Technical Data Sheet

BRADY B-999 FLUID LINE TAPE

TDS No. B-999
Effective Date: 04/16/2014

Description:
Brady B-999 Fluid Line Tape is a dot matrix and thermal transfer printable, subsurface printed, flexible, transparent polyester film tape with a heat activated adhesive.

Brady B-999 Fluid Line Tape is designed for aircraft tubing identification. The tape is designed to be applied around tubing and then heated to above 145°C for maximum fluid resistance. The heat activated adhesive used on B-999 has excellent resistance to fluids commonly encountered in aircraft applications. The adhesive has superior resistance to fuels, oils, and hydraulic fluids when compared to typical pressure sensitive adhesives. The B-999 low initial adhesion makes the tape easy to reposition when first applied.

The tape can be heat activated in an oven for 1 to 3 minutes at 145°C, or by apply heat for approximately 5 to 10 seconds with a heat gun. B-999 adhesive does build adhesion over time, so material can be used without heat activation. We recommend tape be heat sealed at the outer lip using a solder pen, when entire tape is not heat activated.

Brady Series R2000 and R5000 dot matrix and Series R4900 and R7961 thermal transfer ribbons are recommended for use with B-999.

Details:

PERFORMANCE PROPERTIES	TEST METHODS	AVERAGE RESULTS
Total Thickness	ASTM D 1000	0.0032 inch (0.081 mm)
Adhesion to Aluminum (Panels conform to QQ-A-250/5)	ASTM D 1000 72 hour RT dwell Heat activated 3 min. at 145°C	75 oz/in (82 N/100 mm) 110 oz/in (120 N/100 mm)
Tensile Strength and Elongation	ASTM D 1000 Machine direction	20 lbs/in (350 N/100 mm), 90%

For the following tests, samples printed with R2000, R5000 dot matrix ribbons and R4900 and R7961 thermal transfer ribbons and wrapped on 0.75" OD metal tubing. Samples tested both after heat activating 3 minutes at 145°C, and after 72 hour room temperature dwell.

PERFORMANCE PROPERTIES	TEST METHOD	TYPICAL RESULTS
High Service Temperature	30 days at 230°F (110°C)	At 110°C slight discoloration of tape, print still easily legible. Tape discolored but legible after 100 hours at 160°C.
Low Service Temperature	30 days at -85°F (-65°C)	No visible effect
Humidity Resistance	30 days at 100°F (37°C), 95% R.H.	No visible effect
Weatherability	ASTM G155, Cycle 1 30 days in Xenon Arc Weatherometer	Some discoloration of adhesive, print still easily legible
U.V. Light Resistance	30 days in UV Sunlighter™ 100	No visible effect
Abrasion Test	Taber Abraser, CS-10 grinding wheels, 500 g/arm (Fed. Std. 191A, Method 5306)	Print still legible at 100 cycles

PERFORMANCE PROPERTIES	FLUID RESISTANCE

For the following tests, samples wrapped on 0.75" O D metal tubing and applied flat to QQ-A-250/5 aluminum panels. Samples printed with R2000, R5000 dot matrix ribbons and R4900 and R7961 thermal transfer ribbons. Samples tested both after 72 hour room temperature dwell, and after heat activating 3 minutes at 145°C.

Non-Heat Activated (72 hours at room temperature)

TEST CONDITION	ADHESION TO ALUMINUM	TUBE WRAP	R2000, R5000 DOT MATRIX PRINT	R4900, R7961 THERMAL TRANSFER PRINT
24 hrs in DI water at RT*	47 oz/in	No visible effect	No visible effect	No visible effect
72 hrs in 7808 oil at 200°F	120 oz/in	No visible effect	No visible effect	No visible effect
72 hrs in JP-8 jet fuel at	71 oz/in	No visible effect	No visible effect	No visible effect

RT				
72 hrs in MIL 5606 oil at RT	70 oz/in	No visible effect	No visible effect	No visible effect
72 hrs in MIL 25576 rocket fuel at RT	71 oz/in	No visible effect	No visible effect	No visible effect
72 hrs in Skydrol® 500B-4 at RT	76 oz/in	No visible effect	Print removed after rubs	Print removed after rubs
72 hrs in Monsanto low density aviation fluid at RT	75 oz/in	No visible effect	Print removed after rubs	Print removed after rubs
96 hrs in Xenon Arc Weatherometer	84 oz/in	No visible effect	No visible effect	No visible effect

Heat Activated (3 minutes at 145°C)

TEST CONDITION	ADHESION TO ALUMINUM	TUBE WRAP	R2000, R5000 DOT MATRIX PRINT	R4900, R7961 THERMAL TRANSFER PRINT
24 hrs in DI water at RT	35 oz/in	No visible effect	No visible effect	No visible effect
72 hrs in 7808 oil at 200°F	134 oz/in	No visible effect	No visible effect	No visible effect
72 hrs in JP-8 jet fuel at RT	86 oz/in	No visible effect	No visible effect	No visible effect
72 hrs in MIL 5606 oil at RT	63 oz/in	No visible effect	No visible effect	No visible effect
72 hrs in MIL 25576 rocket fuel at RT	93 oz/in	No visible effect	No visible effect	No visible effect
72 hrs in Skydrol® 500B-4 at RT	88 oz/in	No visible effect	Print removed after rubs	Print removed after rubs
72 hrs in Monsanto low density aviation fluid at RT	81 oz/in	No visible effect	Print removed after rubs	Print removed after rubs
96 hrs in Xenon Arc Weatherometer	76 oz/in	No visible effect	No visible effect	No visible effect

*RT=room temperature, 72°F

Product testing, customer feedback, and history of similar products, support a customer performance expectation of at least ***two year 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:
Skydrol® is a registered trademark of the Monsanto Company
Sunlighter™ is a trademark of the Test Lab Apparatus Company
ASTM: American Society for Testing and Materials (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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