

## BRADY B-443 THERMAL TRANSFER PRINTABLE MATTE WHITE POLYESTER LABEL STOCK

TDS No. B-443

Effective Date: 1/18/2019

### Description:

#### GENERAL

**Print Technology:** Thermal Transfer

**Material Type:** White Polyester

**Finish:** Matte

**Adhesive:** Permanent Acrylic-Rubber Hybrid

#### APPLICATIONS

B-443 is recommended for applications where halogen-free self-extinguishing properties are required.

B-443 is also recommended for use as a part number replacement label for Brady B-1000 RFID tags.

#### RECOMMENDED RIBBONS

Brady Series R6400

#### REGULATORY/AGENCY APPROVALS

**UL:** B-443 is a UL Recognized Component when printed with the Brady Series R6400 ribbon. See UL file MH17154 for specific details. UL information can be accessed online at UL.com in the UL Product iQ area.

#### REGULATORY APPROVALS

For information on the Weee-RoHS compliance status for a Brady Product go to one of the following websites:

In Canada: [www.bradycanada.ca/weee-rohs](http://www.bradycanada.ca/weee-rohs)

In Europe: [www.bradyeurope.com/rohs](http://www.bradyeurope.com/rohs)

In Japan: [www.brady.co.jp/products/labelsuse/rohs](http://www.brady.co.jp/products/labelsuse/rohs)

All other regions: [www.bradyid.com/weee-rohs](http://www.bradyid.com/weee-rohs)

### Details:

| PHYSICAL PROPERTIES    | TEST METHODS                                                                | AVERAGE RESULTS                                  |
|------------------------|-----------------------------------------------------------------------------|--------------------------------------------------|
| Thickness              | ASTM D 1000<br>-Total Thickness                                             | 0.0031 inch (0.078 mm)                           |
| Adhesion to:           | ASTM D 1000                                                                 |                                                  |
| -Stainless Steel       | 20 minute dwell<br>24 hour dwell                                            | 43 oz/in (48 N/100 mm)<br>65 oz/in (71 N/100 mm) |
| -Polypropylene         | 20 minute dwell<br>24 hour dwell                                            | 47 oz/in (51 N/100 mm)<br>58 oz/in (64 N/100 mm) |
| -2024-T3 Aluminum      | 20 minute dwell<br>24 hour dwell                                            | 37 oz/in (41 N/100 mm)<br>44 oz/in (48 N/100 mm) |
| Tack                   | ASTM D 2979<br>Polyken™ Probe Tack<br>(1 second dwell, 1 cm/sec separation) | 56.9 oz (1614 g)                                 |
| Dielectric Strength    | ASTM D1000                                                                  | 5984 Volts                                       |
| Drop Shear             | PSTC-107 (1" x 0.5" test area)                                              | 500 hours                                        |
| Tensile and Elongation | ASTM D 1000                                                                 |                                                  |

|              |                                                                                                                                       |                                                             |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
|              | -Machine direction<br>-Cross web direction                                                                                            | 26 lbf/in (45 N/10 mm), 115%<br>36 lbf/in (64 N/10 mm), 54% |
| Flammability | 14 CFR, Section 25.853(a); Appendix F, Part 1, paragraph (a)(1)(ii);<br>Applied to 0.025" aluminum panel<br><br>FMVSS302 Flammability | Meets Requirements<br><br>Meets Requirements                |

Performance properties tested with B-443 printed with the Brady Series R6400 thermal transfer ribbon. Samples were laminated to aluminum or stainless steel panels prior to exposure.

| PERFORMANCE PROPERTIES              | TEST METHODS                                                                     | TYPICAL RESULTS                                                                                                      |
|-------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| High Service Temperature            | 30 days at various temperatures                                                  | 230°F (110°C) - Slight discoloration<br>248°F (120°C) - Slight discoloration<br>293°F (145°C) - Severe discoloration |
| Low Service Temperature             | 30 days at various temperatures                                                  | -94°F (-70°C) - No visible effect<br>-40°F (-40°C) - No visible effect                                               |
| Short Term High Service Temperature | 5 minutes at various temperatures                                                | 356°F (180°C) - Slight discoloration<br>410°F (210°C) - Slight discoloration                                         |
| Humidity Resistance                 | 30 days at 100°F (38°C), 95% R.H.                                                | No visible effect                                                                                                    |
| UV Light Resistance                 | ASTM G155, Cycle 1 (no spray)<br>30 days in Xenon Arc Weatherometer              | Slight discoloration                                                                                                 |
| Weatherability                      | ASTM G155, Cycle 1<br>30 days in Xenon Arc Weatherometer                         | Slight discoloration                                                                                                 |
| Salt Fog Resistance                 | ASTM B117<br>30 days in 5% salt fog solution chamber                             | No visible effect                                                                                                    |
| Abrasion Resistance                 | Taber Abraser, CS-10 grinding wheels,<br>250 g/arm (Fed. Std. 191A, Method 5306) | R6400: Print legible after 100 cycles                                                                                |

| PERFORMANCE PROPERTIES | CHEMICAL RESISTANCE |
|------------------------|---------------------|
|------------------------|---------------------|

B-443 was printed with the Brady Series R6400 ribbon. Samples were laminated to aluminum or polyester panels. Except where noted, testing was conducted at room temperature after 24 hour dwell. Testing consisted of 5 cycles of a 10 minute immersion in the specified test fluid followed by a 30 minute recovery period.

| CHEMICAL REAGENT                           | SUBJECTIVE OBSERVATION OF VISUAL CHANGE             |                     |                   |
|--------------------------------------------|-----------------------------------------------------|---------------------|-------------------|
|                                            | EFFECT TO FILM/ADHESIVE                             | SERIES R6400 RIBBON |                   |
|                                            |                                                     | WITHOUT RUB         | WITH RUB          |
| <b>Cleaners and Solvents</b>               |                                                     |                     |                   |
| Isopropyl Alcohol                          | No visible effect                                   | No visible effect   | No visible effect |
| Methyl Ethyl Ketone                        | Slight adhesive ooze                                | No visible effect   | No visible effect |
| Acetone                                    | No visible effect                                   | No visible effect   | No visible effect |
| Toluene                                    | Moderate edge wrinkling                             | No visible effect   | No visible effect |
| Northwoods™ Buzz Saw Cleaner and Degreaser | Moderate discoloration; Increased surface roughness | Complete Removal    | Complete Removal  |
| Formula 409®                               | No visible effect                                   | Complete Removal    | Complete Removal  |
| 10% Sodium Hydroxide                       | No visible effect                                   | Complete Removal    | Complete Removal  |
| 10% Sulfuric Acid                          | No visible effect                                   | No visible effect   | No visible effect |
| 3% Alconox® Powdered Precision Cleaner     | No visible effect                                   | No visible effect   | No visible effect |
| BIOACT® EC-7R™                             | No visible effect                                   | Moderate Removal    | Moderate Removal  |
| <b>Fuels, Oils and Lubricants</b>          |                                                     |                     |                   |
| Kerosene                                   | Slight edge lift                                    | No visible effect   | No visible effect |
| 15W40 Oil                                  | No visible effect                                   | No visible effect   | No visible effect |
| DOT3 Brake Fluid                           | No visible effect                                   | No visible effect   | No visible effect |
| <b>Aerospace Related Fluids</b>            |                                                     |                     |                   |
| Skydrol® 500 B4                            | Slight adhesive ooze                                | No visible effect   | No visible effect |
| Royco® 756                                 | No visible effect                                   | No visible effect   | No visible effect |

B-443 is not recommended for use in contact with high pH fluids.

| RF PERFORMANCE PROPERTIES | IMPACT TO B-1000 RFID TAG PERFORMANCE |
|---------------------------|---------------------------------------|
|---------------------------|---------------------------------------|

A single B-443 label was laminated to the facesheet of a large, dual-record ATA-formatted Brady B-1000 RFID tag. The stackup was then mounted on 0.062" thick aluminum panels. Read range measurements were performed using a patch antenna in an anechoic environment, with a sample to antenna distance of 0.5 m. EU (ETSI) read range was measured at 865 MHz and US (FCC) read range was measured at 905 MHz.

| Sample          | % Change in ETSI Read Range | % Change in FCC Read Range |
|-----------------|-----------------------------|----------------------------|
| B-443 on B-1000 | +76.76%                     | -45.12%                    |

Brady does not recommend applying more than one layer of B-443 to a B-1000 RFID tag in order to maintain acceptable RFID tag performance.

Shelf life is two years from the date of receipt for this product as long as this product is stored in its original packaging in an environment below 80° F (27° C) and 60% RH. It remains the responsibility of the user to assess the risk of using this product. We encourage customers to develop testing protocols that will qualify a product's fitness for use in their actual application.

#### Trademarks:

ASTM: American Society for Testing and Materials (U.S.A.)  
PSTC: Pressure Sensitive Tape Council (U.S.A.)  
SAE: Society of Automotive Engineers (U.S.A.)  
UL: Underwriters Laboratories Inc. (U.S.A.)  
Formula 409® is a registered trademark of the Clorox Company  
Northwoods™ is a trademark of the Superior Chemical Corporation  
Polyken™ is a trademark of Testing Machines Inc.  
Skydrol® is a registered trademark of the Eastman Chemical Company  
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**Note:** All values shown are averages and should not be used for specification purposes.

Test data and test results contained in this document are for general information only and shall not be relied upon by Brady customers for designs and specifications, or be relied on as meeting specified performance criteria. Customers desiring to develop specifications or performance criteria for specific product applications should contact Brady for further information.

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