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Technical Data Sheet

BRADY B-342 PERMASLEEVE MARKER

TDS No. B-342

Effective Date: 08/19/2010

Description:

GENERAL

Print Technology: Thermal transfer and dot matrix

Material Type: Irradiated polyolefin heat shrink tubing (3:1 shrink ratio)

APPLICATIONS

Wire identification and insulation purposes

RECOMMENDED RIBBONS

Brady R6600 Series for thermal transfer printing - best smear and chemical resistance

Brady R4300 Series for thermal transfer printing - general purpose ribbon

Brady R4502S for thermal transfer printing silver on dark colored markers

Brady R6700 for thermal transfer printing white on dark colored markers

Brady R5000 Series for dot matrix printing

REGULATORY/AGENCY APPROVALS

UL: B-342 is a UL Recognized Component to UL224 Extruded Insulated Tubing. See UL file E333786 for specific details. UL information can be accessed on line at [UL.com](#). Search in *Certifications* area.

RoHS 2005/618/EC: As of January 2009, Brady began the transition to full RoHS compliant B-342 to 2005/618/EC MCV amendment to RoHS Directive 2002/95/EC. To determine if you have RoHS compliant product please contact customer service.

SPECIAL FEATURES

B-342 PermaSleeve™ Markers meet the material and physical property requirements of SAE AMS-DTL-23053/5C (Class 1) for Insulation Sleeving and SAE AS-81531 for Marking of Electrical Insulating Materials when printed with R6600, R4300, R4502S, R6700 Series thermal transfer ribbons and R5000 Series dot matrix,

The operating temperature range is -55°C (-67°F) to +135°C (+275°F).

B-342 is available in white, yellow, black, red, orange, green, blue, violet, pink, gray, and brown.

Details:

| MARKER SIZE | | RANGE OF WIRE DIAMETER (in) | RANGE OF WIRE DIAMETER (mm) |
|-------------|---------|-----------------------------|-----------------------------|
| 3/32" | 3PS-094 | 0.023 - 0.080 | 0.58 - 2.03 |
| 1/8" | 3PS-125 | 0.046 - 0.110 | 1.17 - 2.79 |
| 3/16" | 3PS-187 | 0.062 - 0.150 | 1.57 - 3.81 |

| | | |
|--|--|---|
| | 1000 hours at 267°F (130°C) | White and yellow: Moderate tube darkening. No visible change to printing in above conditions (R4300 and R6600) |
| Low Service Temperature | 1000 hours at -94°F (-70°C) | No visible effect |
| Weatherability | ASTM G155 Cycle 1 1000 hours in Xenon Arc Weatherometer | White: Slight tube yellowing Yellow: No visible effect No visible change to printing |
| UV Light Resistance | ASTM G155 Cycle 1 dry 1000 hours | White: Moderate tube yellowing Yellow: No visible effect No visible change to printing |
| Humidity Resistance | 1000 hours at 100°F/95% R.H. | No visible effect |
| Salt Fog | 1000 hours at 5% Salt Spray | Moderate print fade (R4502S on black marker). No visible effect to all other color/ribbon combinations. |
| Dielectric Strength | ASTM D2671 (after unrestricted shrink) | 500 volts/mil minimum |
| Flammability | ASTM D2671, Procedure B | Self-extinguishing within 60 seconds |
| Print Adherence per SAE-AS81531 (Sec 3.4.2) | Samples tested after unrestricted shrink at 200°C for 3 minutes 20 eraser rubs with hard hand pressure | Print is still easily legible on sleeves printed with all ribbons. |
| Solvent Resistance per SAE-AS81531 (Sec 3.4.3) Solution A Solution C Solution D | Samples tested after unrestricted shrink at 200°C for 3 minutes MIL-STD-202, Method 215K 3 cycles of 3 minute immersions in specified fluids followed by toothbrush rub after each immersion | Print still easily legible on sleeves printed with all ribbons in all three test fluids |

Solution A: 1 part isopropyl alcohol, 3 parts mineral spirits

Solution B: deleted from MIL-STD-202, Method 215J

Solution C: BIOACT® EC-7R™ terpene defluxer

Solution D: 42 parts water, 1 part propylene glycol monomethyl ether, 1 part monoethanolamine at 70°C

| | |
|-----------------------------|----------------------------|
| PERFORMANCE PROPERTY | CHEMICAL RESISTANCE |
|-----------------------------|----------------------------|

B-342 white, yellow and other colors were dot matrix printed using Brady R5000 Series ribbon and shrunk on appropriate size wires. Test 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. Samples rubbed with cotton swab after final immersion.

| CHEMICAL REAGENT | SUBJECTIVE OBSERVATION OF VISUAL CHANGE | |
|---------------------|---|----------------------------------|
| | TUBING AND PRINTING WITHOUT SWAB RUB | PRINTING WITH SWAB RUB |
| Methyl Ethyl Ketone | No visible effect | Severe print fade, print legible |
| Isopropyl Alcohol | No visible effect | Severe print fade, print legible |
| JP-8 Jet Fuel | No visible effect | Severe print fade, print legible |
| Kerosene | No visible effect | Severe print fade, print legible |

| | | |
|--------------------------------|---|------------------------------------|
| Mil 5606 Oil | White and yellow tubing stained red on edges, no visible effect on printing | Severe print fade, print legible |
| Mil 7808 Oil | No visible effect | Severe print fade, print legible |
| Speedi Kut Cutting Oil 332 | No visible effect | Moderate print fade, print legible |
| Gasoline | No visible effect | Severe print fade, print legible |
| Rust Veto® 377 | Tubing stained orange, no visible effect on printing | Severe print fade, print legible |
| Skydrol® 500B-4 | No visible effect | Severe print fade, print legible |
| Propylene Glycol | No visible effect | Moderate print fade, print legible |
| Super Agitene® | No visible effect | Severe print fade, print legible |
| BIOACT® EC-7R™ Terpene Cleaner | No visible effect | Severe print fade, print legible |
| Deionized Water | No visible effect | No visible effect |
| 3% Alconox® Detergent | No visible effect | No visible effect |
| 5% Salt Water Solution | No visible effect | No visible effect |

B-342 white, yellow and other colors were thermal transfer printed using R4300 Series ribbon and shrunk on appropriate size wires. Test 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. Samples rubbed with cotton swab after final immersion.

| CHEMICAL REAGENT | SUBJECTIVE OBSERVATION OF VISUAL CHANGE | |
|--------------------------------|--|------------------------------------|
| | TUBING AND PRINTING WITHOUT SWAB RUB | PRINTING WITH SWAB RUB |
| Methyl Ethyl Ketone | No visible effect | Severe print fade, print legible |
| Isopropyl Alcohol | No visible effect | Severe print fade, print legible |
| JP-8 Jet Fuel | No visible effect | Severe print fade, print legible |
| Kerosene | No visible effect | Severe print fade, print legible |
| Mil 5606 Oil | Tubing stained red, no visible effect on printing | Severe print fade, print legible |
| Mil 7808 Oil | No visible effect | Severe print fade, print legible |
| Speedi Kut Cutting Oil 332 | No visible effect | Moderate print fade, print legible |
| Gasoline | No visible effect | Severe print fade, print legible |
| Rust Veto® 377 | Tubing stained orange, no visible effect on printing | Severe print fade, print legible |
| Skydrol® 500B-4 | No visible effect | Severe print fade, print legible |
| Propylene Glycol | No visible effect | Slight print fade, print legible |
| Super Agitene® | No visible effect | Severe print fade, print legible |
| BIOACT® EC-7R™ Terpene Cleaner | No visible effect | Severe print fade, print legible |
| Deionized Water | No visible effect | No visible effect |
| 3% Alconox® Detergent | No visible effect | Slight print fade, print legible |
| 5% Salt Water Solution | No visible effect | Slight print fade, print legible |

B-342 white and yellow were thermal transfer printed using Brady R6600 Series ribbon and shrunk on appropriate size wires. Test 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. Samples rubbed with cotton swab after final immersion.

| CHEMICAL REAGENT | SUBJECTIVE OBSERVATION OF VISUAL CHANGE | |
|--------------------------------|--|---------------------------------------|
| | TUBING AND PRINTING WITHOUT SWAB RUB | PRINTING WITH SWAB RUB |
| Methyl Ethyl Ketone | No visible effect | Moderate print fade, print legible |
| Isopropyl Alcohol | No visible effect | No visible effect |
| JP-8 Jet Fuel | No visible effect | Moderate print fade, print legible |
| Kerosene | No visible effect | Moderate print fade, print legible |
| Mil 5606 Oil | Tubing stained red on edges, no visible effect on printing | Slight print fade, print legible |
| Mil 7808 Oil | No visible effect | No visible effect |
| Speedi Kut Cutting Oil 332 | No visible effect | No visible effect |
| Gasoline | No visible effect | Moderate print fade, print legible |
| Rust Veto® 377 | Tubing stained orange, no visible effect on printing | Slight print fade, print legible |
| Skydrol® 500B-4 | No visible effect | Slight print fade, print legible |
| Propylene Glycol | No visible effect | No visible effect |
| Super Agitene® | No visible effect | Moderate print fade, print legible |
| BIOACT® EC-7R™ Terpene Cleaner | No visible effect | Severe print fade, print just legible |
| Deionized Water | No visible effect | No visible effect |
| 3% Alconox® Detergent | No visible effect | No visible effect |
| 5% Salt Water Solution | No visible effect | No visible effect |

B-342 black samples were thermal transfer printed using R4502S silver ribbon and shrunk on appropriate size wires. Test 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. Samples rubbed with cotton swab after final immersion.

| CHEMICAL REAGENT | SUBJECTIVE OBSERVATION OF VISUAL CHANGE | |
|----------------------------|---|----------------------------------|
| | TUBING AND PRINTING WITHOUT SWAB RUB | PRINTING WITH SWAB RUB |
| Methyl Ethyl Ketone | No visible effect | Severe print fade, print legible |
| Isopropyl Alcohol | No visible effect | No visible effect |
| JP-8 Jet Fuel | No visible effect | Severe print fade, print legible |
| Kerosene | No visible effect | Severe print fade, print legible |
| Mil 5606 Oil | No visible effect | Severe print fade, print legible |
| Mil 7808 Oil | No visible effect | Severe print fade, print legible |
| Speedi Kut Cutting Oil 332 | No visible effect | No visible effect |
| Gasoline | No visible effect | Severe print fade, print legible |
| Rust Veto® 377 | No visible effect | Severe print fade, print legible |
| Skydrol® 500B-4 | No visible effect | Severe print fade, print legible |
| Propylene Glycol | No visible effect | Moderate print fade |
| Super Agitene® | No visible effect | Severe print fade, print legible |

| | | |
|--------------------------------|-------------------|----------------------------------|
| BIOACT® EC-7R™ Terpene Cleaner | No visible effect | Severe print fade, print legible |
| Deionized Water | No visible effect | No visible effect |
| 3% Alconox® Detergent | No visible effect | Slight print fade |
| 5% Salt Water Solution | No visible effect | Slight print fade |

B-342 black samples were thermal transfer printed using R6700 white ribbon and shrunk on appropriate size wires. Test 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. Samples rubbed with cotton swab after final immersion.

| CHEMICAL REAGENT | SUBJECTIVE OBSERVATION OF VISUAL CHANGE | |
|--------------------------------|---|----------------------------------|
| | TUBING AND PRINTING WITHOUT SWAB RUB | PRINTING WITH SWAB RUB |
| Methyl Ethyl Ketone | No visible effect | Severe print fade, print legible |
| Isopropyl Alcohol | No visible effect | Severe print fade, print legible |
| JP-8 Jet Fuel | No visible effect | Severe print fade, print legible |
| Kerosene | No visible effect | Severe print fade, print legible |
| Mil 5606 Oil | No visible effect | Complete print removal |
| Mil 7808 Oil | No visible effect | Severe print fade, print legible |
| Speedi Kut Cutting Oil 332 | No visible effect | Moderate print fade |
| Gasoline | No visible effect | Severe print fade, print legible |
| Rust Veto® 377 | No visible effect | Severe print fade, print legible |
| Skydrol® 500B-4 | No visible effect | Severe print fade, print legible |
| Propylene Glycol | No visible effect | Moderate print fade |
| Super Agitene® | No visible effect | Severe print fade, print legible |
| BIOACT® EC-7R™ Terpene Cleaner | No visible effect | Severe print fade, print legible |
| Deionized Water | No visible effect | No visible effect |
| 3% Alconox® Detergent | No visible effect | Slight print fade |
| 5% Salt Water Solution | No visible effect | Slight print fade |

Product testing, customer feedback, and history of similar products, support a customer performance expectation of at least **five years from the date of receipt** for this product as long as this product is stored in its original packaging in an environment *at 65-95 degrees F (18-35 degrees C) per SAE AMS-23053/5C*. 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.

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Note: All values shown are averages and should not be used for specification purposes.

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