Product Information Sheet
B-423 Lab
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BRADY WORLDWIDE, INC.
P.O. Box 2131
Milwaukee, WI 53201-2131
Tel. 414/358-6600
Fax 800/292-2289

BRADYBONDZ™ B-423 THERMAL TRANSFER PRINTABLE GLOSSY WHITE POLYESTER LABEL STOCK

This Product Information Sheet is focused on the suitability of B-423 for laboratory applications. For additional data regarding B-423 performance please refer to B-423 Technical Data Sheet.

Description:

GENERAL
Print Technology: Thermal transfer
Material Type: White polyester
Finish: Glossy white
Adhesive: Permanent acrylic

APPLICATIONS
Laboratory identification such as vials, centrifuge tubes, test tubes, well plates and slides

RECOMMENDED RIBBONS
Brady series 6000
Brady series 4400 (colors – red, blue, green, white)
Brady series 4900 (alternate)*
*B-423 can be printed with series 4900 ribbon; please note that testing described in this product information sheet was performed on materials printed with the 6000 series ribbon.

AGENCY APPROVALS
UL: B-423 is a UL Recognized Component to UL969 Labeling and Marking Standard when printed with Brady series R6000. See UL file MH17154 for specific details. UL information can be accessed on line at UL.com. Search in *Certifications* area. The Brady Series R4900 ribbon is also UL approved.
CSA: B-423 is CSA Accepted to C22.2 No.0.15-95 Adhesive Labels Standard when printed with Brady series R6000 ribbon. See CSA file 041833 for specific details. CSA information can be accessed on line at directories.csa-international.org. The Brady Series R4900 ribbon is also CSA approved.

Details:
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.

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D1000 -Substrate -Adhesive -Total (excluding liner)	 0.0508 mm (0.002 inch) 0.0254 mm (0.001 inch) 0.0762 mm (0.003 inch)
Adhesion to: -Stainless Steel -Glass	ASTM D1000 20 minute dwell 24 hour dwell 20 minute dwell 24 hour dwell	 51 oz/inch (56 N/100 mm) 78 oz/inch (85 N/100 mm) 58 oz/inch (64 N/100 mm) 74 oz/inch (81 N/100 mm)

B-423 is not recommended for low surface energy surfaces such as polyethylene and polypropylene.

PERFORMANCE PROPERTIES – LAB SIMULATED ENVIRONMENT
Performance properties tested on B-423 printed with Series R6000 ribbon on Bradyprinter ™ THT Model 300X-Plus thermal transfer printer. Printed samples were laminated to glass vials (2.8 cm outer diameter), polypropylene centrifuge tubes (3.5 cm outer diameter, 50 ml capacity) and glass microscope slides and allowed to dwell 24 hours before exposure to the indicated environments.

ENVIRONMENT	TEST METHOD		TYPICAL RESULTS
High Service Temperature**	30 days at elevated temperatures		No visible effect at 110°C (230°F). Slight discoloration at 120°C (248°F); moderate discoloration at 145°C (293°F) but label is still functional.
Freezer	3 cycles of 16 hours at –70°C (–94°F)/ 8 hours at room temperature	✓ ✗ ✓ ✗	Glass vial Polypropylene centrifuge tube Glass microscope slide Flat polypropylene
Pressure Cooker (simulate autoclave)	3 cycles of 1 hour in 121°C (250°F) 15 psi pressure cooker/23 housr room temperature	✓ ✗ ✓ ✗	Glass vial Polypropylene centrifuge tube Glass microscope slide Flat polypropylene
Liquid Nitrogen	3 cycles of 4 hours at -196°C (-320°F)/20 hours at room temperature	✗ ✗ ✓ ✗	Glass vial Polypropylene centrifuge tube Glass microscope slide Flat polypropylene
Freezer to boiling water	1 hour at -70°C (-94°F) then placed in boiling water 100°C (212°F)	✓ ✗ ✓ ✗	Glass vial Polypropylene centrifuge tube Glass microscope slide Flat polypropylene

Liquid Nitrogen to boiling water	1 hour at -196°C (-320°F) then placed in boiling water 100°C (212°F) for 10 minutes	✗	Glass vial
		✗	Polypropylene centrifuge tube
		✓	Glass microscope slide
		✗	Flat polypropylene

** Samples for this testing were placed on glass microscope slides

✓ Label suitable for application; no visible effect, label remains adhered to test surface

◆ Label may work in application; test results were mixed

✗ Label not recommended for application; label came off either during testing or after test surface was removed from environment.

PERFORMANCE PROPERTIES - CHEMICAL
Samples of B-423 were printed with Series R6000 ribbon on Bradyprinter ™ THT Model 300X-Plus thermal transfer printer. Printed samples were laminated to glass microscope slides and allowed to dwell 24 hours prior to testing. Test conducted at room temperature. Samples were immersed in the test solvent for 15 minutes. The samples were removed and 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	SUBJECTIVE OBSERVATION OF VISUAL CHANGE		
	EFFECTS TO LABEL STOCK	EFFECTS TO PRINTED IMAGE	
		WITHOUT RUB	WITH RUB
Ethanol	No visible effect	1	1
Toluene	Slight adhesive ooze	1	5
Isopropanol	No visible effect	1	1
Xylene	Slight adhesive ooze	1	5
Dimethylsulfoxide (DMSO)	No visible effect	1	5
Methylene Chloride	Slight adhesive ooze	NP	NP
50% Acetic Acid	No visible effect	1	1
10% Hydrochloric Acid	No visible effect	1	1
10% Sodium Hydroxide	No visible effect	1	1
10% Chlorox Solution	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 print removal (print illegible or just barely legible)
5=complete print and/or topcoat removal
NP=print removed prior to rub

Storage Stability:

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 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 and References: Bradyprinter is a trademark of Brady Worldwide, Inc

ASTM: American Society for Testing and Materials (U.S.A.)
CSA: Canadian Standards Association
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.

WARRANTY

Brady products are sold with the understanding that the buyers will test them in actual use and determine for themselves their adaptability to their intended uses. Brady warrants to the buyers that its products are free from defects in material and workmanship, but limits its obligation under this warranty to replacement of the product shown to Brady's satisfaction to have been defective at the time Brady sold it. This warranty does not extend to any persons obtaining the product from the buyers. **This warranty is in lieu of any other warranty, express or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose, and of any other obligations or liability on Brady's part. Under no circumstances will Brady be liable for any loss, damage, expense, or consequential damages of any kind arising in connection with the use, or inability to use, Brady's products.**