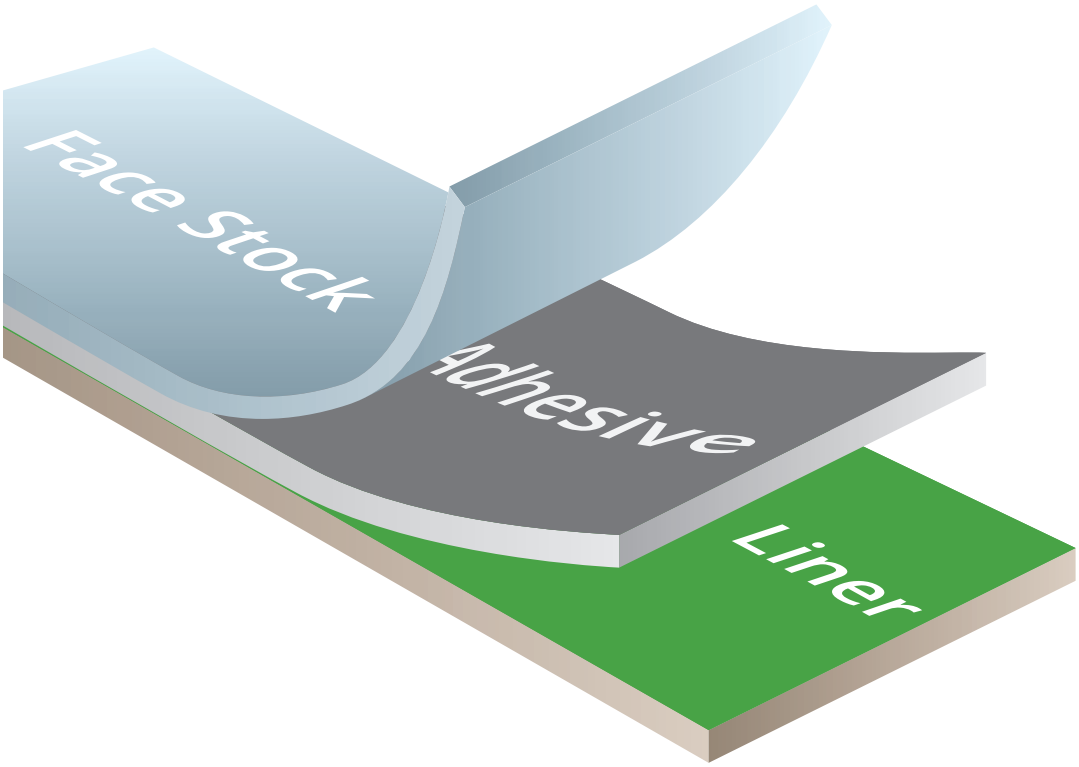
TT416

IDENTCO®

Labels for Life.



Face Stock: 2.4 mil topcoated gloss white polyimide film offering excellent chemical resistance combined with superior high heat resistance. The material will not curl and is designed to survive high teperatures of lead-free solder processes.

Adhesive: 1.5 mil high performance permanent acrylic pressure sensitive adhesive offering exceptional resistance to harsh PCB cleaning solvents and high heat.

Release Liner:
Available in 55# glassine or film liner; both designed to offer excellent performance.

Thermal Transfer Gloss White Polyimide Film

TT416 is designed for thermal transfer printing of variable information for circuit board and electronic component labeling. This economical grade material withstands exposure to most board cleaners and fluxes. TT416 performs well through most lead and lead-free reflow processes.

Typical Applications

In process circuit board and electronic component labeling.

Typical Industry Sectors

Industrial

Electronics

QUALITY ISO 9001 CERTIFIED

AUTOMOTIVE TS16949 CERTIFIED

ENVIRONMENTAL ISO 14001 CERTIFIED

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Agency Recognitions

UL-MH16873

Adhesion

	Stainless Steel	Epoxy PC Board	
20 minute dwell	35 oz/in (39 N/100mm)	20 minute dwell	37 oz/in (41 N/100mm)
24 hour dwell	40 oz/in (44 N/100mm)	24 hour dwell	40 oz/in (44 N/100mm)

Material Caliper

See following charts for specific details.

Exterior Durability

Recommended indoor use only

Temperature Range

See following charts for specific Temperature Ranges.

Shelf Life

Recommended Storage: 45-90˚F (7-32˚C) 20-75% R.H.
Shelf Life: 2 years @ recommended storage

Recommended Ribbons

TTRR-B TTRR-D
TTRR-CR

Responsible distributor:
pb tec solutions GmbH , Max-Planck-Straße 11, 63755 Alzenau (Germany)
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Product Details

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D 1000 Substrate (Topcoat & Film) Adhesive Liner (Glassine) Total	 0.0024" (0.0610 mm) 0.0015" (0.038 mm) 0.0031" (0.079 mm) 0.0070" (0.178 mm)
Adhesion to: Stainless Steel Expoy PC Board	ASTM D 1000 20 minute dwell 24 hours dwell 20 minute dwell 24 hours dwell	 35 oz/in (39 N/100mm) 40 oz/in (44 N/100mm) 37 oz/in (41 N/100mm) 40 oz/in (44 N/100)
Tack	ASTM 2979 Polyken Probe Tack	19 oz (530 g)
Drop Shear	PSTC-7 (1/2" x 1" sample)	> 100 hours
Dielectric Strength	ASTM D1000	10,000 volts

Performance Properties

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Short Term High Service Temperature	80 seconds at 572F (300C)	No visible effect
	5 minutes at 500F (260C)	No visible effect
	2 hours at 338F (170C)	No visible effect
Long Term High Service Temperature	1000 hours at 212F (100C)	No visible effect
Low Service Temperature	1000 hours at -94F (-70C)"	No visible effect
Humidity Resistance	1000 hours at 98F (37C), 95% R.H.	No visible effect
UV Light Resistance"	30 days in UV Sunlighter 100	Topcoat turns yellow, label remains functional
Weatherability	1000 hours in Xenon Arc Weatherometer	Slight discoloration
Salt Fog Resistance	ASTM B 117 30 days in 5% salt fog solution chamber	No visible effect
Abrasion Resistance	Taber Abraser, CS-10 grinding wheels, 500 g/arm (Fed. Std. 191A, Method 5306	Print legible after 100 cycles
Chemical Vapor Phase Resistance	Labels adhered to epoxy PC board and exposed to the vapor of the boiling chemical for 10 minutes and then rubbed with a cotton swab saturated with the chemical for 10 rubs. Testing samples were baked 4 minutes at 160C prior to testing Ionox 3955 Micronox MX2501"	 Severe print removal Complete print removal

Performance properties tested on TT416 printed with IDENTCO Series TTRR-D thermal transfer ribbon. Printed samples of TT416 were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environmental conditions.
* TT403 is not recommended for outdoor use.

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Performance Properties

PERFORMANCE PROPERTIES		CHEMICAL RESISTANCE			
CHEMICAL REAGENT		SUBJECTIVE OBSERVATION OF VISIBLE CHANGE			
	EFFECT TO LABEL	RIBBON PERFORMANCE: TTRR-B,TTRR-CR, TTRR-D			
		WITHOUT RUB	WITH RUB		
			TTRR-B	TTRR-CR	TTRR-D
Kyzen Corp. 15% Aquanox® A4625 at 140F (60C)	No visible effect	1	4	3	2
Kyzen Corp. 17% Aquanox® A4520 at 140F (60C)	No visible effect	1	4	1	1
Kyzen Corp. 10% Aquanox® A4638 at 150F (65C)	No visible effect	1	1	1	1
Kyzen Corp. 20% Aquanox® A4703 at 145F (63C)	No visible effect	1	4	1	1
Zestron, 15% Atron® AC205 at 150F (65)	No visible effect	1	4	1	2
Zestron, 15% Atron® AC207 at 150F (65)	No visible effect	1	5	1	3
Zestron, 15% Vigon® A201 at 150F (65)	No visible effect	1	4	2	1
Zestron, 15% Vigon® N600 at 150F (65)	No visible effect	1	4	3	1
Isopropyl Alcohol 99% at 180F (82C)	No visible effect	1	1	1	1
Deionized Water AT 212F (100C)	No visible effect	1	1	1	1

Samples printed with TTRR-B, TTRR-CR, & TTRR-D thermal transfer ribbons. Samples laminated to epoxy PC board. Test samples exposed to indicated environments. Test samples baked 4 minutes at 160°C before testing. All test samples were immersed in the test fluids for 10 minutes. Samples were rubbed 10 times with cotton swab saturated with the test fluid.

Rating Scale: 1=no visible effect. 2=slight smear or print removal, detectable but minimal smear. 3=moderate smear or print removal (print still legible). 4=severe smear or print removal (print illegible or just barely legible. 5=complete print removal

PERFORMANCE PROPERTIES		CHEMICAL RESISTANCE
Solvent Resistance TEST FLUID		MIL-STD202G, Method 215K RESULTS TTRR-D
Solvent A	part IPA, 3 parts mineral spirits	Meets RequirementI
Solvent B	Terpene Defluxer	Meets Requirement
Solvent C	Saponifier @ 70C	Meets Requirement

Test samples were printed with TTRR-D thermal transfer ribbon. Labels were printed with alphanumerics and barcodes. Test samples were subjected to 3 cycles of 3 minute immersions immediately followed by a toothbrush rub after each immersion.

Product testing, customer feedback and history of similar products support a customer performance expectation of at least two years from the date of receipt for this product as long as this product is stored in its original packaging in an environmment between 45-90°F (7-32°C) and 20-75% RH. 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.

Note: All values shown are averages and should not be used for specification purposes. Test data and test results contained in this document are for general information only and shall not be relied upon by IDENTCO customers for designs and specifications, or be relied on as meeting specific performance criteria. Customers desiring to develop specifications or performance criteria for specific product applications should contact IDENTCO for further information. Revised 2/21/2017

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