

## BRADY B-499 THERMAL TRANSFER / DOT MATRIX PRINTABLE NYLON CLOTH LABEL

TDS No. B-499

Effective Date: 03/25/2019

### Description:

#### GENERAL

**Print Technology:** Thermal transfer

**Material Type:** Polyamide coated nylon cloth

**Finish:** Matte white

**Adhesive:** Permanent acrylic

#### APPLICATIONS

Wiremarking and general labeling applications

B-499 is not recommended for outdoor use.

#### RECOMMENDED RIBBONS

##### **Thermal Transfer Ribbons**

Brady Series R4300

Brady Series R4900

Brady Series R6000 Halogen Free

Brady Series R6200

Brady Series R4500 colored (red, blue and green)

##### **Dot Matrix Ribbons**

Brady Series R5000

#### REGULATORY/AGENCY APPROVALS

**UL:** B-499 is a UL Recognized Component to UL969 Labelling and Marking Standard when printed with Brady Series R4300, R4900, R6000 Halogen Free thermal transfer ribbons and Brady Series R5000 dot matrix ribbon. See UL file MH17154 for specific details. UL information can be accessed online at UL.com. Search in Certifications area.

**CSA:** B-499 is CSA Accepted to C22.2 No.0.15-95 Adhesive Labels Standard when printed with Brady Series R4300 thermal transfer ribbon. See CSA file 041833 for specific details. CSA information can be accessed online at directories.csa-international.org.

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.bradycanada.ca/products/labelsuse/rohs](http://www.bradycanada.ca/products/labelsuse/rohs)

All other regions: [www.bradycanada.ca/weee-rohs](http://www.bradycanada.ca/weee-rohs)

#### SPECIAL FEATURES

**DIN VDE 0472 Part 815:** Brady B-499 meets requirements of a halogen-free material per DIN VDE 0472 part 815. (Statement based on review of product construction and confirmation halogen content test run at an independent test laboratory)

#### Details:

| PHYSICAL PROPERTIES              | TEST METHODS                                                       | AVERAGE RESULTS                                                            |
|----------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------|
| Thickness                        | ASTM D 1000<br>-Substrate<br>-Adhesive<br>-Total (excluding liner) | 0.0045 inch (0.115 mm)<br>0.0020 inch (0.051 mm)<br>0.0065 inch (0.166 mm) |
| Adhesion to:<br>-Stainless Steel | ASTM D 1000<br>20 minute dwell<br>24 hour dwell                    | 45 oz/inch (50 N/100 mm)<br>80 oz/inch (88 N/100 mm)                       |
| -Textured ABS                    | 20 minute dwell<br>24 hour dwell                                   | 35 oz/inch (39 N/100 mm)<br>40 oz/inch (44 N/100 mm)                       |
| -Polypropylene                   | 20 minute dwell<br>24 hour dwell                                   | 24 oz/inch (26 N/100 mm)<br>24 oz/inch (26 N/100 mm)                       |

|                                 |                                                                            |                               |
|---------------------------------|----------------------------------------------------------------------------|-------------------------------|
| Tack                            | ASTM D 2979<br>Polyken™ Probe Tack<br>(1 second dwell, 1cm/sec separation) | 29 oz (900 grams)             |
| Drop Shear                      | PSTC-7 (except use 1/2" x 1" sample)                                       | 9 hours                       |
| Tensile Strength and Elongation | ASTM D 1000<br>-Machine                                                    | 80 lb/in (1400 N/100 mm), 50% |

Performance properties tested on B-499 printed with the Brady Series R4300, R4900, R6000 Halogen Free and R6200 thermal transfer ribbons and the Brady Series R5000 dot matrix ribbon. Printed samples of B-499 were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environmental conditions. Unless noted, results are the same for all ribbons tested.

| PERFORMANCE PROPERTIES              | TEST METHOD                                                                      | TYPICAL RESULTS                                                                                                                     |
|-------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Short Term High Service Temperature | 5 minutes at 293°F (145°C)                                                       | No visible effect to label at 145°C, slight shrinkage at 180°C but label still functional                                           |
| Long Term High Service Temperature  | 30 days at 193°F (90°C)                                                          | No visible effect to label at 90°C, slight discoloration at 110°C but label still functional, at 120°C label is severely discolored |
| Low Service Temperature             | 30 days at -40°F (-40°C)                                                         | No visible effect                                                                                                                   |
| Weatherability*                     | ASTM G155, Cycle 1<br>30 days in Xenon Arc Weatherometer                         | Material wrinkled and embrittled                                                                                                    |
| Humidity Resistance                 | 30 days at 100°F, 95% R.H.                                                       | No visible effect                                                                                                                   |
| UV Light Resistance                 | 30 days in UV Sunlighter™ 100                                                    | No visible effect                                                                                                                   |
| Abrasion Resistance                 | Taber Abraser, CS-10 grinding wheels,<br>500 g/arm (Fed. Std. 191A, Method 5306) | Print still legible at: 150 cycles with R4300, R4900, R6000 Halogen Free, R6200, and R5000 ribbons                                  |

\*B-499 is not recommended for long-term outdoor use.

| PERFORMANCE PROPERTY | CHEMICAL RESISTANCE |
|----------------------|---------------------|
|----------------------|---------------------|

Samples printed with the Brady Series R5000 ribbon. Samples wrapped around a 12 AWG, TFE jacketed wire and allowed to dwell 24 hours prior to test. Test was conducted at room temperature except where noted. Testing consisted of 5 cycles of 10 minute immersions in the specified test fluid followed by a 30 minute recovery period. After final immersion, samples rubbed 10 times with cotton swab saturated with test fluid.

| CHEMICAL REAGENT               | SUBJECTIVE OBSERVATION OF VISUAL CHANGE |                                                             |
|--------------------------------|-----------------------------------------|-------------------------------------------------------------|
|                                | EFFECT TO LABEL STOCK                   | R5000<br>DOT MATRIX RIBBON                                  |
| Methyl Ethyl Ketone            | Complete unwrap                         | No visible effect                                           |
| 1,1,1-Trichloroethane          | Complete unwrap                         | No visible effect                                           |
| Isopropyl Alcohol              | Complete unwrap                         | No visible effect                                           |
| Mineral Spirits                | Complete unwrap                         | No visible effect                                           |
| SAE 20 WT Oil at 70°C          | No unwrap, label stained tan            | No visible effect                                           |
| Mil 5606 Oil                   | Slight unwrap, label stained red        | No visible effect                                           |
| Gasoline                       | Adhesive failure, label discoloration   | No visible effect                                           |
| Rust Veto® 342                 | Moderate unwrap, label discoloration    | No visible effect                                           |
| Deionized Water                | No visible effect                       | No visible effect                                           |
| 3% Alconox® Detergent          | No visible effect                       | No visible effect w/o rub, moderate print removal after rub |
| 10% Sodium Hydroxide Solution  | Complete unwrap                         | No visible effect                                           |
| 10% Sulfuric Acid Solution     | No visible effect                       | No visible effect                                           |
| Northwoods™ Buzz Saw Degreaser | Complete unwrap                         | No visible effect w/o rub, slight print removal after rub   |
| Speedi Kut Cutting Oil 332     | No unwrap, label stained red            | No visible effect                                           |
| 5% Salt Solution               | No visible effect                       | No visible effect                                           |

Samples printed with the Brady Series R4300, R4900, R6000 Halogen Free and R6200 thermal transfer ribbons. Samples laminated to aluminum panels and allowed to dwell 24 hours prior to test. Test performed at room temperature except where noted. Testing consisted of 5 cycles of 10 minute immersions in the specified test fluid followed by a 30 minute recovery period.

After final immersion, samples rubbed 10 times with cotton swab saturated with test fluid.

| CHEMICAL REAGENT               | SUBJECTIVE OBSERVATION OF VISUAL CHANGE                     |                                                             |                                                             |                                                             |
|--------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|
|                                | R4300 THERMAL TRANSFER RIBBON                               | R4900 THERMAL TRANSFER RIBBON                               | R6000 Halogen Free THERMAL TRANSFER RIBBON                  | R6200 THERMAL TRANSFER RIBBON                               |
| Methyl Ethyl Ketone            | No visible effect w/o rub, slight print removal after rub   | No visible effect w/o rub, slight print removal after rub   | No visible effect w/o rub, moderate print smear after rub   | No visible effect w/o rub, slight print smear after rub     |
| 1,1,1-Trichloroethane          | No visible effect                                           | No visible effect                                           | Obsolete                                                    | No visible effect                                           |
| Isopropyl Alcohol              | No visible effect w/o rub, moderate print removal after rub | No visible effect w/o rub, complete print removal after rub | No visible effect w/o rub, slight print removal after rub   | No visible effect w/o rub, moderate print removal after rub |
| Mineral Spirits                | No visible effect w/o rub, slight print removal after rub   | No visible effect                                           | No visible effect                                           | No visible effect                                           |
| SAE 20 WT Oil at 70°C          | No visible effect w/o rub, severe print removal after rub   | No visible effect                                           | No visible effect                                           | No visible effect                                           |
| Mil 5606 Oil                   | No visible effect w/o rub, slight print removal after rub   | No visible effect                                           | No visible effect                                           | No visible effect                                           |
| Gasoline                       | No visible effect                                           | No visible effect                                           | No visible effect                                           | No visible effect w/o rub, slight print smear after rub     |
| Rust Veto® 342                 | No visible effect w/o rub, severe print removal after rub   | No visible effect w/o rub, moderate print removal after rub | No visible effect                                           | No visible effect                                           |
| Deionized Water                | No visible effect w/o rub, moderate print smear after rub   | No visible effect w/o rub, severe print removal after rub   | No visible effect                                           | No visible effect w/o rub, slight print removal after rub   |
| 3% Alconox® Detergent          | No visible effect w/o rub, slight print removal after rub   | No visible effect w/o rub, severe print removal after rub   | No visible effect w/o rub, slight print removal after rub   | No visible effect w/o rub, slight print removal after rub   |
| 10% Sodium Hydroxide Solution  | No visible effect                                           | No visible effect                                           | No visible effect w/o rub, slight print smear after rub     | No visible effect                                           |
| 10% Sulfuric Acid Solution     | No visible effect w/o rub, moderate smear after rub         | No visible effect w/o rub, moderate print removal after rub | No visible effect w/o rub, slight print removal after rub   | No visible effect w/o rub, slight print removal after rub   |
| Northwoods™ Buzz Saw Degreaser | No visible effect w/o rub, moderate print removal after rub | No visible effect w/o rub, print illegible after rub        | No visible effect w/o rub, moderate print removal after rub | No visible effect w/o rub, slight print removal after rub   |
| Speedi Kut Cutting Oil 332     | No visible effect                                           | No visible effect                                           | No visible effect                                           | No visible effect                                           |
| 5% Salt Solution               | No visible effect                                           | No visible effect                                           | No visible effect                                           | No visible effect w/o rub, slight print removal after rub   |

#### Shelf Life:

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 applications.

#### Trademarks:

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Sunlighter™ is a trademark of the Test Lab Apparatus Company  
ASTM: American Society for Testing and Materials (U.S.A.)  
SAE: Society of Automotive Engineers (U.S.A.)  
UL: Underwriters Laboratories Inc. (U.S.A.)

All S.I. Units (metric) are mathematically derived from the U.S. Conventional Units.

**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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