BRADY B-436 THERMAL TRANSFER PRINTABLE POLYIMIDE LABEL STOCK

TDS No. B-436
Effective Date: 09/26/2017

Description:

GENERAL

Print Technology: Thermal Transfer
Material Type: Greenish/Amber Polyimide
Finish: Matte
Adhesive: Removable Silicone

APPLICATIONS

Temporary preprocess labeling on printed circuit board, E-PROM and electronic component that require clean removability of the label.

RECOMMENDED RIBBON

Brady Series R4300

REGULATORY/AGENCY APPROVALS

Brady B-436 is RoHS compliant to 2005/618/EC MCV amendment to RoHS Directive 2002/95/EC.

SPECIAL FEATURES

B-436 in combination with the Series R4300 ribbon meets the requirements of:
MIL-PRF-55110G General Specification for Printed Wiring Boards
SAE AS81531 Marking of Electrical Insulating Materials
MIL-STD-202G Method 215J Resistance to Solvents

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)
-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 1 second dwell	256 grams (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-436 printed with Series R4300 on BradyPrinter™ THT Model 203X thermal transfer printer. Printed samples of B-436 were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environmental conditions. Labels tested for removability after exposure to environmental conditions.

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[1]	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 Solder and Vapor Phase Resistance	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]B436 is not recommended for outdoor use.

PERFORMANCE PROPERTY	CHEMICAL RESISTANCE

Samples printed with Series R4300 ribbon. 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	R4300 NO RUB	R4300 WITH RUB
Methyl Ethyl Ketone	Slight adhesive ooze	No visible effect	Slight print removal
1,1,1-Trichloroethane	Slight adhesive ooze	No visible effect	Slight print removal
Toluene	Slight adhesive ooze	No visible effect	Slight print removal
Isopropyl Alcohol	No visible effect	No visible effect	Slight print removal
Mineral Spirits	Slight adhesive ooze	No visible effect	Slight print removal
JP-8 Jet Fuel	Slight adhesive ooze	No visible effect	Slight print removal
SAE 20 WT Oil at 70°C	No visible effect	No visible effect	Severe print removal
Mil 5606 Oil	No visible effect	No visible effect	No visible effect
Skydrol® 500B-4	No visible effect	No visible effect	Slight print removal
BIOACT® EC-7R™ Terpene Cleaner	No visible effect	No visible effect	Slight print removal
6% Alphametals 2110 Saponifier at 70°C	Slight adhesive ooze	Slight print removal	Severe print removal
Axarel® 32	No visible effect	No visible effect	Slight print removal
RE-ENTRY® KNI Solvent 2000 Terpene Cleaner	No visible effect	No visible effect	Moderate print removal
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	Slight print fade	Severe print removal
10% Sulfuric Acid Solution	No visible effect	No visible effect	No visible effect

B-436 is not recommended for use with aqueous cleaning processes.

PERFORMANCE PROPERTY	MIL-STD-202G, NOTICE 12, METHOD 215K

Samples printed with R4300 ribbon. Printed labels subjected to 3 cycles of 3 minute immersions immediately followed by a toothbrush rub after each immersion.

TEST FLUID	RESULTS

Solvent A 1 part IPA, 1 part Mineral Spirits	No visible effect
Solvent B 1,1,1-Trichloroethane	Solvent deleted per Notice 12
Solvent C Terpene Defluxer	No visible effect
Solvent D Saponifier at 70°C	No visible effect

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.

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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.
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