

Liberty Marking Systems, Inc.  
7265 Edington Dr.  
Cincinnati, OH 45249  
info@libertymarking.com  
513-530-9270 FAX 513-530-9272

## Product Data Sheet

### 501 High Gloss White Polyimide Label

Series 501 is a 2 mil polyimide film with a permanent acrylic pressure sensitive adhesive top coated with a high opacity , gloss white top coat designed for thermal transfer printing with resin based ribbons.

This product is designed for barcode and alphanumeric identification of printed circuit boards and related electronic components. It is an ideal label material to withstand surface mount board processes, on either the top or bottom side of the circuit board. It can also be used on the top side of the board in mixed processes, and is recommended for the bottom side which is directly exposed to the wave solder environment.

Recommended Ribbon: Liberty Marking HT-50.  
Recommended Printer: Zebra 90Xill thermal transfer printer.

PROPERTIES	TEST METHODS	AVERAGE RESULTS	
		US UNITS	SI UNITS
Thickness	ASTM D1000		
Substrate		0.0027 inch	0.068 mm
Adhesive		0.0018 inch	0.046 mm
Total		0.0045 inch	0.114 mm
Adhesion to:	ASTM D1000		
Stainless steel 20 minute dwell		59 oz/in	65 N/100 mm
24 hour dwell		83 oz/in	91 N/100 mm
Tack	ASTM D2979		
Polyken™ Probe 1 second dwell		25 oz	710 grams
Drop Shear	PSTC	100 hrs	>100 hrs

### Product Performance and Suitability

All of the descriptive information and recommendations for the use of Liberty Marking Systems products are to be used only as a guide. The furnishing of such information and recommendations shall in no event constitute a warranty of any kind by Liberty Marking Systems. All purchasers of Liberty Marking Systems products shall independently determine the suitability of the material for the purpose for which it is purchased. No distributor, salesman, or representative of Liberty Marking Systems is authorized to give any warranty, guarantee, or to make any representation in addition or contrary to the above.

**PROPERTIES**

Heat/Chemical/Abrasion Resistance

**TEST METHOD**

ADCOTEK L1579-79

Sample labels were printed with Liberty HT-50 thermal transfer ribbon using a Zebra 90Xi printer. Barcodes were printed with 6 mil X dimension bars and a 3:1 ratio. Abrasion performance tested with 100 strokes of a stainless steel ball (AISI 302, 0.3125" diameter) with 300 gram load.

TEST ENVIRONMENT	PCS <sup>1</sup>	READ RATE <sup>2</sup>	PCS AFTER ABRASION	READ RATE AFTER ABRASION
Control	99%	100%	99%	100%
230° C heat, 5 minutes	99%	100%	99%	100%
Kyzen Corp. Aquanox SSA 30% aqueous, 40-45° C, 10 minutes <sup>3</sup>	100%	99%	100%	100%
RE-ENTRY, KNI 2000 Terpene, 40-45° C, 10 minutes <sup>3</sup>	98%	100%	98%	100%
Alpha Metals Inc. EC-7R Terpene 40-45° C, 10 minutes <sup>3</sup>	98%	100%	98%	100%
Alpha Metals Inc. 2110 Saponifier 6% aqueous, 65-70° C, 10 minutes	97%	100%	97%	100%
Isopropanol 99%, 82° C, 10 minutes	99%	100%	99%	100%
Deionized Water, 100° C, 10 minutes	99%	100%	99%	100%

<sup>1</sup> PCS (Print Contrast Signal). PCS determined with Quick Check 650, 0.005" aperture, 660 nm wavelength. Quick Check 650 manufactured by Photographic Sciences Corp.

<sup>2</sup> Read Rate determined using PSC 850 laser scanner.

<sup>3</sup> Followed by 2 minute immersion in deionized water at 100° C.

**PROPERTIES**

Chemical Resistance

**TEST METHOD**

MIL-STD-202F, Notice 12, Method 215J

Sample labels were printed with Liberty HT-50 thermal transfer ribbon using a Zebra 90Xi printer. Barcodes were printed with 6 mil X dimension bars and a 3:1 ratio. Samples subjected to 3 cycles of one minute immersions immediately followed by a toothbrush rub after each immersion.

**TEST FLUID**Solvent A

1 part IPA, 1 part Mineral Spirits

Solvent B

1,1,1 - Trichloroethane

Solvent C

Terpene Defluxer

Solvent D

Saponifier

**RESULTS**

No visible effect

Solvent deleted per Notice 12

No visible effect

No visible effect

Shelf Life: 1 year below 80° F (27° C) and 60% RH.

Aquanox SSA™ is a trademark of Kyzen Corporation. Zebra© is a trademark of Zebra Technologies, Inc. EC-7R™ is a trademark of Petroferm Inc. Polyken™ is a trademark of the Kendell Corporation. RE-ENTRY™ is a trademark of Environsolv Inc. **References:** AISI: American Iron and Steel Institute (USA) ASTM: American Society for Testing and Materials (USA) PSTC: Pressure Sensitive Tape Council (USA) SI: International Systems of Units.