

BRADY B-658 DOT MATRIX / LASER PRINTABLE HIGH TEMPERATURE POLYIMIDE LABEL

TDS No. B-658
 Effective Date: 03/26/2019

Description:

GENERAL

Print Technology: Dot Matrix and Laser

Material Type: Polyimide

Finish: Matte Greenish/Amber

Adhesive: Removable Silicone

APPLICATIONS

Brady B-658 is designed for E-PROM and top and bottom of printed circuit boards, that require solvent resistance, high temperature performance and clean removability. B-658 is designed to withstand the various fluxes, molten solder dips or solder reflow methods, and cleaning solvents encountered in the manufacture of printed circuit boards. B-658 is greenish/amber in color.

RECOMMENDED RIBBONS

Brady Series R5000

REGULATORY APPROVALS

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

In Canada: www.bradycanada.ca/weeee-rohs

In Europe: www.bradyeurope.com/rohs

In Japan: www.bradyc.co.jp/products/labelsuse/rohs

All other regions: www.bradycid.com/weeee-rohs

SPECIAL FEATURES

B-658 printed with the Brady Series R5000 ribbon meets the requirements of:

MIL-P-55110D General Specification for Printed Wiring Boards

MIL-M-81531 Marking of Electrical Insulating Materials

MIL-STD-202F Method 215J Resistance to Solvents

(B-658 printed with laser print does not meet these requirements)

Details:

| PHYSICAL PROPERTIES | TEST METHODS | AVERAGE RESULTS |
|----------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Thickness | ASTM D 1000 -Substrate -Adhesive -Total (excluding liner) | 0.0026 inch (0.06578 mm) 0.0015 inch 0.03795 mm) 0.0041 inch (0.10373 mm) |
| Adhesion to: -Stainless Steel | ASTM D 1000 20 minute dwell 24 hour dwell | 6 oz/in (7 N/100 mm) 8 oz/in (9 N/100 mm) |
| -Epoxy PC Board | 20 minute dwell 24 hour dwell | 3 oz/in (3 N/100 mm) 3 oz/in (3 N/100 mm) |
| -Textured ABS | 20 minute dwell 24 hour dwell | 2 oz/in (2 N/100 mm) 1 oz/in (1 N/100 mm) |
| -Polypropylene | 20 minute dwell 24 hour dwell | 5 oz/in (5 N/100 mm) 6 oz/in (7 N/100 mm) |
| Tack | ASTM D 2979 Polyken™ Probe Tack 0.5 second dwell | 256 oz (g) |
| Drop Shear | PSTC-7 (except use 1/2" x 1" sample) | 94 hours |
| Dielectric Strength | ASTM D 1000 | 8900 volts |

Performance properties tested on B-658 printed with the Brady Series R5000 dot matrix ribbon and a Hewlett Packard LaserJet 5P laser printer. Printed samples of B-658 were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environmental conditions. Unless noted, results are the same for both methods tested.

| PERFORMANCE PROPERTIES | TEST METHODS | TYPICAL RESULTS |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Short Term High Service Temperature | 5 minutes at various Temperatures | No visible effect to label at 270°C. No adhesive residue on panel to 330°C |
| | 2 hours at various Temperatures | No visible effect to label at 260°C. No adhesive residue on panel to 270°C |
| Long Term High Service Temperature | 30 days at various Temperatures | No visible effect to label at 145°C. No adhesive residue on panel to 160°C |
| Low Service Temperature | 30 days at -40°F (-40°C) | No visible effect |
| Humidity Resistance | 30 days at 100°F (37°C), 95% R.H. | No visible effect |
| UV Light Resistance | 30 days in UV Sunlighter™ 100 | Topcoat fades to light yellow, topcoat still functional |
| Weatherability | ASTM G155, Cycle 1 30 days in Xenon Arc Weatherometer | Topcoat degraded |
| Salt Fog Resistance | ASTM B 117 30 days in 5% salt fog solution chamber | No visible effect |
| Abrasion Resistance | Taber Abraser, CS-10 grinding wheels, 500 g/arm (Fed. Std. 191A, Method 5306) | Print legible to 150 cycles |
| Wave and Solder Vapor Phase | Label adhered to epoxy PC board and exposed to: 1. 10 second dip at 480°F (249°C) 2. 2 minutes in Fluorinert™ FC-5312 vapor phase at 420°F (216°C) | Solder Dip: No visible effect to print, label removed clean from panel Vapor Phase: No visible effect to print, label removed clean from panel |

¹B-658 is not recommended for outdoor use.

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

Samples were printed with the Brady Series R5000 dot matrix ribbon and a Hewlett Packard LaserJet 5P laser printer. Samples were laminated to aluminum panels and allowed to dwell 24 hours prior to testing. 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 were rubbed 10 times with cotton swab saturated with test fluid.

| CHEMICAL REAGENT | SUBJECTIVE OBSERVATION OF VISUAL CHANGE | | |
|--------------------------------------------|-----------------------------------------|-------------------|-------------------------------------------------------|
| | EFFECT TO LABEL STOCK | R5000 | LASERJET 5P |
| Methyl Ethyl Ketone | Slight adhesive ooze | No visible effect | Print bleed w/o rub, moderate removal after rub |
| 1,1,1-Trichloroethane | Slight adhesive ooze | No visible effect | Print bleed w/o rub, slight removal after rub |
| Toluene | Slight adhesive ooze | No visible effect | Print bleed w/o rub, moderate removal after rub |
| Isopropyl Alcohol | No visible effect | No visible effect | No visible effect |
| Mineral Spirits | Slight adhesive ooze | No visible effect | No visible effect w/o rub, severe removal after rub |
| JP-8 Jet Fuel | Slight adhesive ooze | No visible effect | No visible effect w/o rub, complete removal after rub |
| 6% Alphamets 2110 Saponifier at 70°C | Whitening of topcoat | No visible effect | No visible effect w/o rub, complete removal after rub |
| SAE 20 WT Oil at 70°C | No visible effect | No visible effect | No visible effect |
| Mil 5606 Oil | No visible effect | No visible effect | No visible effect |
| Skydrol® 500B-4 | No visible effect | No visible effect | Print bleed w/o rub, severe removal after rub |
| BIOACT® EC-7R™ Terpene Cleaner | No visible effect | No visible effect | No visible effect w/o rub, severe smear after rub |
| Axarel® 32 | No visible effect | No visible effect | Print removed |
| RE-ENTRY® KNI Solvent 2000 Terpene Cleaner | No visible effect | No visible effect | Print bleed w/o rub, severe removal after rub |
| Deionized Water | No visible effect | No visible effect | No visible effect |

| | | | |
|-------------------------------|----------------------|-------------------|-----------------------------------------------------|
| 3% Alconox® Detergent | No visible effect | No visible effect | No visible effect |
| 10% Sodium Hydroxide Solution | Whitening of topcoat | No visible effect | No visible effect w/o rub, slight removal after rub |
| 10% Sulfuric Acid Solution | No visible effect | No visible effect | No visible effect |

B-658 is not recommended for use in aqueous cleaning processes.

| | |
|-----------------------------|---------------------------------------------|
| PERFORMANCE PROPERTY | MIL-STD-202F, NOTICE 12, METHOD 215J |
|-----------------------------|---------------------------------------------|

Samples were printed with the Brady Series R5000 dot matrix ribbon and Hewlett Packard LaserJet 5P laser printer. Printed labels subjected to 3 cycles of 3 minute immersions immediately followed by a toothbrush rub after each immersion.

| TEST FLUID | R5000 | LASERJET 5P |
|-------------------------------------------------|-------------------------------|-------------------------------|
| Solvent A 1 part IPA, 1 part Mineral Spirits | No visible effect | Print removed |
| Solvent B 1,1,1,-Trichloroethane | Solvent deleted per Notice 12 | Solvent deleted per Notice 12 |
| Solvent C Terpene Defluxer | No visible effect | Print removed |
| Solvent D Saponifier at 70°C | No visible effect | 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.

Trademarks:

- Alconox® is a registered trademark of Alconox Co.
- Axarel® is a registered trademark of Petroferm, Inc.
- BIOACT® is a registered trademark of Petroferm, Inc.
- EC-7R™ is a trademark of Petroferm Inc.
- Flourinert™ is a trademark of 3M Corporation
- Polyken™ is a trademark of Testing Machines Inc.
- Skydrol® is a registered trademark of the Monsanto Company
- Sunlighter™ is a trademark of the Test Lab Apparatus Company
- RE-ENTRY® is a registered trademark of Environsolv Inc.
- 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.)

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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