

**Flame Retardant Tag Stock  
Thermal Transfer or Impact Printable**

Yellow

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**Description:**

XT-651 is an extremely durable yellow Nomex® flame retardant tag material. This material is printable with dot matrix impact or thermal transfer printers. When used with the proper ribbon, the tag withstands many organic solvents, and especially fluids commonly used in the aircraft, transportation, and aerospace industries.

**Special Properties:**

WIREGARD XT-651 is a self-extinguishing material with excellent tear and solvent resistance properties. This product withstands temperature ranges from -40°F to 267°F (-40°C to 130°C).

**Applications:**

- POLYONICS' XT-651 is designed as a low cost, high performance wire bundle and cable identification tag for use in harsh environments.

**Special Considerations:**

- All properties are typical values and should not be used for writing specifications.
- Shelf Life: 2 years at 70°F. (21°C.) and 40 to 50 % RH
- 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 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



**Polyonics Material Specifications**

PROPERTIES	TEST METHODS	AVERAGE RESULTS	
		USA Units	SI Units
<b>Thickness</b>	<b>ASTM D1000</b>		
<b>-Substrate</b>		0.012 inch	.305 +/- .011mm
<b>Hole Tear Strength</b>	<b>Polyonics Doc 80418</b>	>20 lbs	9 kg.
<b>Tensile Strength at Break</b>	<b>ASTM D149</b>	178 lb/in	12.5 kg/mm
<b>Elongation % at Break</b>	<b>ASTM D149</b>	23.8%	23.8%
<b>Dielectric Strength</b>	<b>ASTM D1000</b>	17,000 volts	17,000 volts
<b>Color- Yellow</b>	<b>Munsell</b>	5.157Y 9.214/0.950 L=89.35, a= -8.05, b= 69.98	
<b>Vacuum Out gassing Tested at an outside laboratory</b>	<b>ASTM 595</b>	%Total Mass Loss (TML) = 1.6% % Collected Volatile Condensable Material (CVCM) = 0.16% % Water Vapor Recovered (WVR) = 1.34%	
<b>Surface Flammability Tested at an outside laboratory</b>	<b>ASTM 162-02a</b>	Flame Spread Factor: Yellow = 15	
<b>Specific Optical Density of Smoke Tested at an outside laboratory</b>	<b>ASTM E662-09</b>	Flaming mode at 1.5 minutes: Yellow = 4 Flaming mode at 4.0 minutes: Yellow = 15 Non-Flaming mode at 1.5 minutes: Yellow = 0.8 Non-Flaming mode at 4.0 minutes: Yellow = 0.0	
<b>Temperature Rating:</b>		-40 to 267°F (-40 to 130°C)	
<b>Shelf Life</b>		<b>2 years at 70°F (21°C) and 50% R.H.</b>	
<b>Tested ribbons</b>		Ricoh B110A	

**Durability Testing**

Performance Properties	Test Methods	Typical
<b>Service Temperature</b>	30 days at -70°F (-57°C)	No Visible Effect
	30 days at 266°F (130°)	No Visible Effect
	30 min. at 356°F (180°C)	Slight Discoloration
<b>Print Adherence</b>	Mil Spec. 81531 (4.5.2)	No visible effect, pass
<b>Weatherability</b>	ASTM G154 (QUV, 30 days)	Slight material fade, print unaffected
<b>Humidity Resistance</b>	30 days at 100°F, 95% RH	No Visible Effect



**Polyonics Material Compliance**

<b>RoHS- Restriction of Hazardous Substances (EU Directive 2002/95/EC)</b>	Limits set forth in Directive 2005/618/EC amending Directive 2002/95/EC
<b>REACH- Registration Evaluation and Authorization of Chemicals (EU Directive 1907/2006/EC)</b>	Limits set forth in Directive 1907/2006/EC Article 7 (2)
<b>Halogens- Restriction use of Halogen (IEC 61249-2-21)</b>	Limits set forth in International Electrochemical Commission

**Chemical Testing**

- Samples Printed with Ricoh B110A thermal transfer ribbon. After 24 hour dwell, the samples were immersed in the specified chemical reagent for 30 minutes. After emersion, print image was rubbed 10 times with cotton swab saturated with test fluid.

Chemical Reagent	Subjective Observation of Visual Change	
	With out rub	After rub
Water	No Visible Effect	No Visible Effect
Isopropyl Alcohol (IPA)	No Visible Effect	No Visible Effect
10% Sulfuric Acid Solution	No Visible Effect	No Visible Effect
10% Sodium Hydrxoxide Solution	No Visible Effect	No Visible Effect
3% Alconox®	No Visible Effect	No Visible Effect
MIL 5606	No Visible Effect	No Visible Effect
Skydrol®	No Visible Effect	Slight Print Fade
JP-8	No Visible Effect	No Visible Effect
Propoline Glycol	No Visible Effect	No Visible Effect
5% Salt Solution	No Visible Effect	No Visible Effect
Gasoline	No Visible Effect	Slight Print Fade
Methyl Ethyl Ketone (MEK)	No Visible Effect	Print Removed
BIOACT EC-7R	No Visible Effect	Slight Print Fade

**Key for Tables on page 2 & 3**

- All SI units are mathematically derived from U.S. conventional units.
- Nomex® is a registered trademark of DuPont, Inc.
- Skydrol® is a registered trademark of Monsanto Co.
- ASTM: American Society for Testing and Materials (USA)



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**XF-651**

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**WARRANTY-LIMITATION**

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