BRADY
WHEN PERFORMANCE MATTERS MOST™

Technical Data Sheet

BRADY B-7646 DIESEL RESISTANT SLEEVE

TDS No. B-7646
Effective Date: 09/20/2017

Description:

GENERAL

Print Technology: Thermal transfer
Material Type: Irradiated polyolefin diesel resistant heat-shrinkable tubing (3:1 shrink ratio)

APPLICATION

Wire identification for railway and aerospace marker sleeve applications

RECOMMENDED RIBBONS

Brady R-6600 Series

SPECIAL FEATURES

B-7646 diesel resistant sleeves meet the material and physical property requirements of SAE AS-81531 and MIL-STD-202 method 215K when printed with R-6600 Series thermal transfer ribbons. B-7646 diesel resistant sleeves meet the requirements of NF F 00-608 type A and H when printed with R-6600 Series thermal transfer ribbon.

REGULATORY/AGENCY APPROVALS

Brady B-7646 is RoHS-compliant using EU directive 2002/95/EC

Details:

Shrink Method: Any industrial grade heat gun may be used to shrink B-7646 Sleeve Markers.

PHYSICAL PROPERTIES	TEST METHOD	AVERAGE RESULTS
Operation temperature		-55°C to 135°C
Shrink temperature		135°C
Specific gravity	ISO/R 1183	1,35g/cm³
Flammability	NF F 00-608 Section 5.5.8	Self-extinguish < 30s
Heat shock (4 hours @ 250°C)	ASTM D 2671	No cracking, dripping or flowing
Tensile strength Elongation	IEC 60684-2	19 Mpa 480%
Dielectric strength	IEC 243	20kV/mm min.
Thermal ageing Elongation	IEC 60684-2 section 19.1	(168 hours/175°C) 300%
Cold bend	IEC 60684-2 section 14 (4 hours @ -55°C)	No cracking splitting

Performance properties were tested on B-7646 yellow samples printed using R-6600 Series thermal transfer ribbon. Sleeves were tested shrunk on appropriate wires.

PERFORMANCE PROPERTIES	TEST METHOD	AVERAGE RESULTS
UV Light Resistance	1000 hours in Q-Sun Xenon test chamber 0,35W/m²@340nm, black temperature 63°C	No visible effect
Weatherability	1000 hours in the QUV accelerated weatherometer	No visible effect
Humidity Resistance	1000 hours at 37°C/95% relative humidity	No visible effect
Print Adherence per SAE AS 81531 (see. 3.4.2)	Samples tested after unrestricted shrink at 200°C for 3 minutes	Print is still easily legible on sleeves
Solvent Resistance per SAE AS 81531 (see 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 fluid followed by toothbrush rub after each immersion	Print still easily legible on sleeves in all three test fluids

Solution A: 1 part isopropyl alcohol, 3 parts mineral spirits
Solution B: deleted from MIL-STD-202, method 215K
Solution C: BIOACT®EC-7R™ terpene defluxer

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

CHEMICAL PROPERTIES Fluid resistance	TEST METHODS	AVERAGE RESULTS
Mineral oil Tensile & elongation	NF F 00-608 section 5.5.3 Samples immersed 70 hours at 50°C	18Mpa & 550%
Diesel Tensile & elongation	NF F 00-608 section 5.5.4 Samples immersed 168 hours at 70°C	14Mpa & 525%
Acid HCl Tensile & elongation	NF F 00-608 section 5.5.5 Samples immersed 168 hours at 23°C	18Mpa & 400%
Base NaOH Tensile & elongation	NF F 00-608 section 5.5.5 Samples immersed 168 hours at 23°C	18Mpa & 545%
Water absorption Tensile & elongation	NF F 00-608 section 11.4.9	0,2%

PERFORMANCE PROPERTY	CHEMICAL RESISTANCE

B-7646 yellow samples were thermal transfer printed using Brady Series R-6600 ribbon and shrunk on appropriate size wires. 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	
	TUBING AND PRINTING WITHOUT SWAB RUB	R6600 PRINTING WITH SWAB RUB
Methyl ethyl ketone	1	4
Isopropyl alcohol	1	2
Skydrol®500 B-4	1	3
BIOACT®EC-7R™ Terpene cleaner	1	3
Deionized water	1	1
10% salt water solution	1	1
Toluene	1	3
Acetone	1	3
Gasoline	1	3
Diesel	1	2-3
Kerosine	1	3
MIL-5606 Oil	1	3
JP-4 Jet fuel	1	3

Rating scale:
1= no visible effect
2= slight fading or print removal
3= moderate fading or print removal (print still legible)
4= severe fading or print removal (print illegible or just barely legible)
5= complete print removal
NP= print removed prior to rub

Shelf life is one 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° 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.)
BIOACT® is a registered trademark of Petroferm, Inc.
EC-7R™ is a trademark of Petroferm Inc.
S. I.: International System of Units
SAE: Society of Automotive Engineers (U.S.A.)
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Note: All values shown are averages and should not be used for specification purposes.
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