



Thermal Transfer Printable Polyimide 2 mil AGGRESSIVE ADHESIVE WHITE

Description:

Stranco S-416 is a polyimide film with a high-temperature permanent pressure sensitive acrylic adhesive and a high opacity, white topcoat specifically designed for barcode or alphanumeric identification of printed circuit boards, or related electronic components using thermal transfer printing.

Properties:

The S-416 topcoat, in combination with the appropriate thermal transfer ribbon, passes the requirements of **MIL-STD-202G, Notice 12, Method 215K** and **MIL-STD-883E, Notice 4, Method 2015.13**. The print resists smearing, even when the board and label are directly removed from a reflow or wave solder environment.

Applications:

- PCB identification
- Electronic components
- Hand held devices
- Harsh chemical requirements
- Automotive under the hood
- Steel slabs
- IC labeling for work in process, permanent ID & warranty labeling
- Product ID, asset tracking
- Anywhere a label will be exposed to extreme temperatures

Special Considerations:

- The surface that you want to label should be clean, dry and free of any surface contamination, such as dust, oil or rust. Isopropyl alcohol would be a recommend solvent to clean the surface.
- When you apply the label, you must use firm pressure to increase the physical contact of the adhesive with the surface of the product.
- Pressure sensitive adhesives will provide stronger bonds to a warm surface, as compared to a colder one. The adhesive will 'flow' more readily, increasing the surface area and increasing the adhesion peel strength.
- Preheating the labeled product can further enhance print permanence in the case of extreme solvent and/or abrasion exposure, although this is not typically required for board processing applications.
- The S-416 top coat & print should not be contacted while exposed to elevated temperature.
- All values shown are averages and should not be used for specification purposes. Adhesion and tack values have a 15% tolerance allotted to the above values stated.
- Test data and test results contained in this document are for general information only and shall not be relied upon by Stranco customers for designs and specifications, or be relied on as meeting specified performance criteria.



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Material Specifications

Properties	Test Method	Average Results	
		USA Units	SI Units
Thickness	ASTM D1000		
-Substrate		0.0024 inch	0.061 mm
-Adhesive		0.0020 inch	0.050 mm
-Total		0.0044 inch	0.111 mm
Adhesion	80313		
-Stainless Steel	20 minute dwell	≥ 41 oz/in	45N/100 mm
	24 hour dwell	≥ 55 oz/in	60N/100 mm
Tack	80155	≥ 1800g	
Temperature Rating:	Long term	100 hours at 302°F (150°C)	
	Operating	5 minutes at 500°F (260°C)	
	Short term	90 seconds at 572°F (300°C)	
Shelf Life	1 year below 80°F and 60% R.H.		
UL File #	PGJI2 MH17503		
UL Tested Ribbons	Ricoh B110CR, ITW B324, DNP R510		

Durability Testing

Properties	Test Method	Test Environment	PCS ¹	Read Rate ²
Heat/Chemical Resistance		Control	99%	100%
		Kyzen Corp. Aquanox SSA 30% aqueous, 40-45°C, 5 min.	100%	99%
		Re-Entry KNI 2000 Terpene, 40-45°C, 5 min.	98%	100%
		Alpha Metals Inc. EC-7R Terpene, 40-45°C, 5 min.	98%	100%
		Alpha Metals Inc. 2110 Saponifier 10% aqueous, 65-70°C, 5 min	97%	100%
		Isopropanol 99%, 65-70°C, 5 min.	99%	100%
		Kyzen XJN + 30%, 5 min	99%	100%

Chemical Testing

Properties	Test Method	Test Fluid	Results
Chemical Resistance	MIL-STD-202G, Notice 12, Method 215K MIL-STD-883E, Notice 4, Method 2015.13		
		Solvent A- 1 part IPA, 3 parts Mineral Spirits	No visible effect
		Solvent B- 1,1,1 Trichloroethane	Solvent deleted per notice 12
		Solvent C- Terpene Defluxer	No visible effect
		Solvent D- Saponifier	No visible effect

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Material Compliance

RoHS- Restriction of Hazardous Substances (EU Directive 2002/95/EC)	Limits set forth in Directive 2005/618/EC amending Directive 2002/95/EC
REACH- Registration Evaluation and Authorization of Chemicals (EU Directive 1907/2006/EC)	Limits set forth in Directive 1907/2006/EC Article 7 (2)
Halogens- Restriction use of Halogen (IEC 61249-2-21)	Limits set forth in International Electrochemical Commission

Key for tables on page 2

- All SI units are mathematically derived from U.S. conventional units.
- Labels printed with recommended thermal transfer ribbon. Labels printed with 6.7 mil X dimension bars at 2:5 ratio. Labels exposed to indicated environments.
- ¹PCS - Print Contrast Signal. PCS determined with Quick Check 650, 0.005" aperture, 660 nm wave length.
- Quick Check 650 manufactured by : Photographic Sciences Corp.
- ² Read rate determined using PSC 850 laser scanner.

References
 ASTM: American Society for Testing and Materials (U.S.A)
 SI: International System of Units

Trademarks:
 XJN+ & Aquanox SSA-TM is a trademark of Kyzen Corporation
 EC-7RTM is a trademark of Petroform Inc.
 RE-ENTRYTM is a registered trademark of Environsolv Inc.



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