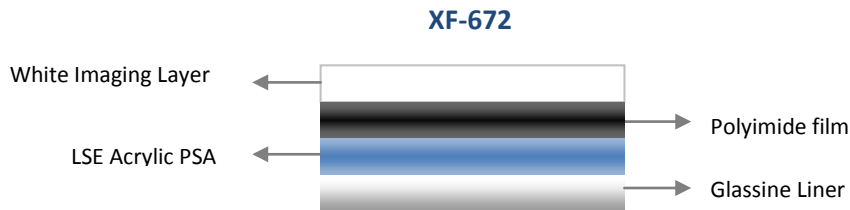




Description:

POLYONICS XF-672 is a 1 mil (25µm) polyimide laser markable label material tested to the **GMW14573/GM6121M** automotive under-the-hood label requirements. XF-672 includes a high opacity, white topcoat designed for marking and cutting with a CO₂, YAG, UV or Fiber Diode system. The material can be die or laser cut and uses Polyonics ThermoGard™ technology and includes a high temperature permanent pressure sensitive acrylic adhesive (PSA) and glassine liner.



Use:

The XF-672 material is designed to be die or laser cut into discrete labels by mechanical methods and marked with a CO₂, YAG, UV or Fiber Diode laser set to the correct power settings. The markings can be very small and include text, bar code or graphics. The material provides a very readable, high contrast background for compared to direct laser marking. The marked labels provide a durable identification system that can be used in high temperature and harsh environments including chemical exposure. For example, the XF-672 is an excellent option for bar code labels used to track printed circuit boards as the laser marking will survive the requirements of MIL-STD-202G, Notice 12, and Method 215K. The static dissipative imaging surface helps protect static sensitive devices and reduces any static charges generated during application.

Applications:

- Tested to the GMW14573 Automotive Performance Requirements for Labels
- Top or bottom side identification of the printed circuit board
- When dimensional stability of the label is critical
- IC labeling for work in process, permanent ID & warranty labeling
- Product ID, asset tracking
- Protect static sensitive devices
- Anywhere a label will be exposed to extreme temperatures, harsh environments and/or Exposure to chemicals

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 versus cold.
- The XF-672 is designed for laser marking with a CO₂, YAG, UV or Fiber Diode laser. It is not designed for secondary printing such as thermal transfer or flexographic print systems.
- 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 POLYONICS customers for designs and specifications, or



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Laser Markable Label Materials

XF-672

1mil White Polyimide

be relied on as meeting specified performance criteria.

- Customers desiring to develop specifications or performance criteria for specific product applications should contact Polyonics for further informatio

Polyonics Material Data

PROPERTIES	TEST METHODS	AVERAGE RESULTS					
		USA Units			SI Units		
Thickness	ASTM D1000						
Image Layer (white)		0.0002 inch			0.005 mm		
Black Sub-layer		0.0002 inch			0.005 mm		
Film		0.0010 inch			0.025 mm		
Adhesive		0.0011 inch			0.028 mm		
Total		0.0025 inch			0.063 mm		
Adhesion	Stainless Steel	Polypropylene		Polyethylene (HDPE)		TPO	
Polyonics 80313		Smooth	Textured	Smooth	Textured	Smooth	Textured
20 minute dwell	≥ 100 oz/in	114	62	110	70	53	20
24 hour dwell	≥ 120 oz/in	114	69	112	79	108	51
Gloss	BYK Tester @ 60°	40-70 GU					
Tack	Polyonics 80155	≥ 3000 g/in					
Temperature Rating:	Long term	100 hours at 302°F (125°C)					
	Operating	5 minutes -67F (-55C) to 500F (260C)					
	Short term	90 seconds at 572°F (300°C)					
Coating Durability	ASTM D4752-10			IPA		MEK	
				>100 Double rubs		>14 Double rubs	
	Abrasion (GMW 3208)			300 Cycles			
	UL/IEC 60601 and 61010			Pass			
Out Gassing	ASTM E595	TML=1.02%, CVCM=0.03%, WVR=0.54%					
Application Temperature	50°F						
Shelf Life	1 year below 80°F (27°C) and 60% R.H.						



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Durability Testing

Table with 4 columns: Properties, Test Methods, Test Environment, Web Scan Print Quality. Rows include Heat / Chemical, Automotive under-the-hood, and various test environments like Control 70°C, Alpha Metals Inc., Isopropanol, etc.

Chemical Testing

Table with 4 columns: Properties, Test Method, Test Fluid, Results. Row includes Chemical Resistance with MIL-STD-202G, Notice 12, Method 215K and various solvents like IPA, Trichloroethane, etc.

Polyonics Material Compliance

Table with 2 columns: Compliance Standard (RoHS, REACH, Halogens) and Limits set forth in Directive/Article.

Notes:

- All SI units are mathematically derived from US conventions
- Labels printed with recommended thermal transfer ribbons
- Labels printed with 6.7 mil x dimension bars at 2.5 ratio
- Labels exposed to indicated environments
- Web Scan is a 2D label scanner. "Pass" refers to no change in readability post exposure to chemicals listed

Trademarks: XJN™ and Aquanox™ are trademarks of Kyzen Corp

References:

- ASTM: American Society for Testing and Materials
- SI: International Systems of Units





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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 obligation 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 Buyer. Rework or Replacement shall neither extend 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 OTHER 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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