



## BRADY B-437 THERMAL TRANSFER PRINTABLE LABEL STOCK

TDS No. B-437

Effective Date: 12/02/2013

**Description:**

**GENERAL**

**Print Technology:** Thermal transfer

**Material Type:** Topcoated polyvinylfluoride

**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

**REGULATORY APPROVALS**

Brady B-437 is RoHS compliant to 2005/618/EC MCV amendment to RoHS Directive 2002/95/EC.

**SPECIAL FEATURES**

B-437 has been judged to be self-extinguishing by laboratory testing, and exhibits good solvent and heat resistance.

B-437 is available in white, yellow and various other colors.

B-437 meets the requirements of MIL-M-87958, Pressure Sensitive Adhesive Wire or Cable Marker and Identification specification.

**Details:**

| PHYSICAL PROPERTIES              | TEST METHODS   | AVERAGE RESULTS  |
|----------------------------------|--|--|
| Thickness                        | ASTM D 1000<br>-Substrate<br>-Adhesive<br>-Total     | 0.0026 inch (0.066 mm)<br>0.0010 inch (0.025 mm)<br>0.0036 inch (0.091 mm) |
| Adhesion to:<br>-Stainless Steel | ASTM D 1000<br>20 minute dwell                       | 50 oz/inch (55 N/100 mm)   |
| Tack                             | ASTM D 2979<br>Polyken™ Probe Tack<br>1 second dwell | 28 oz (800 g)  |
| Tensile Strength and Elongation  | ASTM D 1000<br>-Machine                              | 20 lbs/inch (350 N/100 mm), 150%   |
| Dielectric Strength              | ASTM D 1000  | 5000 Volts   |
| Flammability                     | ASTM D 1000<br>Average Burn Time                     | Less than 10 seconds   |

Performance properties tested on B-437 printed with Series R4300 and R6200 ribbons using the BradyPrinter™ THT Model 300X thermal transfer printer. 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 both ribbons.

| PERFORMANCE PROPERTIES   | TEST METHOD   | TYPICAL RESULTS   |
|--------------------------|---|---|
| High Service Temperature | 30 days at 275°F (135°C)  | At 135°C no visible effect to slight topcoat color fade (depending upon specific color). At 145°C slight color fade all colors except yellow, which had severe color fade. No visible effect to print and labels well adhered at 135°C and 145°C. Slight shrinkage at 145°C |
| Low Service Temperature  | 30 days at -94°F (-70°C)  | No visible effect   |
| Humidity Resistance      | 30 days at 100°F (37°C) and 95% R.H.  | No visible effect   |
| UV Light Resistance      | 30 days in UV Sunlighter™ 100   | No visible effect   |
| Weatherability           | ASTM G155, Cycle 1<br>30 days in Xenon Arc Weatherometer                                  | Slight to moderate topcoat fade depending upon specific colors. All colors distinguishable. No visible effect to print.   |
| Salt Fog Resistance      | ASTM B 117<br>30 days in 5% salt fog solution chamber                                     | No visible effect   |
| Abrasion Resistance      | Taber Abraser, CS-10 grinding wheels, 500 g/arm, 100 cycles (Fed. Std. 191A, Method 5306) | R4300: Moderate print removal and print smear. Print still legible<br><br>R6200: Slight print removal. Print still legible  |

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

Samples printed with Series R4300 and R6200 ribbons and 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.

### 15 MINUTE IMMERSION

| CHEMICAL REAGENT              | SUBJECTIVE OBSERVATION OF VISUAL CHANGE                             |   |   |
|-------------------------------|---|---|---|
|                               | EFFECT TO LABEL STOCK   | R4300   | R6200   |
| Methyl Ethyl Ketone           | Slight adhesive ooze and slight color fade on yellow with immersion | No visible effect to print without rub, complete print and topcoat removal with rub | No visible effect to print without rub, complete print and topcoat removal with rub |
| 1,1,1-Trichloroethane         | Slight adhesive ooze and slight color fade on yellow with immersion | No visible effect to print without rub, complete print removal with rub             | No visible effect to print without rub, complete print removal with rub             |
| Isopropyl Alcohol             | No visible effect   | No visible effect with or without rub   | No visible effect with or without rub   |
| Methyl Alcohol                | No visible effect   | No visible effect with or without rub   | No visible effect with or without rub   |
| Gasoline                      | Slight adhesive ooze  | No visible effect without rub, slight print removal with rub                        | No visible effect without rub, slight print removal with rub                        |
| JP-8 Jet Fuel                 | No visible effect   | No visible effect with or without rub   | No visible effect with or without rub   |
| Mineral Spirits               | No visible effect   | No visible effect without rub, slight print removal with rub                        | No visible effect with or without rub   |
| SAE 20 WT Oil at 70°C         | No visible effect   | No visible effect without rub, severe print removal with rub                        | No visible effect with or without rub   |
| Mil 5606 Oil                  | No visible effect   | No visible effect with or without rub   | No visible effect with or without rub   |
| Speedicut Cutting Oil         | No visible effect   | No visible effect with or without rub   | No visible effect with or without rub   |
| Skydrol® 500B-4               | Slight adhesive ooze  | No visible effect without rub, slight print removal with rub                        | No visible effect without rub, moderate to severe print removal with rub            |
| Deionized Water               | No visible effect   | No visible effect with or without rub   | No visible effect with or without rub   |
| 5% Alconox® Detergent         | No visible effect   | No visible effect with or without rub   | No visible effect with or without rub   |
| 10% Sodium Hydroxide Solution | No visible effect   | No visible effect with or without rub   | No visible effect with or without rub   |
| 10% Sulfuric Acid Solution    | No visible effect   | No visible effect with or without rub   | No visible effect with or without rub   |

## 24 HOUR IMMERSION

| CHEMICAL REAGENT              | SUBJECTIVE OBSERVATION OF VISUAL CHANGE                              |   |  |
|-------------------------------|--|---|--|
|                               | EFFECT TO LABEL STOCK  | R4300   | R6200  |
| Methyl Ethyl Ketone           | Softening of adhesive. No to severe topcoat fade depending on color* | Print degradation with immersion, complete print and topcoat removal with rub | Complete print and topcoat removal with rub                  |
| 1,1,1-Trichloroethane         | Slight adhesive ooze. No to severe topcoat fade depending on color*  | Complete print removal with rub   | Complete print removal with rub                              |
| Isopropyl Alcohol             | No visible effect  | No visible effect without rub, moderate print removal with rub                | No visible effect with or without rub                        |
| Methyl Alcohol                | Slight discoloration of green topcoat                                | No visible effect with or without rub   | Slight print fade with immersion, no effect with rub         |
| Gasoline                      | Slight adhesive ooze and topcoat discoloration on white label        | No visible effect without rub, slight print removal with rub                  | No visible effect without rub, slight print removal with rub |
| JP-8 Jet Fuel                 | No visible effect  | No visible effect without rub, slight print removal with rub                  | No visible effect with or without rub                        |
| Mineral Spirits               | No visible effect  | No visible effect without rub, slight print removal with rub                  | No visible effect with or without rub                        |
| SAE 20 WT Oil at 70°C         | Slight topcoat discoloration on white label*                         | No visible effect without rub, severe print removal with rub                  | No visible effect with or without rub                        |
| Mil 5606 Oil                  | Slight topcoat discoloration on white label                          | No visible effect with or without rub   | No visible effect with or without rub                        |
| Speedicut Cutting Oil         | No visible effect  | No visible effect with or without rub   | No visible effect with or without rub                        |
| Skydrol® 500B-4               | Slight adhesive ooze   | No visible effect without rub, slight print removal with rub                  | No visible effect without rub, severe print removal with rub |
| Deionized Water               | No visible effect  | No visible effect with or without rub   | No visible effect with or without rub                        |
| 5% Alconox® Detergent         | No visible effect  | No visible effect with or without rub   | No visible effect with or without rub                        |
| 10% Sodium Hydroxide Solution | Moderate to severe topcoat discoloration or fade on all colors.      | Complete print and topcoat removal with rub                                   | Complete print and topcoat removal with rub                  |
| 10% Sulfuric Acid Solution    | No visible effect  | No visible effect with or without rub   | No visible effect with or without rub                        |

\*Yellow and green labels had moderate to severe fade or discoloration in this solvent, all other labels had no visible effect unless mentioned. Overall the green topcoat had slight to severe discoloration in the following chemicals: Methyl Ethyl Ketone, 1,1,1-Trichloroethane, Methyl Alcohol, Gasoline, Mineral Spirits, SAE 20 Wt Oil, Skydrol® 500B- 4 and 10% NaOH.

Product testing, customer feedback, and history of similar products, support a customer performance expectation of at least *three 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 degrees F (27°C) and 60% RH*. We are confident that our product will perform well beyond this time frame. However, it remains the responsibility of the user to assess the risk of using such product. We encourage customers to develop functional testing protocols that will qualify a product's fitness for use, in their actual applications.

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 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.

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