BRADY
WHEN PERFORMANCE MATTERS MOST™

Technical Data Sheet

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

TDS No. B-658
Effective Date: 09/23/2005

Description:

Brady B-658 is a polyimide film with a high performance printable topcoat and a high temperature removable silicone pressure sensitive adhesive.

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

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

Details:

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D 1000 -Substrate -Adhesive -Total	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) 3 oz/in (3 N/100 mm)
-Epoxy PC Board	20 minute dwell 24 hour dwell	3 oz/in (3 N/100 mm) 2 oz/in (2 N/100 mm)
-Textured ABS	20 minute dwell 24 hour dwell	1 oz/in (1 N/100 mm) 5 oz/in (5 N/100 mm)
-Polypropylene	20 minute dwell 24 hour dwell	6 oz/in (7 N/100 mm)
Tack	ASTM D 2979 Polyken™ Probe Tack 1 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 R2000 and R5000 dot matrix ribbons, 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 the same for three methods tested.

PERFORMANCE PROPERTIES	TEST METHODS	TYPICAL RESULTS
Short Term High Service Temperature	5 minutes at 518°F (270°C) 2 hours at 500°F (260°C)	No visible effect to label at 270°C. No adhesive residue on panel to 330ºC No visible effect to label at 260°C. No adhesive residue on panel to 270°C
Long Term High Service Temperature	30 days at 293°F (145°C)	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 480ºF (249ºC) 2. 2 minutes in Fluorinert™ FC-5312 vapor phase at 420ºF (216ºC)	Solder Dip: No visible effect to print, label removed clean from panel Vapor Phase: No visible effect to print, label removed clean from panel

[1]B-658 is not recommended for outdoor use.

PERFORMANCE PROPERTY	CHEMICAL RESISTANCE

Samples printed with Series R2000 and R5000 dot matrix ribbons and a Hewlett Packard 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	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 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% Alphametals 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 eff ect
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 printed with R2000 and R5000 dot matrix ribbons 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	R2000/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: 2 years if stored in its closed package below 80°F and 60% R.H.

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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.)

Note: All values shown are averages and should not be used for specification purposes.
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