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WHEN PERFORMANCE MATTERS MOST™

Technical Data Sheet

B-461 POLYESTER FILM TAPE

TDS No. B-461
Effective Date: 10/25/2021

Description:

GENERAL

Print Technology: Thermal transfer
Material Type: Polyester
Finish: Clear film with matte white printable zone coated ink
Adhesive: Permanent acrylic

APPLICATIONS

Laboratory identification such as vials, centrifuge tubes, test tubes, straws, and slides

RECOMMENDED RIBBONS

Brady Series R4300
Brady Series R4500 (colors - red, blue)
Brady Series R6200 (alternate)*
*B-461 can be printed with the Brady Series R6200 ribbon; please note that testing described in this TDS was performed on materials printed with the Brady R4300 Series ribbon.

REGULATORY APPROVALS

For information on the Weee-RoHS compliance status for a Brady Product go to one of the following websites:
In Canada: www.bradycanada.ca/weee-rohs
In Europe: www.bradyeurope.com/rohs
In Japan: www.brady.co.jp/products/labelsuse/rohs
All other regions: www.bradyid.com/weee-rohs

SPECIAL FEATURES

B-461 can be offered in a self-laminating format which has a white thermal printable zone and a clear overlaminating area or completely flood coated for flat label applications. B-461 has good print smudge resistance, solvent resistance, good high and low temperature performance. B-461 performs well in common laboratory environments such as liquid nitrogen and autoclave applications

Details:

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D1000	
	-Substrate	0.0009 inch (0.0229 mm)
	-Adhesive	0.0010 inch (0.0254 mm)
	-Total (excluding liner)	0.0019 inch (0.0483 mm)
Adhesion to:	ASTM D 1000	
-Stainless Steel	20 minute dwell	32 oz/inch (35 N/100 mm)
	24 hour dwell	39 oz/inch (43 N/100 mm)
-Polypropylene	20 minute dwell	10 oz/inch (11 N/100 mm)
	24 hour dwell	10 oz/inch (11 N/100 mm)
-Glass	20 minute dwell	37 oz/inch (40 N/100 mm)
	24 hour dwell	39 oz/inch (43 N/100 mm)

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PERFORMANCE PROPERTIES	ENVIRONMENTAL

Performance properties tested on B-461 printed with the Brady Series R4300 ribbon. Printed samples were laminated to glass test tubes (1.1 cm outer diameter) and polypropylene centrifuge tubes (1.1 cm inner diameter, 1.5 ml capacity) and allowed to dwell 24 hours before exposure to the indicated environments.

ENVIRONMENT	TEST METHOD	TYPICAL RESULTS
High Service Temperature**	30 days at various temperatures	Slight discoloration at 230°F (110°C), no visible effect to print. Material discolored but functional up to 266°F (130°C)
Pressure Cooker (simulate autoclave)	3 cycles of 1 hour in 250°F (121°C)/15 psi pressure cooker and 23 hours at room temperature	Very slight discoloration and very slight print bleed after 3 cycles
Liquid Nitrogen***	3 cycles of 4 hours at -320°F (-196°C) and 20 hours at room temperature	No visible effect after 3 cycles
Freezer	3 cycles of 16 hours at -94°F (-70°C) and 8 hours at room temperature	No visible effect after 3 cycles
Liquid Nitrogen to boiling water***	1 hour at -320°F (-196°C) then placed in boiling water 212°F (100°C) for 10 minutes	Very slight discoloration
Freezer to boiling water	1 hour at -94°F (-70°C) then placed in boiling water 212°F (100°C) for 10 minutes	Very slight discoloration

**samples for this testing were placed only on glass panels and glass test tubes
***also tested labels on aluminum foil

PERFORMANCE PROPERTIES	CHEMICAL RESISTANCE

Flat and self-laminating samples of B-461 were printed with the Brady Series R4300 ribbon. Printed samples were laminated to test tubes 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			
	EFFECT TO LABEL STOCK		EFFECTS TO PRINTED IMAGE*	
	FLAT	WRAPPED	WITHOUT RUB	WITH RUB
Ethanol	No visible effect	No visible effect	1	1
Toluene	Slight adhesive ooze	Slight adhesive ooze	1	1
Isopropanol	No visible effect	No visible effect	1	1
Xylene	No visible effect	No visible effect	1	1
Dimethylsulfoxide (DMSO)	No visible effect	Slight adhesive ooze	1	1
Methylene Chloride	Adhesive ooze	Slight adhesive ooze and label unwrap	1	1
50% Acetic Acid	No visible effect	No visible effect	1	1
10% Hydrochloric Acid	No visible effect	No visible effect	1	1
10% Sodium Hydroxide	No visible effect	No visible effect	1	1
10% Clorox Solution	No visible effect	No visible effect	1	1

* Printed image was overlaminated with clear portion of label

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

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Shelf Life:
Shelf life is 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° F (27° C) and 60% RH. It remains the responsibility of the user to assess the risk of using this product. We encourage customers to develop testing protocols that will qualify a product's fitness for use in their actual application.

Trademarks:
ASTM: American Society for Testing and Materials (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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