Technical Data Sheet

BRADY B-8491 LOW PROFILE WHITE THERMAL TRANSFER PRINTABLE STATIC DISSIPATIVE POLYIMIDE LABEL

TDS No. B-8491
Effective Date: 02/11/2015

Description:
GENERAL
Print Technology: Thermal transfer
Material Type: White polyimide
Finish: Semi-matte
Adhesive: Static Dissipative Pressure Sensitive Acrylic

APPLICATIONS
This product has adhesive surface resistivity values in the recommended range for dissipative ESD packaging materials as defined by ANSI/ESD S541-2008 (between 10^4 and 10^{11} ohms).

B-8491 is used for printed circuit board and electronic component pre-process labeling.

RECOMMENDED RIBBON
Brady Series R6000 Halogen Free

REGULATORY APPROVALS
Brady B-8491 is RoHS compliant to RoHS Directive 2011/65/EU.

SPECIAL FEATURES
B-8491 is Dibutyl and Dioctyl Tin Free

B-8491 is designed to withstand multiple cycles of harsh condition washes.

Pre-heat can be employed to further enhance print permanence in the case of extreme solvent and/or abrasion exposure.

Details:

PHYSICAL PROPERTIES	TEST METHODS	TYPICAL RESULTS
Thickness	ASTM D1000 -Substrate (topcoat and film) -Adhesive -Total (excluding liner)	 0.0021 inch (0.053 mm) 0.0016 inch (0.041 mm) 0.0037 inch (0.094 mm)
Delam	Brady 00348	Pass
Crosshatch	ASTM 3359, Brady 00334	Pass
Dielectric Strength	ASTM D1000	10,000 volts
Adhesive Surface Resistivity	EOS/ESD S11.11, 10v	3.25×10^{10} ohms
Static Decay - Adhesive	EIA-541 to 1% of initial charge 4" x 4"	Positive 0.4 sec 3 volt Negative 0.4 sec 4 volt
Voltage (label removed from liner, liner tested)	Value is obtained by removing a label from the liner while peeling and is measured by a static sensing device calibrated in volts - 1" x 5"	4.0 volts
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Tensile Strength	ASTM D1000 -MD	 41 lb/in (649 oz/in)
Elongation	ASTM D1000 -MD	107%
Adhesion to: -Stainless Steel	ASTM D1000 20 minute dwell 24 hour dwell	 47 oz/in (51 N/100 mm) 53 oz/in (58 N/100 mm)
Tack	ASTM D2979 Polyken™ Probe Tack	 1400 g (43 oz)

	0.5/1 using E weight	
Drop Shear	PSTC-7 (except use ½" x 1" sample)	>100 hours

Performance properties tested on B-8491 printed with Series R6000 Halogen Free and the DK620 thermal transfer ribbons. Printed samples of B-8491 were laminated to FR-4 board and allowed to dwell 24 hours before exposure to the indicated environments.

PERFORMANCE PROPERTIES	TEST METHODS	TYPICAL RESULTS	
		R6000 Halogen Free	DK620
Short Term High Service Temperature	5 minutes at 260°C (500°F)	No visible effect	No visible effect
	2 hours at 170°C (338°F)	No visible effect	No visible effect
	80 seconds at 300°C (572°F)	No visible effect	No visible effect
Long Term High Service Temperature	1000 hours at 100°C (212°F)	No visible effect	No visible effect
Low Service Temperature	1000 hours at -70°C (-94°F)	No visible effect	No visible effect
Humidity Resistance	1000 hours at 37°C (100°F)/95% RH	No visible effect	No visible effect
UV Light Resistance	ASTM G155, Cycle 1, Dry 1000 hours in Q-Sun Xenon Test Chamber	Slight discoloration, label remains functional	Slight discoloration, label remains functional
Weatherability*	ASTM G155, Cycle 1, Dry 1000 hours in Xenon Arc Weather-Ometer®	Slight discoloration, label remains functional	Slight discoloration, label remains functional
Salt Fog Resistance	ASTM B117 1000 hours in 5% salt fog solution chamber	No visible effect	No visible effect
Abrasion Resistance	Taber Abraser, CS-10 grinding wheels, 500 g/arm (Fed. Std. 191A, Method 5306)	Print legible after 120 cycles	Print legible after 60 cycles
Printability	Brady 00360, 00361 ANSI Grade B or better	Pass	Pass

*B-8491 is not recommended for outdoor use

PERFORMANCE PROPERTY	CHEMICAL RESISTANCE

Test samples were printed with the Series R6000 Halogen Free and DK620 thermal transfer ribbons. Printed samples of B-8491 were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environmental conditions. Test samples were baked 4 minutes at 160°C before testing. All test samples were immersed in the test fluids for ten minutes prior to rubbing printed image with a cotton swab 10 times. Unless otherwise indicated, print prior to rub showed no visible effects as a result of the immersion. Results are after ten times rub.

CHEMICAL REAGENT	SUBJECTIVE OBSERVATION TO VISUAL CHANGE		
	EFFECT TO LABEL	R6000 HALOGEN FREE	DK620
99% Isopropyl alcohol at 80°C (180°F)	No visible effect	1	1
Deionized water at 100°C (212°F)	No visible effect	1	1
Kyzen Corp., 15% Aquanox ® A4625 at 60°C (140°F)	No visible effect	3, label remains adhered	3, label remains adhered
Kyzen Corp., 10% Aquanox® A4638 at 65°C (150°F)	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 [romt re,pva; (print illegible or just barely legible)
5=complete print removal

PERFORMANCE PROPERTY	TEST METHOD
Chemical Resistance	**MIL-STD-202G, Method 215K**

Samples were printed with Series R6000 Halogen Free thermal transfer ribbon. Samples subjected to three cycles of three minute immersions immediately followed by a toothbrush rub after each immersion.

TEST FLUID	RESULTS R6000 Halogen Free
Solvent A 1 part IPA, 3 parts Mineral Spirits	Meets Requirement
Solvent C Terpene Defluxer	Meets Requirement
Solvent D Saponifier @ 70°C	Meets requirement

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 it is stored in its original packaging in an environment below 80°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.

Trademarks:
ANSI: American National Standards Institute (U.S.A.)
ASTM: American Society for Testing and Materials (U.S.A.)
All S.I. Units (metric) are mathematically derived from the U.S. Conventional Units
Aquanox® is a registered trademark of the Kyzen Corporation
EOS/ESD: Electrical Overstress/Electrostatic Discharge (U.S.A.)
PSTC: Pressure Sensitive Tape Council (U.S.A.)
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Weather-Ometer® is a registered trademark of Atlas Material Testing Technology LLC

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