B-652 - Technical Data Sheet

BRADY B-652:

DOT MATRIX / LASER PRINTABLE HIGH TEMPERATURE POLYIMIDE LABEL

TDS No. B-652

Effective Date: 21-Feb-2000

Description:

Brady B-652 is a polyimide film with a high performance printable topcoat and a high temperature acrylic pressure sensitive adhesive.

Brady B-652 is designed for applications requiring excellent solvent resistance and high temperature performance, like top side and bottom side of printed circuit boards. B-652 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-652 is greenish/amber in color.

Recommended ribbons for dot matrix printing are the Brady Series R2000 and R5000 ribbons.

B-652 printed with Brady Series R2000 and R5000 ribbons 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-652 printed with laser print does not meet these requirements)

Details:

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D 1000 -Substrate -Adhesive -Total	0.0028 inch (0.072 mm) 0.0016 inch (0.039 mm) 0.0044 inch (0.111 mm)
Adhesion to: -Stainless Steel	ASTM D 1000 20 minute dwell 24 hour dwell	30 oz/inch (33 N/100 mm) 35 oz/inch (38 N/100 mm) 20 oz/inch (22 N/100 mm)
-Epoxy PC Board	20 minute dwell 24 hour dwell	35 oz/inch (38 N/100 mm) 3 oz/inch (3 N/100 mm)
-Textured ABS	20 minute dwell 24 hour dwell	6 oz/inch (6 N/100 mm) 13 oz/inch (14 N/100 mm)
-Polypropylene	20 minute dwell 24 hour dwell	13 oz/inch (14 N/100 mm)

Tack	ASTM D 2979 Polyken™ Probe Tack (1 second dwell, 1 cm/sec separation)	19 oz. (600 grams)
Drop Shear	PSTC-7 (except use 1/2" x 1" sample)	over 100 hours
Dielectric Strength	ASTM D 1000	9700 Volts
Flammability	ASTM D 1000 Average Burn Time	Less than 5 seconds

Performance properties tested on B-652 printed with R2000 and R5000 dot matrix ribbons, and a Hewlett Packard LaserJet 5P laser printer. Printed samples of B-652 were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environmental conditions. Unless noted, results the same for three methods tested.

PERFORMANCE PROPERTIES	TEST METHODS	TYPICAL RESULTS
Short Term High Service Temperature	5 minutes at 536°F (280°C) 2 hours at 51 8°F (270°C)	No visible effect to label at 280°C. Label discolors slightly at 300°C but still functional. At 320°C label still functional but slightly discolored and adhesive discolored at label edge. No visible effect to label at 260°C. Adhesive brown at edge of label at 280°C.
Long Term High Service Temperature	1000 hours at 356°F (180°C)	No visible effect to label at 180°C. At 200°C label still functional but slightly discolored and adhesive brown at edge. At 200°C laser print degraded.
Low Service Temperature	1000 hours at -94°F (-70°C)	No visible effect
Humidity Resistance	1000 hours at 100°F, 95%R.H.	No visible effect
UV Light Resistance	1000 hours in UV Sunlighter™ 100	Topcoat fades to light yellow, label still functional
Weatherability[1]	ASTM G155, Cycle 1 1000 hours in Xenon Arc Weatherometer	Topcoat degraded
Salt Fog Resistance	30 days at 5% salt fog (ASTM B 117)	No visible effect

Abrasion Resistance	Taber Abraser, CS-10 grinding wheels, 500 g/arm (Fed. Std. 191A, Method 5306)	Slight topcoat removal but print still legible with R2000 and R5000 at 200 cycles.
Wave Solder and Vapor Phase Resistance	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 Vapor Phrase: R2000 and R5000 had no visible effect with and without rub. Laser print had no visible effect without rub and severe print smear after rub.

[1]B-652 is not recommended for outdoor use.

PERFORMANCE PROPERTY	CHEMICAL RESISTANCE

Samples printed with Series R2000 and R5000 dot matrix ribbons and LaserJet 5P laser printer. Samples 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 rubbed 10 times with cotton swab saturated with test fluid.

CHEMICAL REAGENT < /td>	SUBJECTIVE OBSERVATION OF VISUAL CHANGE		
	EFFECT TO LABEL STOCK	R2000/R5000	LASERJET 5P
Methyl Ethyl Ketone	Slight adhesive ooze	No visible effect	Print bleed w/o rub, moderate print removal after rub
1,1,1-Trichloroethane	Slight adhesive ooze	No visible effect	Print bleed w/o rub, slight print removal after rub
Toluene	No visible effect	No visible effect	Print bleed w/o rub, moderate print removal after rub
Isopropyl Alcohol	No visible effect	No visible effect	No visible effect
Mineral Spirits	No visible effect	No visible effect	No visible effect w/o rub, slight print removal after rub
JP-8 Jet Fuel	Slight adhesive ooze	No visible effect	No visible effect w/o rub, complete print removal after rub
6% Alphametals 2110 Saponifier at 70°C	Topcoat removed	Topcoat removed	Topcoat removed

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	Moderate print removal w/o rub, severe print removal after rub
BIOACT® EC-7R™ Terpene Cleaner	No visible effect	No visible effect	No visible effect w/o rub, moderate smear after rub
Axarel® 32	No visible effect	No visible effect	Print removed
< font face="Arial">RE-ENTRY® KNI Solvent 2000 Terpene Cleaner	No visible effect	No visible effect	No visible effect w/o rub, severe print 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
10% Sulfuric Acid Solution	No visible effect	No visible effect	No visible effect

B-652 is not recommended for use in aqueous cleaning processes.

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

Samples printed with R2000 and R5000 dot matrix ribbons and 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	R2000 AND R5000 DOT MATRIX	LASERJET 5P LASER PRINT
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

Laser printed sample failed test.

Product testing, customer feedback, and history of similar products, support a customer performance expectation of at least ***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 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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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.)
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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Sollten Sie noch Fragen haben,
kontaktieren Sie uns bitte.

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