

Description: POLYONICS XF-509 is a special 1 mil (25 μ) matte black polyimide film with a high-temperature permanent pressure sensitive acrylic adhesive specifically designed for thermal transfer printing with white resin based ribbons.

Properties:

Labels printed with XF-509, in combination with the appropriate white thermal transfer ribbon, resist the harsh chemicals, cleaners, and saponifiers used in PCB manufacturing. The print resists smearing, even when the board and label are directly removed from a reflow or wave solder environment. Preheating the labeled product can further enhance print permanence in the case of extreme solvent and/or abrasion exposure, although this is not typically required for board processing applications.

Applications:

- POLYONICS XF-509 is designed for high-temperature-lead-free solder applications.
- It is the ideal label to withstand surface mount board processes, on either the top or bottom side of the board. It can also be used on the top side of the board in mixed processes, and is recommended for the bottom side that is directly exposed to the wave solder environment.
- Anytime a black is needed for aesthetic purposes or a dark background is required
- Useful in situations where the reflectance from standard white labels can cause "ghosting" effects, which can interfere with the utility of flat screens and other devices.
- 1 mil polyimide is perfect in applications where low profile labeling is required such as silk screening or stacking
- XF-509 is particularly useful in manufacturing processes where dimensional stability of the label is critical.
- IC labeling for work in process, permanent ID & warranty labeling
- Product ID, asset tracking
- Anywhere a label will be exposed to extreme temperatures

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, as compared to a colder one. The adhesive will 'flow' more readily, increasing the surface area and increasing the adhesion peel strength.
- The XF-509 top coat & print should not be contacted while exposed to elevated temperature.
- 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 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 information



Technical Data

PROPERTIES	TEST METHODS	AVERAGE RESULTS	
		USA Units	SI Units
Thickness	ASTM D1000		
-Face sheet		0.0015 inch	0.038 mm
-Adhesive		0.0010 inch	0.025 mm
-Total		0.0025 inch	0.063 mm
Adhesion	Polyonics 80313		
-Stainless Steel	20 minute dwell	≥ 27 oz/in	30N/100 mm
	24 hour dwell	≥ 30 oz/in	33N/100 mm
Weatherometer Testing	ASTM G154	No Visible Effect	
Tack	Polyonics 80155	≥ 1000 g/in	
Temperature Rating:	Long term	100 hours at 302°F (125°C)	
	Operating	5 minutes at 500°F (260°C)	
	Short term	90 seconds at 572°F (300°C)	
Shelf Life	1 year below 80°F (27°C) and 60% R.H.		
UL File #	PGJI2.MH19503		
CUL File #	PGJI8.MH19503		
UL Approved ribbons	DNP R510W, DNP TR3370W , Armor AXR600W		
CUL Approved Ribbon	DNP TR3370W		

Chemical Testing

Solvent	AXR 600W	DNP TR 3370	DNP R510W
MCF 800 Cleaner	Pass	Pass	Fail
A-2110 10%	Pass	Pass	Fail
Flux 615	Pass	Pass	Fail
Flux 3355 HB	Pass	Pass	Pass
Flux 870-250	Pass	Pass	Pass
SLS 65C	Fail	Pass	Pass
Ensolv	Pass	Pass	Pass
Aquanox XJN+ 30%	Pass	Fail	Fail
IPA	Pass	Pass	Pass
Vigon SC 200	Smear	Fail	Fail
Kester 186	Pass	Pass	Fail

Polyonics 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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- All SI units are mathematically derived from U.S. conventional units.
- Samples are printed with stated ribbons on Datamax I4604 thermal transfer printer, attached to aluminum test panel and allowed to dwell 24 hours prior to testing. After dwell panels are soaked in solvents listed below at 70°C for 5 min. and then rinsed and reviewed for print quality, topcoat and adhesion.

References:

Aquanox XJN+ trademark of Kyzen
 ASTM: American Society for Testing and Materials (U.S.A.)
 SI: International Systems of Units





POLYONICS

POLYONICS THERMOGARD®

XF-509

Thermal Transfer Printable Polyimide

Black

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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.

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