Technical Data Sheet

# BRADY B-472 MATTE TOPCOATED POLYIMIDE WIREWRAP LABEL STOCK

TDS No. B-472
Effective Date: 03/25/2019

**Description:**

**GENERAL**

**Print Technology:** Thermal transfer and dot matrix
**Material Type:** Topcoated 1 mil polyimide
**Finish:** Matte
**Adhesive:** Permanent acrylic

**APPLICATIONS**

Cable and wire bundle applications and label applications where self-extinguishing properties are required

**RECOMMENDED RIBBONS**

Brady Series R4300
Brady Series R6200
Brady Series R5000

**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
In Europe: www.bradyeurope.com/rohs
In Japan: www.brady.co.jp/products/labelsuse/rohs
All other regions: www.bradyid.com/weee-rohs

**SPECIAL FEATURES**

B-472 is available in white and yellow.

**Details:**

| PHYSICAL PROPERTIES | TEST METHODS | AVERAGE RESULTS |
|---|---|---|
| Thickness | ASTM D 1000<br>-Substrate<br>-Adhesive<br>-Total (excluding liner) | <br>0.0022 inch (0.056 mm)<br>0.0010 inch (0.025 mm)<br>0.0032 inch (0.081 mm) |
| Adhesion to:<br>-Stainless Steel | ASTM D 1000<br>20 minute dwell<br>24 hour dwell | <br>36 oz/inch (39 N/100 mm)<br>46 oz/inch (50 N/100 mm) |
| Tack | ASTM D 2979<br>Polyken™ Probe<br>Tack 1 second dwell | 39 oz (1100 g) |
| Tensile Strength and Elongation | ASTM D 1000<br>-Machine direction | <br>36 lbs/inch (630 N/100 mm), 62% |
| Dielectric Strength | ASTM D 1000 | 8000 Volts |
| Flammability | ASTM D 1000<br>Average Burn Time | Less than 5 seconds |
| Surface Flammability of Materials<br>Using a Radiant Heat Energy Source<br>Tested at an outside laboratory | <br>ASTM E162<br>Common Maximum - 35 | Flame Spread Index (Is) (rounded average result of 4 tests)<br>White – 0<br>Yellow – 0 |

| | | |
|---|---|---|
| Specific Optical Density of Smoke (Ds)<br>Tested at an outside laboratory | ASTM E662<br>Common Maximum<br>Flaming Mode at 1.5 minutes – 100<br>Flaming Mode at 4.0 minutes – 200 | Specific Optical Density (Ds) (average of 3 tests)<br>*White:*<br>Flaming mode at 1.5 minutes – 4<br>Flaming mode at 4.0 minutes – 10<br>Non-Flaming mode at 1.5 minutes – 1<br>Non-Flaming mode at 4.0 minutes – 5<br>*Yellow:*<br>Flaming mode at 1.5 minutes – 4<br>Flaming mode at 4.0 minutes – 11<br>Non-Flaming mode at 1.5 minutes – 1<br>Non-Flaming mode at 4.0 minutes – 5 |

Performance properties tested on B-472 white and yellow printed with the Brady Series R4300 and the Brady Series R6200 ribbons and with the Brady Series R5000 ribbon. Printed samples were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environments. Unless noted, results are the same for all ribbons.

| PERFORMANCE PROPERTIES | TEST METHOD | TYPICAL RESULTS |
|---|---|---|
| High Service Temperature | Samples exposed 30 days at various temperatures ranging from 100ºC (212ºF) to 160ºC (320ºF) | No visible effect at 100ºC<br>Moderate topcoat discoloration at 135ºC<br>Severe discoloration at 160ºC, but labels still functional<br>No effect to print at all test temperatures |
| Low Service Temperature | Samples exposed 30 days at -40ºC (-40ºF) and -70ºC (-94ºF) | No visible effect |
| Humidity Resistance | 30 days at 37°C (100ºF) and 95% R.H. | No visible effect |
| UV Light Resistance | ASTM G 155, Cycle 1 Dry<br>30 days in Xenon Arc Fadeometer | No visible effect |
| Weatherability | ASTM G155, Cycle 1<br>30 days in Xenon Arc Weatherometer | Slight discoloration on white<br>No visible effect on yellow<br>No visible effect to print |
| Salt Fog Resistance | ASTM B 117<br>30 days in 5% salt fog solution chamber | No visible effect |
| Print Adherence per SAE-AS81531 (Sec 3.4.2) | 20 eraser rubs with hard hand pressure | Pass - Print still easily legible |
| Solvent/Abrasion Resistance per SAE-AS81531 (Sec 3.4.3)<br>Solution A<br>Solution C<br>Solution D | MIL-STD-202, Method 215K<br>3 cycles of 3 minute immersions in specified fluids followed by toothbrush rub after each immersion | Pass - Print still easily legible |

Solution A: 1 part isopropyl alcohol, 3 parts mineral spirits
Solution B: deleted from MIL-STD-202, Method 215J
Solution C: BIOACT® EC-7R™ terpene defluxer
Solution D: 42 parts water, 1 part propylene glycol monomethyl ether, 1 part monoethanolamine at 70°C

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

Chemical Resistance tested on B-472 white and yellow printed with Series R4300 and R6200 ribbons and with the Brady Series R5000 ribbon. Samples laminated to aluminum panels and allowed to dwell 24 hours prior to testing. Test conducted at room temperature. Testing consisted of 15 minute and 24 hour immersions in the specified test fluid followed by rubbing on print 10 times with cotton swab saturated with test fluid. Results are the same without and with rub unless stated otherwise.

**15 MINUTE IMMERSION**

| CHEMICAL REAGENT | EFFECT TO LABEL STOCK | EFFECT TO R4300 PRINT | EFFECT TO R6200 PRINT | EFFECT TO R5000 PRINT |
|---|---|---|---|---|
| MEK | Slight yellow color fade | NVE without rub, print and topcoat removed with rub | NVE without rub, print and topcoat removed with rub | NVE without rub, print and topcoat removed with rub |
| IPA | No visible effect | NVE without rub, moderate print smear with rub | No visible effect | NVE without rub, Slight print smear with rub |
| Methyl Alcohol | No visible effect | NVE without rub, slight print smear with rub | No visible effect | NVE without rub, slight print smear with rub |
| Gasoline | No visible effect | NVE without rub, severe | NVE without rub, slight | NVE without rub, slight |

| | | | | |
|---|---|---|---|---|
| | | print smear with rub | print smear with rub | print smear with rub |
| JP-8 Jet Fuel | No visible effect | NVE without rub, moderate print smear with rub | No visible effect | No visible effect |
| Mineral Spirits | No visible effect | NVE without rub, moderate print smear with rub | No visible effect | No visible effect |
| Skydrol® LD4 | Slight adhesive ooze, slight yellow color fade | NVE without rub, severe print smear with rub | NVE without rub, print illegible with rub | NVE without rub, severe print smear with rub |
| MIL-H-5606 Oil | No visible effect | NVE without rub, severe print smear with rub | No visible effect | No visible effect |
| DI water | No visible effect | No visible effect | No visible effect | No visible effect |
| 5% Alconox® Detergent | No visible effect | No visible effect | No visible effect | No visible effect |
| 10% NaOH | No visible effect | No visible effect | No visible effect | No visible effect |
| 10% $H_2SO_4$ | No visible effect | No visible effect | No visible effect | No visible effect |

NVE = no visible effect

**24 HOUR IMMERSION**

| CHEMICAL REAGENT | EFFECT TO LABEL STOCK | EFFECT TO R4300 PRINT | EFFECT TO R6200 PRINT | EFFECT TO R5000 PRINT |
|---|---|---|---|---|
| MEK | Adhesive softening, yellow topcoat fade | NVE without rub, print and topcoat removed with rub | NVE without rub, print and topcoat removed with rub | Slight print smear without rub, print and topcoat removed with rub |
| IPA | No visible effect | NVE without rub, moderate print smear with rub | No visible effect | NVE without rub, Slight print smear with rub |
| Methyl Alcohol | Label lifting slightly at edges | NVE without rub, slight print smear with rub | No visible effect | NVE without rub, slight print smear with rub |
| Gasoline | Slight label edge lift | NVE without rub, severe print smear with rub | NVE without rub, slight print smear with rub | NVE without rub, slight print smear with rub |
| JP-8 Jet Fuel | No visible effect | NVE without rub, moderate print smear with rub | No visible effect | No visible effect |
| Mineral Spirits | No visible effect | NVE without rub, moderate print smear with rub | No visible effect | No visible effect |
| Skydrol® LD4 | Slight adhesive ooze, slight yellow color fade | NVE without rub, print and topcoat removed with rub | NVE without rub, print and topcoat removed with rub | NVE without rub, print and topcoat removed with rub |
| MIL-H-5606 Oil | Slight topcoat staining red | NVE without rub, severe print smear with rub | No visible effect | No visible effect |
| DI water | No visible effect | No visible effect | No visible effect | No visible effect |
| 5% Alconox® Detergent | No visible effect | No visible effect | No visible effect | No visible effect |
| 10% NaOH | No visible effect | No visible effect | No visible effect | No visible effect |
| 10% $H_2SO_4$ | No visible effect | No visible effect | No visible effect | No visible effect |

NVE = no visible effect

**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 application.

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Polyken™ is a trademark of Testing Machines Inc.
SAE: Society of Automotive Engineers (U.S.A.)
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**Note:** All values shown are averages and should not be used for specification purposes.
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