

## Search Technical Data Sheets



### BRADY B-459 THERMAL TRANSFER PRINTABLE MATTE WHITE POLYESTER LABEL STOCK

TDS No. B-459  
Effective Date: 12-Jul-2010

#### Description:

##### GENERAL

**Print Technology:** Thermal Transfer

**Material Type:** White Polyester

**Finish:** Matte

**Adhesive:** Permanent Acrylic

##### APPLICATIONS

Designed for applications such as topside of printed circuit boards and rating plates that utilize high quality/density alphanumerics, barcodes and graphics.

##### RECOMMENDED RIBBONS

Brady Series R4900 and R6000 black ribbons

Brady Series R6000HF (low halogen)

Brady Series R4400 colored (red, green, blue) ribbons

##### REGULATORY/AGENCY APPROVALS

**UL:** B-459 is UL Recognized to UL 969 Labeling and Marking Standard when printed with Brady Series R4900 or R6000 black and R4400 colored ribbons. See UL file MH17154 for specific details.

**CSA:** B-459 is CSA Accepted to C22.2 No.0.15-95 Adhesive Labels Standard when printed with Brady Series R4900 and R6000 ribbon. See CSA file 041833 for specific details.

Brady B-459 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 -Substrate -Adhesive -Total	0.0023 inch (0.0584 mm) 0.0008 inch (0.0203 mm) 0.0031 inch (0.0787 mm)
Adhesion to: -Stainless Steel	ASTM D 1000 20 minute dwell 24 hour dwell	44 oz/in (48 N/100 mm) 49 oz/in (54 N/100 mm)
-Polypropylene	20 minute dwell 24 hour dwell	31 oz/in (34 N/100 mm) 43 oz/in (47 N/100 mm)
Tensile Strength and Elongation	ASTM D 1000 -Machine	44 lbs/in (765 N/100 mm), 90%
Tack	ASTM D 2979 Polyken™ Probe Tack 1 second dwell	19 oz (526 g)

Performance properties tested on B-459 printed with R4000, R4900, R6000, R6000HF black and R4400 colored ribbons. Printed samples were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environments. Unless noted, results the same for all ribbons.

PERFORMANCE PROPERTIES	TEST METHODS	TYPICAL RESULTS
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Short Term High Service Temperature	5 minutes at 356°F (180°C)	No visible effect at 180°C Label shrinkage at 210°C
Long Term High Service Temperature	30 days at 212°F (100°C)	No visible effect at 100°C Label yellowed at 120°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	Severe yellowing of topcoat
Weatherability	ASTM G155, Cycle 1 30 days in Xenon Arc Weatherometer	Slight topcoat discoloration and chalking. R4400 red print removed.
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: R4000= 30 cycles R4900= 150 cycles R6000= 300 cycles R6000HF= 100 cycles R4400= 100 cycles

PERFORMANCE PROPERTY	CHEMICAL RESISTANCE
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Samples printed with Series R4000, R4900, R6000 and R6000HF ribbons. 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	R4000	R4900/R6000 <sup>1</sup>	R6000HF
Methyl Ethyl Ketone	Topcoat degraded	Print removed when immersed	Print removed when immersed	Print removed when immersed
1,1,1-Trichloroethane	No visible effect	Print removed when immersed	No visible effect w/o rub, print removed after rub	Obsolete
Isopropyl Alcohol	No visible effect	No visible effect w/o rub, print removal after rub	No visible effect	No visible effect
Mineral Spirits	No visible effect	No visible effect w/o rub, print removal after rub	No visible effect	No visible effect
SAE 20 WT Oil @ 70° C	No visible effect	No visible effect w/o rub, print removal after rub	No visible effect	No visible effect
Mil 5606 Oil	No visible effect	No visible effect	No visible effect	No visible effect
Speedi Kut Cutting Oil 332	No visible effect	No visible effect	No visible effect	No visible effect
Gasoline	Slight yellowing	No visible effect w/o rub, print removal after rub	No visible effect w/o rub, slight print removal after rub	No visible effect
Rust Veto® 342	Slight yellowing	No visible effect w/o rub, print removal after rub	No visible effect	No visible effect
Northwoods™ Buzz Saw Degreaser	No visible effect	No visible effect w/o rub, print removal after rub	No visible effect	No visible effect
Deionized Water	No visible effect	No visible effect	No visible effect	No visible effect
5% Salt Solution	No visible effect	No visible effect	No visible effect	No visible effect
3% Alconox® Detergent	No visible effect	No visible effect	No visible effect	No visible effect
10% Sodium Hydroxide Solution	No visible effect	No visible effect w/o rub, print removal after rub	No visible effect	No visible effect
10% Sulfuric Acid Solution	No visible effect	No visible effect	No visible effect	No visible effect

<sup>1</sup>Results the same with R4900 and R6000 ribbon. Solvent resistance results for R4400 colored ribbons not reported.

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°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.

BradyPrinter™ is a trademark of Brady Worldwide, Inc.

Northwoods™ is a trademark of the Superior Chemical Corporation

Polyken™ is a trademark of Testing Machines Inc.

Rust Veto® is a registered trademark of the E.F. Houghton & Co.

Sunlighter™ is a trademark of the Test Lab Apparatus Company

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

CSA: Canadian Standards Association

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

UL: Underwriters Laboratories Inc. (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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