## Thin Products

**3M™ Hook and Loop Fastener TB3000** is a thin back to back hook and loop fastener which can wrap around and attach to itself to be used for bundling items. One side of the fastener is covered with tiny polypropylene translucent hooks, about 1400 per square inch. These hooks can engage with thousands of soft pliable thin polyester loops on the reverse side. Available in Red, Black, and White.

## **3M™ Hook and Loop Fasteners TB3506/TB3507**

Thin hook and loop fasteners offer clean smooth lines for applications where aesthetics are critical. The hook side consists of tiny polypropylene hooks, about 1400 per square inch. The loop side contains thousands of soft pliable polyester loops. Both the hook and loop have a general purpose acrylic pressure sensitive adhesive on the backside which will adhere to a wide variety of substrates. Available in White only.

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## Product Description (continued)

### Nylon Products

The woven nylon hook backing has flexible, self-supporting inverted J-hooks protruding up from the backing. There are approximately 300 hooks per square inch (46 hooks/square cm). The woven nylon loop backing has thousands of soft, pliable napped loops protruding above the backing, providing for thousands of openings and closings (cycles). The hook and loop are preshrunk to insure maximum dimensional stability and flatness. Available in black.

**3M™ Hook and Loop Fasteners TB3401/TB3402** is a plain backed fastener for applications not requiring an adhesive, most commonly sewn.

#### **3M™ Hook and Loop Fasteners TB3526N/TB3527N**

These hook and loop fasteners are coated on the backside with a high performance rubber based pressure sensitive adhesive. This permits these fasteners to be easily and conveniently attached to a variety of substrates.

#### **3M™ Hook and Loop Fasteners TB3530/TB3531**

These products are coated with a general purpose rubber based pressure sensitive adhesive. They adhere well to low surface energy surfaces.

#### **3M™ Hook and Loop Fasteners TB3546/TB3547**

These hook and loop fasteners are coated on the backside with a general purpose acrylic pressure sensitive adhesive designed to adhere to variety of surfaces including low surface energy materials while still providing good temperature resistance.

#### **3M™ Hook and Loop Fasteners TB3571/TB3572**

Coated with high performance acrylic pressure sensitive adhesive which has high temperature resistance and is resistant to many environmental and chemical conditions.

### Polyester Products

#### **3M™ Hook and Loop Fasteners TB3576/TB3577**

The woven polyester hook backing has flexible, self-supporting inverted J-hooks protruding up from the backing. There are approximately 300 hooks per square inch (46 hooks/square cm). The woven polyester loop backing has thousands of soft, pliable napped loops protruding above the backing, providing a thousand openings and closings (cycles). The polyester offers a durable moisture resistant fastener to resist the most humid/wet conditions. Coated with high performance acrylic pressure sensitive adhesive which has high temperature resistance and resistant to many environmental and chemical conditions. Available in Black.

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**Product Construction**

**Note:** The following technical information and data should be considered representative it is not product release requirements, nor product specifications. Rather this data represent typical performance using standard test methods. This is intended for use as a guide to assist in selection of 3M™ Hook and Loop Fasteners for further evaluation. Customer specifications should not be based solely on the data presented in this document.

| Backing                                   | 3M™ Hook and Loop Fasteners      | Material                                     | Backing                                      | Unmated                          | Mated without Liner | Liner   | Full Roll Product Number<br>3M™ Fasteners |
|---|----------------------------------|--|--|----------------------------------|---------------------|---|---|
| Back to Back                              | <b>TB3000</b>                    | Hook-polypropylene<br>Loop-Nylon             | No Adhesive<br>Back to Back<br>Hook and Loop | 0.027"                           | 0.053"<br>(1.3 mm)  | none  | SJ3000                                    |
| Plain Back                                | <b>TB3401</b><br><b>TB3402</b>   | Loop-Woven Nylon<br>Hook-Woven Nylon         | No Adhesive<br>Sew on                        | 0.080" (2.0mm)<br>0.080" (2.0mm) | 0.125"<br>(3.2mm)   | none  | SJ3401<br>SJ3402                          |
| Acrylic                                   | <b>TB3506</b><br><b>TB3507</b>   | Hook-polypropylene<br>Loop-Polyester         | General Purpose<br>Acrylic                   | .023" (.59mm)<br>.012" (.30mm)   | .32"<br>(.80mm)     | 83 lb Brown<br>Polykraft with<br>green 3M                                   | SJ3506<br>SJ3507                          |
| High Performance<br>Rubber Adhesive       | <b>TB3526N</b><br><b>TB3527N</b> | Hook-Woven Nylon<br>Loop-Woven Nylon         | High Performance<br>Rubber PSA               | .091" (.59mm)<br>.125" (.30mm)   | .14"<br>(3.6 mm)    | 3 mil White<br>Polyethylene<br>with red<br>"3M"                             | SJ3526N<br>SJ3527N                        |
| General<br>Performance<br>Rubber Adhesive | <b>TB3530</b><br><b>TB3531</b>   | Hook-Woven Nylon<br>Loop-Woven Nylon         | General Purpose<br>Rubber PSA                | .091" (.59mm)<br>.125" (.30mm)   | .14"<br>(3.6 mm)    | 3 mil White<br>Polypropylene  | SJ3530<br>SJ3531                          |
| General Purpose<br>Acrylic Adhesive       | <b>TB3546</b><br><b>TB3547</b>   | Hook-Woven Nylon<br>Loop-Woven Nylon         | General Purpose<br>Acrylic                   | .091" (.59mm)<br>.125" (.30mm)   | .14"<br>(3.6 mm)    | 4.0 mil Clear<br>Silicone treated<br>Polyolefin with<br>embossed<br>3M logo | SJ3546<br>SJ3547                          |
| High Performance<br>Acrylic Adhesive      | <b>TB3571</b><br><b>TB3572</b>   | Hook-Woven Nylon<br>Loop-Woven Nylon         | High Performance<br>Acrylic PSA              | .091" (.59mm)<br>.125" (.30mm)   | .14"<br>(3.6 mm)    | 4.0 mil Clear<br>Polyolefin with<br>embossed<br>3M logo                     | SJ3571<br>SJ3572                          |
| High Performance<br>Acrylic Adhesive      | <b>TB3576</b><br><b>TB3577</b>   | Hook-Woven Polyester<br>Loop-Woven Polyester | High Performance<br>Acrylic PSA              | .080" (2.0mm)<br>.065" (1.7mm)   | .14"<br>(3.6 mm)    | 4.0 mil Clear<br>Polyolefin with<br>embossed<br>3M logo                     | SJ3576<br>SJ3577                          |

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## System Performance

**Note:** Unless stated, typical system performance characteristics were measured under controlled laboratory conditions of 72°F (22°C) and 50% relative humidity. The user should evaluate products in the actual application to ensure suitable performance for the intended use.

| Typical System Test Values for 3M™ Hook and Loop                     | Nylon Hook to Nylon Loop | Polyester Hook 3M™ TB3576 to Polyester Loop 3M™ TB3577 | Thin Hook 3M™ TB3506 to Thin Loop 3M™ TB3507 | Back to Back 3M™ Hook and Loop TB3000 |
|--|--------------------------|--|--|---------------------------------------|
| Dynamic Tensile Lbs/in <sup>2</sup>                                  | 11                       | 11   | 2.7  | N/A                                   |
| Dynamic Shear Lbs/in <sup>2</sup>                                    | 22                       | 18   | 42   | 31                                    |
| “T” Peel Lbs/inch width 12 inches per minute                         | 2.0                      | 1.2  | 0.38   | 2.0                                   |
| 90° Peel Lbs/inch width 12 inches per minute                         | 2.2                      | 1.8  | 8.7  | 3.0                                   |
| Cleavage Peel  | 7.5                      | 4.6  | 4.2  | N/A                                   |
| Cycle Life # of Closures before losing 50% of the initial peel value | 5000                     | 1000   | 25   | 10                                    |

# 3M™ Hook and Loop Fasteners Trial Bags

## Product Performance

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

This guide should assist you in determining which product will adhere best to your substrate for your application.

| 3M™ Hook and Loop Fasteners Trial Bags                                | Low Surface Energy  |                    |          | Medium Surface Energy |         |          | High Surface Energy |                            | Temperature Resistance °F |
|---|---------------------|--------------------|----------|-----------------------|---------|----------|---------------------|----------------------------|---------------------------|
|   | Poly-propylene (29) | Poly-ethylene (31) | EVA (33) | Acrylic (38)          | PC (42) | ABS (42) | Aluminum (840)      | Stainless Steel (700-1100) |                           |
| TB3000  | Bundle              | Bundle             | Bundle   | Bundle                | Bundle  | Bundle   | Bundle              | Bundle                     | 200                       |
| TB3401<br>TB3402  | Sewable             | Sewable            | Sewable  | Sewable               | Sewable | Sewable  | Sewable             | Sewable                    | 200                       |
| TB3506<br>TB3507  |                     |                    |          | X                     | X       | X        | X                   | X                          | 158                       |
| TB3526N<br>TB3527N  | X                   | X                  | X        | X                     | X       | X        | X                   | X                          | 120                       |
| TB3530<br>TB3531  | X                   | X                  | X        | X                     | X       | X        | X                   | X                          | 90                        |
| TB3546<br>TB3547  |                     |                    |          | X                     | X       | X        | X                   | X                          | 180                       |
| TB3571<br>TB3572  |                     |                    |          | X                     | X       | X        | X                   | X                          | 200                       |
| TB3576<br>TB3577  |                     |                    |          | X                     | X       | X        | X                   | X                          | 200                       |
| <b>X = Typically good adhesion without the use of surface primers</b> |                     |                    |          |                       |         |          |                     |                            |                           |

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**Attachment Techniques** The following information is intended to assist the designer considering the use of adhesive-coated 3M™ Hook and Loop Fasteners. System product performance depends upon a number of factors, including the fastener (material, adhesive and area), application method, surface characteristics (material, texture and cleanliness), environmental conditions (moisture, ultraviolet and temperature exposure) plus the time it is expected to support a given load. Because many of these factors are uniquely within the user's knowledge and control, it is required that the user evaluate 3M products to determine whether they are fit for a particular purpose and suitable for the user's substrates, method of application and desired end use.

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**Design Considerations** As a general rule, four square inches of fastener adhesive area per pound (57.3 square centimeters per kilogram) of static load to be supported is suggested as a starting point for evaluation. More or less area may be needed depending on specific conditions or end use applications.

Rounding the corners, slightly recessing the product into the substrate or providing raised edges around the reclosable fastener can reduce the possibility of edge lifting and improve the overall appearance of the fastener on the finished product. Mechanically securing the corners of the fastener with rivets, staples, screws, etc. may also reduce the possibility of edge lifting, but may reduce the closure performance.

The two most common techniques for attaching these 3M™ Hook and Loop™ Fasteners to various surfaces are summarized below.

**1) Pressure Sensitive Adhesive attachment:** The use of pressure sensitive adhesives eliminates or reduces the need for sewing, solvent activation, dielectric or ultrasonic bonding or bulk adhesive bonding. This can result in simplicity, improved safety and lower installation costs. Pressure sensitive adhesive products can be applied manually or automatically using a variety of equipment choices. Contact your 3M sales representative to discuss automated equipment options.

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## Surface Preparation

Highly textured surfaces may reduce the ultimate adhesion levels and care should be given to minimize the surface texture or roughness. Adhesive backed 3M™ Hook and Loop Fasteners should be applied to surfaces that are clean, dry and free of oil, grease, dust, mold release agents or surface contaminants that could reduce the adhesion. It is recommended to remove any surface contaminants that may reduce adhesion by using a method suited for the type and quantity of surface contaminants present.

**Note:** It is important for the customer to follow all manufacturer's precautions and directions for use as well as any specific government regulations or customer and supplier requirements for the method(s) used to remove any contamination on the surface of the Substrate or preparing the surface for attaching the fastener(s).

In exceptional cases, especially when removing silicone mold release agents or on rough, porous surfaces, it may be necessary to lightly abrade the surface, use an adhesion promoter, or surface sealer to optimize the adhesive bond to the substrate. The selection of abrasion, priming or sealing methods will depend upon the substrates and the environmental conditions the product will be exposed to during use.

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## Attachment Techniques

To obtain an optimum bond to any surface, both the fasteners and the target surfaces should have equilibrated for a minimum of 1 hour at temperatures between 68°F (20°C) to 100°F (38°C) before application. The liner protecting the adhesive is removed and preferably without touching the adhesive, the fastener is applied to the substrate. Exposure of the adhesive to ambient conditions without the protective liner, before applying to the surface, should be minimized as initial adhesive tack may decrease. Flexible materials should be lying on a hard flat surface so as to permit uniform adhesive contact with the surface. Use of a rubber hand roller, press platen or similar device is recommended to ensure full adhesive contact or wet-out with the substrate surface. Approximately 4.5 pounds of force per square inch, (310 grams per square centimeter) is recommended to increase adhesive contact, improving bond strength. For all adhesive applications, it is important to ensure that the edges are rolled down to reduce the chance of edge lifting.

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## Storage

Store in original packaging between 60° to 80°F (16° to 27°C) and 40 to 60% relative humidity.

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## Certification/ Recognition

**MSDS:** 3M has not prepared a MSDS for this product which is not subject to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R. 1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, the product should not present a health or safety hazard. However, use or processing of the product in a manner not in accordance with the directions for use may affect its performance and present potential health or safety hazards.

**TSCA:** This product is defined as an article under the Toxic Substances Control Act and therefore, it is exempt from inventory listing requirements.

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## Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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## Product Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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ISO 9001:2000 - ISO/TS 16949:2002

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### Industrial Adhesives and Tapes Division

3M Center, Building 225-3S-06  
St. Paul, MN 55144-1000  
800-362-3550 • 877-369-2923 (Fax)  
www.3M.com/industrial



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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А