WHEN PERFORMANCE MATTERS MOST™

Technical Data Sheet

BRADY B-730 MATTE BLACK LASER MARKABLE POLYIMIDE LABEL STOCK

TDS No B-730
Effective Date: 09/13/2019

Description:
GENERAL
Print Technology: Laser Markable
Material Type: Topcoated 2.0 mil polyimide film
Finish: Matte Black
Adhesive: Permanent Acrylic

APPLICATIONS
B-730 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 10 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 980 nm diode lasers, Nd:YAG lasers at 1064 nm, and CO_2 lasers operating between 9.6 and 10.6 µm. These systems will all produce strong contrasting marks when using appropriate power and writing speeds.

REGULATORY/AGENCY APPROVALS
Brady B-730 is UL Recognized to UL969 Labeling and Marking Standard when marked with an IR laser. See UL file MH17154 for specific details.

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-730 meets the requirements of MIL-STD-202G, Method 215K.

B-730 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 (topcoated film) -Adhesive -Total (excluding liner)	 0.0030 inch (0.076 mm) 0.0015 inch (0.038 mm) 0.0045 inch (0.114 mm)
Adhesion to: -Stainless Steel -Epoxy PC Board	ASTM D1000 20 minute dwell 24 hour dwell 20 minute dwell 24 hour dwell	 49 oz/in (54 N/100 mm) 53 oz/in (58 N/100 mm) 39 oz/in (43 N/100 mm) 45 oz/in (49 N/100 mm)
Tack	ASTM D 2979 Polyken™ Probe Tack 0.5 second dwell	 44 oz (1250 g)
Drop Shear	PSTC-7 1/2” x 1”	> 100 hours

Dielectric Strength	ASTM D1000	12,000 volts

Performance properties tested on B-730 samples that were laser marked using a 10 W laser diode laser marking system. Laser marked B-730 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	No visible effect to label or printed image at 572°F (300°C); no visible effect to label, printed image discolors slightly at 608°F (320°C); at 662°F (350°C) no visible effect to label, printed image moderately discolored, adhesive discolored at label edge, print still legible and label remains functional.
	5 minutes at various temperatures	No visible effect to label or printed image at 500°F (260°C); no visible effect to label, printed image discolors slightly at 518°F (270°C); at 572°F (300°C) no visible effect to label, printed image moderately discolored, print still legible and label remains functional.
	2 hours at various temperatures	No visible effect to label or printed image at 338°F (170°C); no visible effect to label, printed image discolors slightly at 428°F (220°C); at 500°F (260°C) no visible effect to label, printed image severely discolored, print still legible and label remains functional.
Long Term High Service Temperature	1000 hours at various temperatures	No visible effect to label or printed image at 212°F (100°C); no visible effect to label, printed image discolors slightly at 266°F (130°C); at 320°F (160°C) no visible effect to label, printed image moderately discolored, print still legible and 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, printed image discolors slightly, print still legible and label remains functional.
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)	Printed image legible after 900 cycles
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 Ionox® 3955	 No visible effect to label or printed image

	Micronox® MX2501	No visible effect to printed image, color of label slightly faded

*B-730 is not recommended for outdoor use.

PERFORMANCE PROPERTY	CHEMICAL RESISTANCE

B-730 samples were laser marked using a 10 W laser diode 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	1
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-730 samples were laser marked using a 10 W laser diode laser marking system, then laminated to FR-4 epoxy PC board. 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	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.

WARRANTY
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