Technical Data Sheet

# BRADY B-777 GLOSSY WHITE THERMAL TRANSFER PRINTABLE POLYIMIDE LABEL STOCK

TDS No. B-777
Effective Date: 11/19/2021

**Description:**

## GENERAL

**Print Technology:** Thermal Transfer
**Material Type:** Polyimide
**Finish:** Gloss
**Adhesive:** Permanent Acrylic

## APPLICATIONS

Printed circuit board and electronic component pre-process labeling.

## RECOMMENDED RIBBONS

Brady Series R6300
Brady Series R4900A (available in APAC region only)

## REGULATORY/AGENCY APPROVALS

**UL:** B-777 is a UL Recognized Component to UL969 Labeling and Marking Standard when printed with Brady Series R6300 ribbon. See UL file MH17154 for specific details. UL information can be accessed on line at UL.com in the UL Product iQ area.

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-777 in combination with the Brady Series R6300 ribbon, meets the requirements of MIL-STD-202G, Method 215K.

B-777 is designed to withstand multiple cycles of harsh condition washes for printed circuit boards **without reflow or preheating** for improving print performance.

**Details:**

| PHYSICAL PROPERTIES | TEST METHODS | TYPICAL RESULTS |
|---|---|---|
| Thickness | ASTM D1000<br>- Substrate (topcoat and film)<br>- Adhesive<br>- Total (excluding liner) | <br>0.0023 inch (0.05842 mm)<br>0.0018 inch (0.0457 mm)<br>0.0042 inch (0.1041 mm) |
| Adhesion to:<br>- Stainless Steel<br><br><br>- Epoxy PC Board | ASTM D1000<br>20 minute dwell<br>24 hour dwell<br><br>20 minute dwell<br>24 hour dwell | <br>54 oz/in (59 N/100 mm)<br>65 oz/in (71 N/100 mm)<br><br>51 oz/in (56 N/100 mm)<br>70 oz/in (76 N/100 mm) |
| Tack | ASTM D 2979 Polyken™<br>Probe Tack<br>0.5 second dwell | 59 oz (1672 g) |
| Drop Shear | PSTC-7<br>½” x 1” | > 50 hours |
| Dielectric Strength | ASTM D149-97<br>0.25” probe; 500V/s | 9,750 volts |

Performance properties tested on B-777 printed with the Brady Series R6300 thermal transfer ribbon. Printed samples of B-777 were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environmental conditions.

| PERFORMANCE PROPERTIES | TEST METHODS | TYPICAL RESULTS |
|---|---|---|
| Short Term High Service Temperature | 80 seconds at 572°F (300°C) | Very slight discoloration and very slight shrinkage of label |
| | 5 Minutes at 500°F (260°C) | Very slight discoloration |
| | 2 hours at 338°F (170°C) | No visible effect |
| Long Term High Service Temperature | 1000 hours at 212°F (100°C) | Very slight fading of print but is still very legible. Label remains functional. |
| Low Service Temperature | 1000 hours at -94°F (-70°C) | No visible effect |
| Humidity Resistance | 1000 hours at 95°C (37°C) /95%RH | No visible effect |
| UV Light Resistance | ASTM G155, cycle 1, Dry<br>1000 hours in Q-Sun Xenon Test Chamber | No visible effect |
| Weatherability* | ASTM G155, Cycle 1<br>1000 hours in Xenon arc Weather-Ometer® | No visible effect |
| Abrasion Resistance | Taber Abraser, CS-10 grinding wheels, 250 g/arm | Print legible after 50 cycles |
| Salt Fog Resistance | ASTM B117<br>1000 hours in 5% salt fog solution chamber | No visible effect |
| Chemical Vapor Phase Resistance | Labels adhered to epoxy PC board and exposed to the vapor of the boiling chemical for 10 minutes and then rubbed with a cotton swab saturated with the chemical for 10 rubs.<br><br>Ionox® 3955<br><br>Micronox® MX2501 | <br><br><br><br>No visible effect<br><br>Slight print smearing |

*B-777 is not recommended for outdoor use.

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

Samples printed with the Brady Series R6300 thermal transfer ribbon then laminated to FR-4 epoxy PC board. After 24 hr dwell, test samples were exposed to the indicated environments. All test samples were immersed in the test fluids then rubbed 10 times with a cotton swab saturated with the test fluid.

| CHEMICAL REAGENT | SUBJECTIVE OBSERVATION OF VISUAL CHANGE | | |
|---|---|---|---|
| | EFFECT TO LABEL | R6300 RIBBON | |
| | | WITHOUT RUB | WITH RUB |
| Kyzen Corp. 15% Aquanox A4625 at 140°F (60°C) | No visible effect | 1 | 3 |
| Kyzen Corp. 17% Aquanox A4520 at 140°F | No visible effect | 1 | 2 |

| | | | |
|---|---|---|---|
| (60°C) | | | |
| Kyzen Corp. 10% Aquanox A4638 at 150°F (65°C) | No visible effect | 1 | 1 |
| Kyzen Corp. 20% Aquanox A4703 at 145°F (63°C) | No visible effect | 1 | 1 |
| Zestron, 15% Atron® AC205 at 150°F (65°C) | No visible effect | 1 | 3 |
| Zestron, 15% Atron® AC207 at 150°F (65°C) | No visible effect | 1 | 3 |
| Zestron, 15% Vigon® A201 at 150°F (65°C) | No visible effect | 1 | 3 |
| Zestron, 15% Vigon® N600 at 150°F (65°C) | No visible effect | 1 | 2 |
| Isopropyl Alcohol 99% at 180°F (82°C) | No visible effect | 1 | 1 |
| Deionized water at 212°F (100°C) | No visible effect | | 1 |
| Ionox® 3955 vapor phase (no prebake) | No visible effect | 2 | 5 |

**Rating Scale:**
1= no visible effect
2= slight smear or print removal, detectable but minimal smear
3= moderate smear or print removal (print still legible)
4= severe smear or print removal (print illegible or just barely legible)
5= complete print removal

| PERFORMANCE PROPERTY | TEST METHOD |
|---|---|
| **Solvent Resistance** | **MIL-STD-202G, Method 215K** |

Test samples were printed with the Brady Series R6300 thermal transfer ribbon. Labels were printed with alphanumerics and barcodes. Test samples were subjected to 3 cycles of 3 minute immersions immediately followed by a toothbrush rub after each immersion.

| TEST FLUID | RESULTS WITH R6300 SERIES RIBBON |
|---|---|
| Solvent A<br>1 part IPA, 3 parts mineral spirits | Meets requirement |
| Solvent C<br>Terpene Defluxer | Meets requirement |
| Solvent D<br>Saponifier @ 70°C | Meets requirement |

**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.

**Trademarks:**
ANSI: American National Standards Institute (U.S.A.)
ASTM: American Society for Testing and Materials (U.S.A.)
PSTC: Pressure Sensitive Tape Council (U.S.A.)
Polyken™ is a trademark of Testing Machines Inc.
Aquanox® is a registered trademark of the Kyzen Corporation
Atron® is a registered trademark of the Zestron Corporation
Ionox® is a registered trademark of the Kyzen Corporation
Micronox® is a registered trademark of the Kyzen Corporation
Vigon® is a registered trademark of the Zestron Corporation
Weather-Omete®r is a registered trademark of Atlas Material Testing Technology LLC
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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