WHEN PERFORMANCE MATTERS MOST™

Technical Data Sheet

BRADY B-734 MATTE WHITE LASER MARKABLE POLYIMIDE LABEL STOCK

TDS No B-734
Effective Date: 09/13/2019

Description:
GENERAL
Print Technology: Laser Markable
Material Type: Polyimide
Finish: Matte
Adhesive: Permanent Acrylic

APPLICATIONS
B-734 is designed to meet the requirements for pre-process labeling of printed circuit boards and electronic components when marked with standard IR lasers. The product can be used for auto-dispensing applications and can meet small font requirements when used with a high resolution laser marking system.

RECOMMENDED LASER SPECIFICATIONS
IR Laser systems operating at 20 W or greater are recommended for this product when operating at near to mid IR regions. Typical systems are classified as Class IV lasers and include CO_2 lasers operating between 9.6 and 10.6µm. These systems will all produce strong contrasting marks when using appropriate power and writing speeds.

REGULATORY/AGENCY APPROVAL
UL: Brady B-734 is a UL Recognized Component to UL969 Labeling and Marking Standard when marked with an IR laser. 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-734 meets the requirements of MIL-STD-202G, Method 215K.

B-734 is designed to withstand multiple cycles of harsh condition washes for printed circuit boards.

Details:

PHYSICAL PROPERTIES	TEST METHODS	TYPICAL RESULTS
Thickness	ASTM D1000 -Substrate -Adhesive -Total (excluding liner)	 0.0039 inch (0.099 mm) 0.0012 inch (0.030 mm) 0.0051 inch (0.130 mm)
Adhesion to: -Stainless Steel -Epoxy PC Board	ASTM D1000 20 minute dwell 24 hour dwell 20 minute dwell	 50 oz/in (55 N/100 mm) 67 oz/in (73 N/100 mm) 38 oz/in (42 N/100mm)

	24 hour dwell	63 oz/in (69 N/100mm)
Tack	ASTM D 2979 Polyken™ Probe Tack 1 second dwell	48 oz (1360 g)
Drop Shear	PSTC-7 1/2” x 1”	> 100 hours
Dielectric Strength	ASTM D1000	11,700 volts

Performance properties were tested on B-734 samples that were laser marked using a 20 W CO_2 laser marking system. Laser marked B-734 samples 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 various temperatures	Slight discoloration of label but no visible effect to printed image at 572°F (300°C); Label moderately discolored, printed image slightly blurred, very slight shrinkage at 608°F (320°C); at 662°F (350°C) the label is moderately discolored, printed image is slightly blurred, slight shrinkage of topcoat, moderate adhesive ooze, label no longer functional.
	5 minutes at various temperatures	Very slight discoloration of label and no visible effect to printed image at 500°F (260°C); Slight discoloration of label and no visible effect to printed image at 518°F (270°C); at 572°F (300°C) label moderately discolored with slight shrinkage, printed image is slightly blurred, label remains functional.
	2 hours at various temperatures	No visible effect to label or printed image at 338°F (170°C); Slight discoloration of label but no visible effect to printed image at 428°F (220°C); at 500°F (260°C) label is moderately discolored with slight wrinkling, printed image difficult to read, label no longer functional.
Long Term High Service Temperature	1000 hours at various temperatures	Very slight discoloration of label, no visible effect to printed image at 212°F (100°C); Slight discoloration of label, no visible effect to printed image at 266°F (130°C); at 320°F (160°C) label is moderately discolored with no visible effect to printed image, label remains functional.
Low Service Temperature	1000 hours at -94°F (-70°C)	No visible effect to label or printed image
Humidity Resistance	1000 hours at 100°F (38°C)/95%RH	No visible effect to label or printed image
UV Light Resistance	ASTM G155, cycle 1, Dry 1000 hours in Q-Sun Xenon Test Chamber	No visible effect to label or printed image
Weatherability*	ASTM G155, Cycle 1 1000 hours in Xenon arc Weather-Ometer®	No visible effect to label or printed image
Salt Fog Resistance	ASTM B117 1000 hours in 5% salt fog solution chamber	No visible effect to label or printed image
Abrasion Resistance	Taber Abraser, CS-10 grinding wheels, 500 g/arm (Fed. Std. 191A, Method 5306	Print image legible after 1500 cycles
Chemical Vapor Phase	Labels adhered to epoxy PC board and exposed to the vapor of the boiling	

Resistance	chemical for 10 minutes and then rubbed with a cotton swab saturated with the chemical for 10 rubs	
	Ionox® 3955	No visible effect to label, slight smear of printed image, still legible, label remains functional
	Micronox® MX2501	No visible effect to label, slight smear of printed image, still legible, label remains functional

*B-734 is not recommended for outdoor use.

PERFORMANCE PROPERTY	CHEMICAL RESISTANCE

B-734 samples were laser marked using a 20 W CO_2 laser marking system, then laminated to FR-4 epoxy PC board. After 24 hr dwell, test samples were immersed in the test fluids for 10 minutes, then rubbed 10 times with a cotton swab saturated with the test fluid.

CHEMICAL REAGENT	SUBJECTIVE OBSERVATION OF VISUAL CHANGE		
	EFFECT TO LABEL	LASER MARKED IMAGE	
		WITHOUT RUB	WITH RUB
Kyzen Corp. 15% Aquanox® A4625 at 140°F (60°C)	No visible effect	1	1
Kyzen Corp. 17% Aquanox® A4520 at 140°F (60°C)	No visible effect	1	1
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	1
Zestron, 15% Atron® AC207 at 150°F (65°C)	No visible effect	1	2
Zestron, 15% Vigon® A201 at 150°F (65°C)	No visible effect	1	1
Zestron, 15% Vigon® N600 at 150°F (65°C)	No visible effect	1	1
Isopropyl Alcohol 99% at 180°F (82°C)	No visible effect	1	1
Deionized water at 212°F (100°C)	No visible effect	1	1

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**

B-734 samples were laser marked using a 20 W CO_2 laser marking system, then laminated to FR-4 epoxy PC board. Labels were marked 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	LASER MARKED IMAGE
Solvent A 1 part IPA, 3 parts mineral spirits	Meets requirement
Solvent C Terpene Defluxer	Meets requirement
Solvent D 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-Ometer® 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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