Label Material 7812

Thermal Transfer Polyimide Label Material

Product Data Sheet

Updated : April 2000
Supersedes : March 2000

Physical Properties
Not for specification purposes

(Calipers are nominal values)

Facestock	51 micron (2.0 thou) Polyimide Film 25 micron (1.0 thou) White Thermal Transfer Printable Topcoat
Adhesive	51 micron (2.0 thou) #100 Acrylic
Liner	76 micron (3.0 thou), 81 g/m^2 (#50) Densified kraft
Shelf Life	12 months from date of manufacture of product when properly stored between 22°C and 50% relative humidity.

Features:

- Matte white topcoat provides for easy readability of bar-codes and variable information.
- #100 High Temperature acrylic adhesive will not degrade when exposed to a wide variety of harsh processing conditions.
- 81 g/m^2 densified kraft liner assures consistent die cutting.
- UL and CSA approvals are pending.. After approval, see UL (File MH16411) and CSA (File 99316) listings for details.

Application Ideas:

- Printed circuit board tracking labels that see the following conditions:-
- Solder Reflow
- Top and/or bottom side wave process and chemicals.
- Labelling on parts exposed to high temperatures

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Performance Characteristics
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Adhesion	180° peel test procedure is ASTM D 3330 90° peel test procedure is ASTM D 3330 modified for the angle change			
Surface	**Initial (10 Minute Dwell/RT)**		**Conditioned for 3 Days at Room Temperature 22ºC**	
	N/10mm	**Oz/In**	**N/10mm**	**Oz/In**
Stainless Steel	3.5	32	5.8	53
Polycarbonate	3.7	34	6.3	58
Epoxy PC Board	4.8	44	6.8	62

Surface	**Conditioned for 3 Days at 49ºC**		**Conditioned for 24 hours at 32ºC At 90% Relative Humidity**	
	N/10mm	**Oz/In**	**N/10mm**	**Oz/In**
Stainless Steel	7.2	66	7.0	64
Polycarbonate	6.1	56	6.8	62
Epoxy PC Board	7.3	67	4.8	44

Liner Release	180º Removal of Liner from Facestock		
	Rate of Removal	N/10mm	Gms/25mm Width
	2.3 m / min	0.57	150
	7.6 m / min	0.42	111

Environmental Performance	The properties defined are based on four hour immersions at room temperature 22ºC unless otherwise noted. Samples were applied to stainless steel panels 24 hours prior to immersion and were evaluated one hour after removal from the solution for peel adhesion. Adhesion measured at 180º peel angle (ASTM D3330) at 305 mm/min.			
Chemical Resistance	Adhesion to Stainless Steel		Appearance	Edge Penetration
Chemical	N/10mm	Oz/In	Visual	Millimetres
Isopropyl Alcohol	5.1	47	No change	0
Detergent (1% Alconox®*)	5.8	53	No change	0
Engine Oil (10W30) @ 250ºF (121ºC)	10.5	96	No change	0
Water for 48 hours	5.9	54	No change	0
pH 4	5.8	53	No change	0
PH10	5.5	50	No change	0
409 Cleaning solution	5.6	51	No change	0
Toluene	2.7	25	No change	0
Acetone	1.4	43	No change	0
Brake Fluid	5.8	53	No change	2
Gasoline	4.3	39	No change	1
Diesel Fuel	5.4	49	No change	0
Mineral Spirits	5.1	47	No change	0
Hydraulic Fluid	5.4	49	No change	0

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Temperature Resistance	277°C for 30 seconds:	No significant visual change
	288 for 7 Minutes:	Slight Browning
	-40°C for 24 hours	No significant visual change
Humidity Resistance	24 hours at 38°C and 100% relative humidity	no significant changes in appearance or adhesion

Accelerated Ageing
ASTM D3611 : 96 hours at 65ºC & 80% relative humidity

	Rate of Removal	**N/10mm**	**Grams/In Width**
180º Removal of Liner from Facestock	2.3 m / minute	0.65	169
	Rate of Removal	**N/10mm**	**Oz/In Width**
180º Peel Adhesion from Stainless Steel	305 mm / minute	3.7	34

Printed Label Performance

Samples were printed with a Ricoh D110 A resin ribbon using a Zebra.™ 170 xi printer at a rate of 51 mm/min and a burn setting of 22. Labels were printed with a ration 3:1 bar-code with 6 mil X-dimension. Printed labels were exposed to the listed conditions, which are representative of PCB assembly conditions. After exposure, labels were rinsed with tap water dried and examined.

Condition	Print Contrast Signal	Read Rate
7812 Control	97	100
277 °C, 30 Second	97	100
288 °C, 7 minutes	94	100
IPA 75 % 41°c, 15 min.	97	100
IPA 100%, RT, 2 min.	97	100
Deionised Water 40° C, 5 min.	97	100
Alconox ® 10%, 57°C, 2 min.	97	100
D-Limonene RT, 2 min.	97	100
Monoetanolamine, 57°C 2 min.	97	100
BIOACT® EC-7R, 25°C, 10 min.	92	100
BIOACT® EC- 15, 25°C, 10 min.	92	100
Wave Solder	95	100

The print contrast signal, PCs, was determined using PSC QUICKCHECK™, with 76µm aperture, 660 nm wavelength. The read rate was determined using a PCS laser diode scanner, model 4100. Wave soldering was performed on an Electrovert Co, Microline 250 wave solder machine. Preheat temperature was 121° C, solder temperature was 243° C, line speed was 0.6 m. Boards were pre sprayed with Kester Solder Co. 923 flux.

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Processing

Printing:
Facestock is topcoated for improved ink receptivity and is designed for thermal transfer printing.

Thermal transfer ink ribbons recommended for use with 7812:

Ricoh™ D110 A
Union Chemicar™ US300

The following ribbons can be used but may require higher burn temperatures:

Sony™ 5070
Mid City Columbia™ CG-80HE
Dai Nippon™ R510

Die Cutting:
Rotary die cutting is recommended.

Packaging:
Finished labels should be stored in plastic bags.

Dispensing:
Hand dispensing is recommended

Special Considerations

For maximum bond strength, the surface should be clean and dry. Typical cleaning solvents are heptane and isopropyl alcohol.

NOTE: When using solvents, read and follow the manufacturer's precautions and directions for use.

For best bonding conditions, application surface should be at room temperature or higher. Low temperature surfaces, below 10°C can cause the adhesive to become so firm that it will not develop maximum contact with the substrate. Higher initial bonds can be achieved through increased rubdown pressure.

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