POLYONICS

## Thermal Transfer Printable Labels

# XF-592

## 2 mil Semi-Gloss White Polyimide Label Material

**Description:**

POLYONICS XF-592 is a 2 mil (50 µm) polyimide film with a high-temperature permanent pressure sensitive acrylic adhesive and a semi-gloss white topcoat specifically designed for thermal transfer printing

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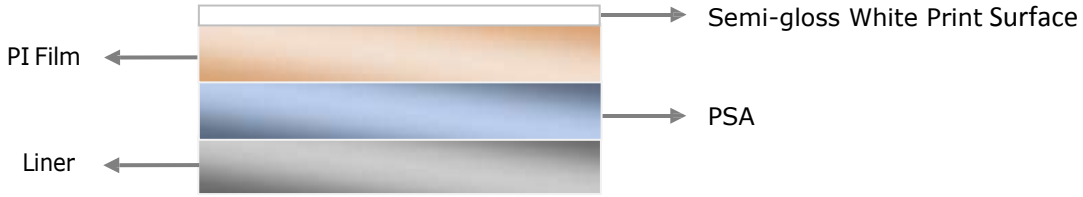
**XF-592**




**Features:**

- Durable thermal transfer printable top surface
- UL 969 recognized
- REACH and RoHS compliant
- Ultra-high strength adhesive (PSA)
- Dimensionally stable at high temperatures
- Chemically resistant
- Heat, cold, solvent resistant

**Applications:**

- Identification of circuit boards, components, etc.
- Hand held devices
- Hot metals tracking
- Automotive under-the-hood ID and tracking
- IC labeling for work-in-process, permanent ID and warranty
- Labeling with exposure to high temperatures

**Print Properties:**

The XF-592 topcoat, in combination with the appropriate thermal transfer ribbon, passes the military electronics labeling durability requirements MIL-STD-202G, Notice 12, Method 215K and MIL-STD-883E, Notice 4, Method 2015.13. The material is designed for top and bottom side board applications with printed images resisting smearing, even when the board and label are directly removed from a reflow or wave solder environment.

**Special Considerations:**

- The labeling surface should be clean, dry and free of any surface contamination, such as dust, oil or rust.
- Isopropyl alcohol is recommended to clean the surface.
- Use firm pressure when applying label to increase the physical contact of the adhesive with the surface.
- Pressure sensitive adhesives will provide stronger bonds to warm surfaces by increasing adhesive flow and increasing peel strength.
- Preheating the labeled product can further enhance print permanence in the case of extreme solvent and/or abrasion exposure.
- The XF-592 top coat and printed images should not be contacted while exposed to elevated temperatures.

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## Technical Data

| Properties | Test Methods | Average Results[1] | |
|---|---|---|---|
| | | USA Units | SI Units |
| **Thickness** | ASTM D1000 | | |
| Top sheet | | 0.0024 inch | 0.061 mm |
| Adhesive | | 0.0024 inch | 0.061 mm |
| Total | | 0.0048 inch | 0.122 mm |
| | | | |
| **Adhesion** | Polyonics 80313 | | |
| Stainless Steel | 20 minute dwell | ≥ 41 oz/in | ≥ 45 N/100 mm |
| | 24 hour dwell | ≥ 55 oz/in | ≥ 60 N/100 mm |
| | | | |
| **Tack** | Polyonics 80155 | ≥ 1800 g/in | |
| | | | |
| **Temperature Rating:** | Long Term | 100 hours at 302ºF (150ºC) | |
| | Operating | 5 min at 500ºF (260ºC) | |
| | Short Term | 90 sec at 572ºF (300ºC) | |
| | | | |
| **Shelf Life** | 1 year below 80ºF (27ºC) and 60% R.H. | | |
| | | | |
| **UL File#** | PGJ12.MH19503 | | |
| | | | |
| **UL Approved Ribbons** | DNP R510HF, Ricoh B110CR, ITW B324 | | |

## Durability Testing

| Properties | Test Method | Test Environment | SC[2] | MOD[3] |
|---|---|---|---|---|
| **Heat/Chemical** | Polyonics 80386 | Control 70°C, 5 min. | ≥ B grade | ≥ B grade |
| | | Kyzen Corp Aquanox SSA 30% aqueous, 40-45°C, 5 min | ≥ B grade | ≥ B grade |
| | | Re-Entry KNI 2000 Terpene, 40-45°C, 5 min | ≥ B grade | ≥ B grade |
| | | Alpha Metals Inc. 2110 Saponifier 10%, aqueous, 65-70°C, 5 min. | ≥ B grade | ≥ B grade |
| | | Isopropanol 99% 65-70°C, 5 min | ≥ B grade | ≥ B grade |
| | | Kyzen XJN+, 30%, 30°C, 5 min. | ≥ B grade | ≥ B grade |
| | | | | |
| **Chemical Resistance** | **Test Method** | **Test Fluids** | **Results** | |
| | MIL-STD-202G, Notice 12, Method 215K<br>MIL-STD-883E, Notice 4, Method 2015.13 | 1 part IPA, 3 parts mineral spirits | No visible effect | |
| | | Terpene Defluxer | No visible effect | |
| | | Saponifier | No visible effect | |

## 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 |

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**NOTES:**

[1]SI values are derived from U.S. convention units, shown as averages and should not be used for specification purposes.
[2]SC=signal contrast, measured via Web Scan TruRemote Wide Angle per ISO 15415
[3]MOD=modularity, measured via Web Scan TruRemote Wide Angle per ISO 15415

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


**UL969**

**WARRANTY-LIMITATION**

Polyonics' products are sold with the understanding that the Buyer will test them in actual use and determine for him/herself their adaptability to his/her intended uses. Polyonics warrants to the buyer that its products are free from defects in material and workmanship, but limits its obligations under this warranty to replacement of the products shown to Polyonics' satisfaction to have been defective, provided that the Buyer has complied with the handling, storage and shelf life requirements as specified by Polyonics in applicable materials specifications.

The above warranties extend solely to Buyer and all warranty claims must be made by the Buyer. Rework or Replacement shall neither exceed nor decrease the original warranty period. The term of all warranty periods shall not exceed thirty (30) days from the date of the original shipment.

The above warranties are exclusive of and in lieu of all warranties, written or oral, express or implied, statutory or otherwise. No Implied statutory warranty of merchantability or of fitness for a particular purpose shall apply. Polyonics shall not be liable either in tort or in contract for any loss or damage, direct, incidental or consequential, arising out of the use or inability to use the product, or from delay in the replacement or repair of products under the above warranty.

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