Technical Data Sheet

BRADY B-438 THERMAL TRANSFER PRINTABLE TAMPER EVIDENT MATTE METALLIZED POLYESTER LABEL STOCK

TDS No. B-438
Effective Date: 03/14/2019

Description:

GENERAL

Print Technology: Thermal Transfer
Material Type: Metallized Polyester
Finish: Matte Silver
Adhesive: Tamper Indicating Acrylic

APPLICATION

Rating and serial plates that require high performance and evidence of label removal

RECOMMENDED RIBBONS

Brady Series R4300
Brady Series R4500 colored (red, blue,and green)

REGULATORY/AGENCY APPROVALS

UL: Brady B-438 is a UL Recognized component label when printed with the Brady Series R4300 and the Brady Series R7950 ribbons. See UL file MH 17154. UL information can be accessed online at UL.com in the UL Product iQ area.

CSA: Brady B-438 is CSA Accepted to C22.2 No.0.15-95 Adhesive Labels Standard when printed with the Brady Series R4300 ribbon. See CSA record 41833 for specific details. CSA information can be accessed online at directories.csa-international.org.

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-438 is designed to leave a "CHECKERBOARD" footprint when the label is removed. In addition, a "CHECKERBOARD" pattern will appear on the top surface of the label in order to prevent it from being reused. Recommended 24 hour room temperature dwell before removal for full tamper evident performance. The adhesive nature of this product does not allow for repositioning and requires minimal handling in order to prevent prematurely exposed “CHECKERBOARD” pattern.

Details:

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D 1000 -Substrate -Adhesive -Total	 0.0025 inch (0.064 mm) 0.0008 inch (0.021 mm) 0.0033 inch (0.085 mm)
Adhesion to: -Stainless Steel -Aluminum -Glass -Smooth ABS	ASTM D 1000 30 minute dwell 30 minute dwell 30 minute dwell 30 minute dwell	 22 oz/in (24 N/100 mm) 28 oz/in (31 N/100 mm) 22 oz/in (24 N/100 mm) 54 oz/in (59 N/100 mm)
Tack	ASTM D 2979 Polyken™ Probe Tack (1 second dwell, 1 cm/sec separation)	Not applicable due to the nature of this product.
Drop Shear	PSTC-7 (except use 1/2" x 1" sample)	5 hours
Tensile Strength and Elongation	ASTM D 1000 -Machine Direction -Cross Direction	 56 lbs/in (981 N/100 mm), 117% 60 lbs/in (1051 N/100 mm), 90%

Performance properties were tested on B-438 printed with the Brady Series R4300 ribbon. Printed samples of B-438 were laminated to aluminum before exposure to the indicated environmental condition.

PERFORMANCE PROPERTIES	TEST METHODS	TYPICAL RESULTS
Long Term High Service Temperature	30 days at 104°F (40°C)	No visible effect
Long Term 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	Slight yellowing of topcoat. No visible effect to print.
Weatherability	ASTM G155, Cycle 1 30 days in Xenon Arc Weatherometer	Topcoat whitens. No visible effect to print.

The tamper evident checkerboard pattern of B-438 was retained after exposure to all of the listed conditions. Laboratory testing has shown that the tamper-evidence checkerboard pattern of this product becomes nonfunctional after exposure to temperatures higher than 104°F.

PERFORMANCE PROPERTY	CHEMICAL RESISTANCE

Samples were printed using the Brady Series R4300 ribbon and then laminated to aluminum panels. Test was conducted at room temperature after 24 hour dwell. Testing consisted of 5 cycles of 10 minute immersions in the specified chemical reagent followed by 30 minute recovery periods. After final immersion, samples rubbed 10 times with cotton swab saturated with test fluid.

CHEMICAL REAGENT	SUBJECTIVE OBSERVATION OF VISUAL CHANGE		
	LABEL STOCK SUBSTRATE/ ADHESIVE	R4300 PRINTING EFFECTS OF IMMERSION	R4300 PRINTING COTTON SWAB RUBS
Methyl Ethyl Ketone	Slight adhesive ooze	Ink removed	Not applicable
1,1,1-Trichloroethane	No visible effect	No visible effect	Ink removed
Toluene	No visible effect	No visible effect	Ink removed
Freon® TMS	No visible effect	No visible effect	Slight ink removal
Isopropyl Alcohol	No visible effect	No visible effect	Moderate ink removal
Mineral Spirits	No visible effect	No visible effect	No visible effect
JP-4 Jet Fuel	No visible effect	No visible effect	Slight ink removal
ASTM Reference Fuel B	No visible effect	No visible effect	No visible effect
SAE 20 WT Oil	No visible effect	No visible effect	No visible effect
Mil 5606 Oil	No visible effect	No visible effect	No visible effect
Rust Veto® 342	No visible effect	No visible effect	No visible effect
Skydrol® 500B-4	No visible effect	Severe ink removal	Ink removed
Super Agitene®	No visible effect	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
10% Sodium Hydroxide Solution	No visible effect	No visible effect	No visible effect
10% Sulfuric Acid Solution	No visible effect	No visible effect	No visible effect

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:
Alconox® is a registered trademark of Alconox Co.
Freon® is a registered trademark of Du Pont de Nemours, E.I. and Company.
Polyken™ is a trademark of Testing Machines Inc.
Rust Veto® is a registered trademark of the E.F. Houghton & Co.
Skydrol® is a registered trademark of the Monsanto Company

Sunlighter™ is a trademark of the Test Lab Apparatus Company
Super Agitene® is a registered trademark of Graymills Corporation
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.)
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.
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