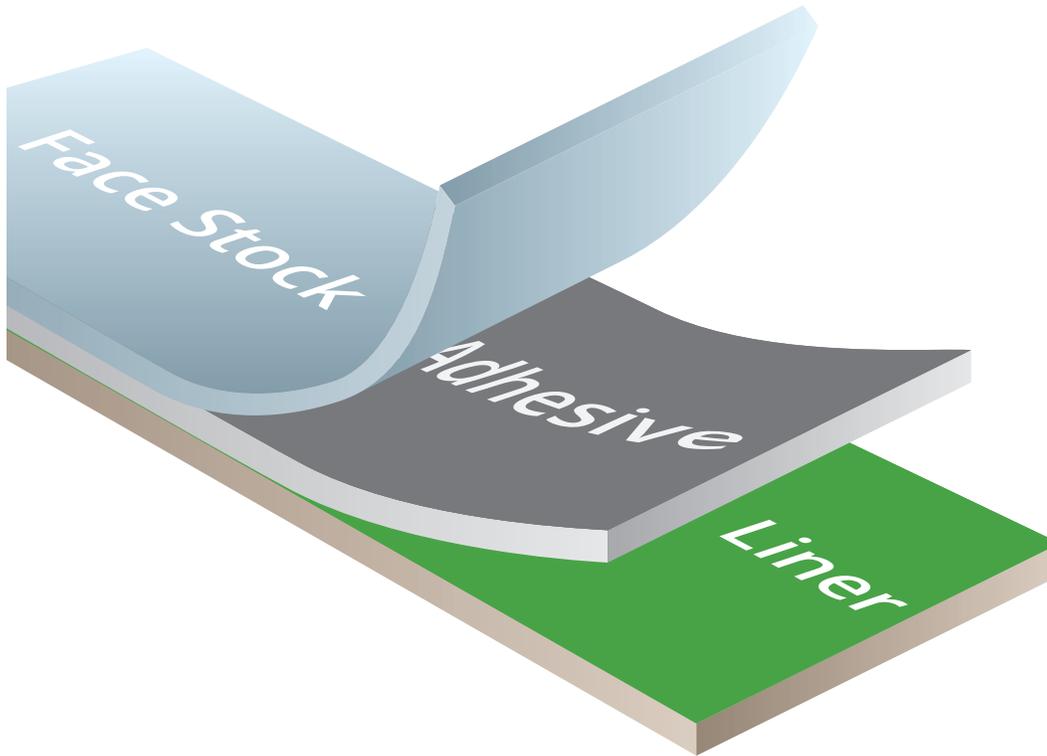


TT493



Labels for Life.



Face Stock: 1.8 mil topcoated matte white polyimide film offering excellent chemical resistance combined with superior high heat resistance. The material will not curl and is designed to survive high temperatures of lead-free solder processes.

Adhesive: 1.1 mil high performance permanent acrylic pressure sensitive adhesive offering exceptional resistance to harsh PCB cleaning solvents and high heat.

Release Liner: 2.7 mil glassine liner designed to offer excellent performance .

Thermal Transfer Matte White Polyimide Film

TT493 is designed for thermal transfer printing of variable information for circuit board labeling. This LOW PROFILE high performance label withstands multiple passes through inline and batch cleaning processes; as well as very good resistance to most fluxes. TT493 performs well through most lead and lead-free reflow processes.

Typical Industry Sectors

- Aerospace
- Medical
- Military.

TT493

Thermal Transfer Matte White Polyimide Film



Labels for Life.



Agency Recognitions



Adhesion

| | | |
|-----------------|-----------------|-----------------------|
| Stainless Steel | 20 minute dwell | 22 oz/in (24 N/100mm) |
| | 24 hours dwell" | 29 oz/in (32 N/100mm) |



Material Caliper

See following charts for specific details.



Exterior Durability

Recommended for indoor use only.



Temperature Range

See following charts for specific Temperature Ranges.



Shelf Life

Recommended Storage conditions : 40°F (5°C) - 80°F (26°C) and 40-70% RH.
Shelf Life: 2 years @ recommended storage



Recommended Ribbons

Thermal Transfer Printing

| | |
|---------------------|----------------------|
| TTRR-B Resin Ribbon | TTRR-CR Resin Ribbon |
| TTRR-D Resin Ribbon | |

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 10/5/23

UNITED STATES HEADQUARTERS

28164 W. Concrete Drive,
Ingleside, IL 60041 USA
Phone: +1 (815) 385 - 0011
Fax + (815) 385 - 0359

MEXICO MONTERREY

Carretera a Laredo KM 16.5
Bodega 14B Colonia Moisés Sáenz
Apodaca, Nuevo León CP 66613
Phone: +52 (81) 8008 - 0438

EUROPE GERMANY

Güterbahnhofstraße 3-7
63450 Hanau
Phone: +49 (6181) 440 830 - 0
Fax: +49 (6181) 440 830 - 99

TT493

Thermal Transfer Matte White Polyimide Film



Labels for Life.

Product Details

| PHYSICAL PROPERTIES | TEST METHODS | AVERAGE RESULTS |
|---------------------------------|--|---|
| Thickness | ASTM D 1000 Substrate (Topcoat & Film) Adhesive Liner (Glassine) Total | 0.0018 inch (0.0460 mm) 0.0011 inch (0.027 mm) 0.0027 inch (0.070 mm) 0.0056 inch (0.143 mm) |
| Adhesion to: Stainless Steel | ASTM D 1000 20 minute dwell 24 hours dwell | 22 oz/in (24 N/100mm) 29 oz/in (32 N/100mm) |
| Dielectric Strength | ASTM D1000 | 8,500 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 TT490 printed with IDENTCO Series TTRR-D thermal transfer ribbon. Printed samples of TT490 were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environmental conditions. * TT490 is not recommended for outdoor use.

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 10/5/23

UNITED STATES HEADQUARTERS

28164 W. Concrete Drive,
Ingleside, IL 60041 USA
Phone: +1 (815) 385 - 0011
Fax + (815) 385 - 0359

MEXICO MONTERREY

Carretera a Laredo KM 16.5
Bodega 14B Colonia Moisés Sáenz
Apodaca, Nuevo León CP 66613
Phone: +52 (81) 8008 - 0438

EUROPE GERMANY

Güterbahnhofstraße 3-7
63450 Hanau
Phone: +49 (6181) 440 830 - 0
Fax: +49 (6181) 440 830 - 99

TT493

Thermal Transfer Matte White Polyimide Film



Labels for Life.

Performance Properties

| PERFORMANCE PROPERTIES | | CHEMICAL RESISTANCE | | | | |
|--|-------------------|---|--|----------|---------|--------|
| CHEMICAL REAGENT | EFFECT TO LABEL | SUBJECTIVE OBSERVATION OF VISIBLE CHANGE | | | | |
| | | 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 | | 3 | 1 | 1 |
| Kyzen Corp. 17% Aquanox® A4520 at 140F (60C) | No visible effect | 1 | | 1 | 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 | | 2 | 1 | 1 |
| Zestron, 15% Atron® AC205 at 150F (65) | No visible effect | 1 | | 3 | 1 | 2 |
| Zestron, 15% Atron® AC207 at 150F (65) | No visible effect | 1 | | 3 | 2 | 3 |
| Zestron, 15% Vigon® A201 at 150F (65) | No visible effect | 1 | | 3 | 1 | 4 |
| Zestron, 15% Vigon® N600 at 150F (65) | No visible effect | 1 | | 2 | 1 | 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 Requirement |
| Solvent B | Terpene Deflux | Meets Requirement |
| Solvent C | Saponifier @ 70 | 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 environment 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.

Trademarks: ANSI: American National Standards Institute (U.S.A.) • ASTM: American Society for Testing and Materials (U.S.A.) • All S.I. Units (metric) are mathematically derived from the U.S. Conventional Units • Aquanox® is a registered trademark of the Kyzen Corporation • Atron® is a registered trademark of Zestron Corporation • Ionox® is a registered trademark of the Kyzen Corporation • Micronox® is a registered trademark of the Kyzen Corporation • Polyken™ is a trademark of Testing Machines Inc. • PSTC: Pressure Sensitive Tape Council (U.S.A.) • UL: Underwriters Laboratories Inc. (U.S.A.) • Vigon® is a registered trademark of Zestron Corporation • Weather-Ometer® is a registered trademark of Atlas material Testing Technology LLC
Material may not be reproduced or distributed in any form with written permission.

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 10/5/23

UNITED STATES HEADQUARTERS

28164 W. Concrete Drive,
Ingleside, IL 60041 USA
Phone: +1 (815) 385 - 0011
Fax + (815) 385 - 0359

MEXICO MONTERREY

Carretera a Laredo KM 16.5
Bodega 14B Colonia Moisés Sáenz
Apodaca, Nuevo León CP 66613
Phone: +52 (81) 8008 - 0438

EUROPE GERMANY

Güterbahnhofstraße 3-7
63450 Hanau
Phone: +49 (6181) 440 830 - 0
Fax: +49 (6181) 440 830 - 99