

**BRADY B-410 LASER PRINTABLE TAMPER EVIDENT POLYOLEFIN**

TDS No. B-410  
Effective Date: 11-Jun-2009

**Description:**

**GENERAL**

**Print Technology:** Laser and Dot Matrix  
**Material Type:** Tamper Evident Polyolefin  
**Finish:** Matte  
**Adhesive:** Permanent Acrylic

**APPLICATIONS**

Labeling applications requiring evidence of tampering.

**RECOMMENDED RIBBONS**

**Dot Matrix Ribbons**  
Brady Series R2000 and R5000

**REGULATORY**

B-410 is RoHS compliant to 2005/618/EC MCV amendment to RoHS Directive 2002/95/EC.

**SPECIAL FEATURES**

B-410 provides outstanding performance in laser and xerographic printing processes. B-410 also provides permanency and smudge resistance with dot-matrix printing, however, printing of barcodes is not recommended. B-410 irreversibly stretches when removed from a variety of surface types and textures.

**Details:**

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D 1000 -Substrate -Adhesive -Total	0.007 inch (0.177 mm) 0.002 inch (0.051 mm) 0.009 inch (0.228 mm)
Adhesion to: *	ASTM D 1000	
-Stainless Steel	20 minute dwell 24 hour dwell	164 oz/inch (180 N/100 mm) 164 oz/inch (180 N/100 mm)
-Polypropylene	20 minute dwell 24 hour dwell	90 oz/inch (99 N/100 mm) 120 oz/inch (131 N/100 mm)
-Textured ABS	20 minute dwell 24 hour dwell	36 oz/inch (39 N/100 mm) 39 oz/inch (43 N/100 mm)
-Smooth ABS	20 minute dwell 24 hour dwell	126 oz/inch (138 N/100 mm) 145 oz/inch (159 N/100 mm)
Tack*	ASTM D 2979 Polyken™ Probe Tack 1 second dwell	35.2 oz (1000 g)
Drop Shear*	PSTC-7 (except use 1/2" x 1" sample)	10+ hours
Tensile Strength and Elongation	ASTM D 1000 -Machine -Cross	10 lbs/inch (175 N/100 mm), 290% 6 lbs/inch (105 N/100 mm), 20%

\*B-410 material supported with B-632 for adhesion, tack and drop shear values. Without support, the B-410 material will irreversibly stretch and distort when removed from adhesion surfaces.

Performance properties tested on B-410 were laser printed with the HP LaserJet 6P and dot-matrix printed using the Brady SLV-DAT-PTR printer with Brady R5000 and R2000 Series ribbon. Results the same for all printing unless noted otherwise.

PERFORMANCE PROPERTIES	TEST METHOD	TYPICAL RESULTS
High Service Temperature (long term)	30 days at 212°F (100°C)	Slight label discoloration, no visible effect to print
Low Service Temperature (long term)	30 days at -94°F (-70°C)	No visible effect
High Service Temperature (short term)	15 minutes at 320°F (160°C)	No visible effect at 90°C, slight adhesive ooze and label discoloration at 160°C, no visible effect to print
Humidity Resistance	30 days at 100°F (37°C), 95% R.H.	Very slight label discoloration, no visible effect to print
UV Light Resistance	30 days in UV Sunlighter™ 100	Very slight label discoloration, no visible effect to print with laser and R2000 ribbon, slight print fade on R5000
Weatherability*	ASTM G155, Cycle 1 30 days in Xenon Arc Weatherometer	Material cracked and brittle
Salt Fog Resistance	1000 hours at 5% salt spray	No visible effect
Abrasion Resistance	Taber Abraser, CS-10 grinding wheels, 500 g/arm (Fed. Std. 191A, Method 5306)	Print legible to: Laser: 500 cycles Dot Matrix: 500 cycles

\* B-410 is not recommended for outdoor applications.

PERFORMANCE PROPERTIES	CHEMICAL RESISTANCE
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Samples printed with an HP LaserJet 6P printer. Samples laminated to aluminum panels and allowed to dwell 24 hours prior to testing. Test conducted at room temperature. 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	EFFECT TO PRINT	EFFECT TO PRINT WITH RUB
Isopropyl Alcohol	No visible effect	No visible effect	No visible effect
SAE 20 WT Oil	Slight stain	No visible effect	No visible effect
Gasoline	Sample fell off panel	Moderate print fade	Toner completely removed
Deionized Water	No visible effect	No visible effect	No visible effect
3% Alconox® Detergent	No visible effect	No visible effect	No visible effect
Northwoods™ Buzz Saw	Slight stain	No visible effect	No visible effect
Mineral Spirits	Sample fell off panel	No visible effect	Slight print fade

PERFORMANCE PROPERTIES	CHEMICAL RESISTANCE
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Samples printed with Brady SLV-DAT-PTR printer using Brady R5000 and R2000 Series ribbon. Samples laminated to aluminum panels and allowed to dwell 24 hours prior to testing. Test conducted at room temperature. 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. Results the same for all printing unless noted otherwise.

CHEMICAL REAGENT	SUBJECTIVE OBSERVATION OF VISUAL CHANGE		
	EFFECT TO LABEL STOCK	EFFECT TO PRINT	EFFECT TO PRINT WITH RUB
Isopropyl Alcohol	No visible effect	Slight bleed	No visible effect

SAE 20 WT Oil	Slight stain	No visible effect	No visible effect
Gasoline	Sample fell off panel	No visible effect	No visible effect
Deionized Water	No visible effect	No visible effect	No visible effect
3% Alconox® Detergent	No visible effect	No visible effect	No visible effect
Northwoods™ Buzz Saw	Slight stain	No visible effect	No visible effect
Mineral Spirits	Sample fell off panel	No visible effect	No visible effect

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:**

Alconox® is a registered trademark of Alconox Co.  
 Northwoods™ is a trademark of the Superior Chemical Corporation  
 Polyken™ is a trademark of Testing Machines Inc.  
 Sunlighter™ is a trademark of the Test Lab Apparatus Company  
 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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