Technical Data Sheet

BRADY B-490 FREEZERBONDZ MATTE WHITE POLYESTER THERMAL PRINTABLE LABEL STOCK

TDS No. B-490
Effective Date: 06/18/2019

Description:

GENERAL

Print Technology: Thermal transfer
Material Type: White polyester
Finish: White film with matte white thermal transfer printable coated ink
Adhesive: Permanent acrylic

APPLICATIONS

B-490 Freezerbondz™ is designed for use in laboratory identification such as vials, centrifuge tubes, test tubes, straws, and slides.

RECOMMENDED RIBBONS

Brady Series R4300

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-490 Freezerbondz™ can be applied to frozen surfaces including glass and polypropylene stored in liquid nitrogen. B-490 has good print smudge resistance, solvent resistance, and good high and low temperature performance. B-490 performs well in common laboratory environments such as liquid nitrogen and freezer applications. For tube/vial applications B-490 must be wrapped upon itself with at least 1/8 inch overlap.

Details:

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D 1000 -Total (excluding liner)	 0.0026 inch (0.065 mm)
Adhesion	ASTM D 1000	
-Stainless Steel	20 minute dwell 24 hour dwell	14 oz/inch (15N/100mm) 14 oz/inch (15N/100mm)
-Glass	20 minute dwell 24 hour dwell	15 oz/inch (16 N/100 mm) 19 oz/inch (21 N/100 mm)
-Polypropylene	20 minute dwell 24 hour dwell	12 oz/inch (13 N/100 mm) 16 oz/inch (18 N/100 mm)

ENVIRONMENTAL PERFORMANCE PROPERTIES - LABEL APPLIED TO ROOM TEMPERATURE SURFACE

B-490 samples were printed with the Brady Series R4300 ribbon. Printed B-490 samples were laminated at room temperature to surfaces listed below and allowed to dwell 24 hours at room temperature prior to exposure to the indicated environments. Labels applied to glass test tubes (1.1 cm outer diameter) and polypropylene centrifuge tubes (1.1 cm inner diameter, 1.5 ml capacity) were wrapped with a 1/8" overlap.

ENVIRONMENT	TEST METHOD	TYPICAL RESULTS
High Service Temperature	30 days at various temperatures	Slight discoloration at 266°F (130°C), no visible effect to print. Material discolored but functional up to 320°F (160°C)

UV Light Resistance	ASTM G155, Cycle 1 without water spray 1000 hours in Xenon Arc Chamber	Slight discoloration of topcoat. Print is still legible.
Weatherability	ASTM G155, Cycle 1 1000 hours in Xenon Arc Weatherometer	Slight chalkiness of topcoat. Print is still legible but slightly faded.
Liquid Nitrogen	3 cycles of 4 hours at -320°F (-196°C) and 20 hours at room temperature	✓ Glass test tube 1/8" overlap ✓ Polypropylene centrifuge tube 1/8" overlap ✓ Glass microscope slide ✓ Flat polypropylene ✓ Aluminum foil
Freezer	3 cycles of 16 hours at -94°F (-70°C) and 8 hours at room temperature	✓ Glass test tube 1/8" overlap ✓ Polypropylene centrifuge tube 1/8" overlap ✓ Glass microscope slide ◆ Flat polypropylene ✓ Aluminum foil
Liquid Nitrogen to boiling water	1 hour at -320°F (-196°C) then placed in boiling water 212°F (100°C) for 10 minutes	✓ Glass test tube 1/8" overlap ✓ Polypropylene centrifuge tube 1/8" overlap ✓ Glass microscope slide ✓ Flat polypropylene ✓ Aluminum foil
Freezer to boiling water	1 hour at -94°F (-70°C) then placed in boiling water 212°F (100°C) for 10 minutes	✓ Glass test tube 1/8" overlap ✓ Polypropylene centrifuge tube 1/8" overlap ✓ Glass microscope slide ✓ Flat polypropylene ✓ Aluminum foil

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

◆ =Label may work in application; test results were mixed

ENVIRONMENTAL PERFORMANCE PROPERTIES LABEL APPLIED TO COLD SURFACE

B-490 samples were printed with the Brady Series R4300 ribbon. Surfaces listed below were stored for 24 hours in either liquid nitrogen at -320°F (-196°C) or in a freezer at -94°F (-70°C). Printed B-490 samples were then laminated immediately after removal of the surfaces form liquid nitrogen or freezer. Samples were allowed to dwell 24 hours at room temperature prior to exposure to the indicated environments. Labels applied to glass test tubes (1.1 cm outer diameter) and polypropylene centrifuge tubes (1.1 cm inner diameter, 1.5 ml capacity) were wrapped with a 1/8" overlap.

ENVIRONMENT	TEST METHOD	TYPICAL RESULTS
Liquid Nitrogen	3 cycles of 4 hours at -320°F (-196°C) and 20 hours at room temperature	✓ Glass test tube 1/8" overlap ✓ Polypropylene centrifuge tube 1/8" overlap ✓ Glass microscope slide ✓ Flat polypropylene ✓ Aluminum foil
Freezer	3 cycles of 16 hours at -94°F (-70°C) and 8 hours at room temperature	✓ Glass test tube 1/8" overlap ✓ Polypropylene centrifuge tube 1/8" overlap ✓ Glass microscope slide ✓ Flat polypropylene ✓ Aluminum foil
Liquid Nitrogen to boiling water.	1 hour at -320°F (-196°C) then placed in boiling water 212°F (100°C) for 10 minutes	✓ Glass test tube 1/8" overlap ✓ Polypropylene centrifuge tube 1/8" overlap ✓ Glass microscope slide ◆ Flat polypropylene ✓ Aluminum foil

Freezer to boiling water	1 hour at -94°F (-70°C) then placed in boiling water 212°F (100°C) for 10 minutes	✓ Glass test tube 1/8" overlap ✓ Polypropylene centrifuge tube 1/8" overlap ✓ Glass microscope slide ✓ Flat polypropylene ✓ Aluminum foil

✓ = Label suitable for application; no visible effect, label remains adhered to test surface
◆ =Label may work in application; test results were mixed

PERFORMANCE PROPERTIES - CHEMICAL

Flat samples of B-490 were printed with the Brady Series R4300 ribbon. Printed samples were laminated and allowed to dwell 24 hours prior to testing. Test conducted at room temperature. Samples were immersed in test solvents 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	EFFECT TO PRINT WITH RUB	EFFECT TO PRINT WITHOUT RUB	EFFECT TO LABEL STOCK
Ethanol	2	1	No visible effect
Toluene	3	1	Slight adhesive ooze
Isopropanol	2	1	No visible effect
Xylene	3	1	Slight adhesive ooze
Dimethylsulfoxide (DMSO)	2	1	No visible effect
Methylene Chloride	4	1	Slight adhesive ooze
50% Acetic Acid	1	1	No visible effect
10% Sodium Hydroxide	1	1	No visible effect
10% Clorox® Bleach Solution	1	1	No visible effect

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

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:
Clorox® is a registered trademark of The Clorox Company.
Freezerbondz™ is a trademark of Brady Worldwide, Inc.
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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