

BRADYBONDZ™ B-413 THERMAL TRANSFER PRINTABLE LIGHT GRAY POLYESTER LABEL STOCK WITH ACRYLIC ADHESIVE

TDS No. B-413
Effective Date: 06/05/2014

Description:

GENERAL

Print Technology: Thermal transfer
Materials Type: Top coated polyester
Finish: light gray appearance
Adhesive: Permanent acrylic

APPLICATIONS

Electronic PCB and component identification, bar code label and rating plates.

RECOMMENDED RIBBONS

Brady Series R6000
Brady Series R6000 Halogen Free (Previously known as R6000HF)
Brady Series R4400 (colors - red, blue, green, white)
Brady Series R4900 and R6200 (alternates)

REGULATORY/AGENCY APPROVALS

UL: B-413 is a UL Recognized Component when printed with the Brady R6000 Series, R6000 Halogen Free Series and R6200 Series black ribbons. See UL file PGJ12.MH17154 for specific details. UL information can be accessed on line at UL.com. Search in *Certifications* area.

cUL: B-413 is a cUL Recognized Component when printed with the Brady Series R6000 and R6200 Series black ribbons. See UL file PGJ18.MH17154 for specific details. UL information can be accessed on line at UL.com. Search in *Certifications* area.

Brady B-413 is RoHS compliant to 2005/618/EC MCV amendment to RoHS Directive 2002/95/EC.

Details:

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D 1000 -Top Coat -Substrate -Adhesive -Total	0.0004 inch (0.010 mm) 0.0020 inch (0.051 mm) 0.0010 inch (0.025 mm) 0.0034 inch (0.086 mm)
Adhesion to:	ASTM D 1000	
-Stainless Steel	20 minute dwell 24 hour dwell	51 oz/inch (56 N/100 mm) 53 oz/inch (58 N/100 mm)
- Painted Enamel	20 minutes dwell 24 hour dwell	48 oz/inch (53 N/100 mm) 51 oz/inch (56 N/100 mm)
- Textured ABS	20 minutes dwell 24 hour dwell	7 oz/inch (8 N/100 mm) 7 oz/inch (8 N/100mm)
Tack	ASTM D 2979 Polyken™ Probe Tack 1 second dwell	32 oz (900 g)
Dielectric Strength	ASTM D 1000	8700 Volts

B-413 is not recommended for low surface energy surfaces such as polyethylene and polypropylene.

Performance properties tested on B-413 printed with Series R6000, R6000 Halogen Free and R6200 ribbons. Printed samples were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environments. Unless noted, results are the same for both ribbons.

PERFORMANCE PROPERTIES	TEST METHOD	TYPICAL RESULTS
High Service Temperature	30 days at various temperatures	No visible effect to label at 110°C. Slightly darker at 120°C. Slight shrinkage and darker at 145°C, but label still functional.
Low Service Temperature	30 days at -70°C	No visible effect

Short Term High Service Temperature	5 minutes at various temperatures	Slight shrink, no visible effect to label at 180°C. Slight shrink, no visible effect to label at 200°C. Slight shrink, no visible effect to label at 210°C.
Humidity Resistance	30 days at 100°F (37°C) and 95% relative humidity.	No visible effect.
Weatherability	ASTM G155, Cycle 1 30 days in Xenon Arc Weatherometer	Darkened, but label still functional.
Salt Fog Resistance	ASTM B 117	No Visible effect
Abrasion Resistance	Taber Abraser, CS-10 grinding wheels, 500g/arm (Fed. Std. 191A, Method 5306)	R6000: Print legible after 100 cycles R6000 Halogen Free: Print legible after 100 cycles

PERFORMANCE PROPERTY	CHEMICAL RESISTANCE
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Samples were printed with Series R6000, R6000 Halogen Free and R6200 ribbons. Samples were laminated to aluminum panels and allowed to dwell 24 hours prior to testing. Testing was conducted at room temperature and consisted of 30 minute immersions in the specified test fluid. After immersion, the samples were removed from the test fluid and the printed image rubbed 10 times with a cotton swab saturated with the test fluid. The rating scale below shows the effect to the quality of the print for each sample.

CHEMICAL REAGENT	EFFECT TO LABEL STOCK	SUBJECTIVE OBSERVATION OF VISUAL CHANGE					
		EFFECTS TO PRINTED IMAGE					
		R6000		R6000 Halogen Free		R6200	
		WITHOUT RUB	WITH RUB	WITHOUT RUB	WITH RUB	WITHOUT RUB	WITH RUB
Acetone	Slight adhesive ooze	1	5	1	5	1	5
Toluene	Slight adhesive ooze	1	5	1	5	1	5
Isopropyl Alcohol	No visible effect	1	1	1	1	1	1
Mineral Spirits	No visible effect	1	1	1	1	1	1
Gasoline	Slight adhesive ooze	1	1	1	1	1	1
JP-8 Jet Fuel	Slight adhesive ooze	1	1	1	1	1	1
Brake Fluid	No visible effect	1	1	1	1	1	1-2
Skydrol® 500B-4	Slight adhesive ooze	1	3	1	2	2	4
SAE 20 WT Oil at 70°C	No visible effect	1	1	1	1	1	1
MIL 5606 Oil	No visible effect	1	1	1	1	1	1
Formula 409® Cleaner	No visible effect	1	1	1	1	1	1
Northwoods™ Buzz Saw Citrus Degreaser	No visible effect	1	1	1	1	1	1
Deionized Water	No visible effect	1	1	1	1	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 and/or topcoat removal

NP= print removed prior to rub

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 degrees 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:

ASTM: American Society for Testing and Materials (U.S.A.)

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Northwoods™ is a trademark of the Superior Chemical Corporation.

Polyken™ is a trademark of Testing Machines Inc.

SAE: Society of Automotive Engineers (U.S.A.)

Skydrol® is a registered trademark of the Monsanto Company

UL: Underwriters Laboratories Inc. (U.S.A.)

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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