

This technical data refers to the following Lighthouse products:

**Cryogenic Polyester**

**Description**

Satin finish polyester film coated with a high performance permanent acrylic adhesive.

**Applications**

Satin white polyester offering excellent low temperature cryogenic performance and dimensional stability combined with very good solvent, humidity, elevated temperature and UV resistance. Coated with high performance acrylic adhesive which exhibits high initial tack and good adhesion to a wide range of substrates; including many plastics and to both high and low surface energy substrates, as well as low temperature shear performance when applied to both glass and treated PP vials. The adhesive is suitable for exposure to liquid nitrogen.

**Technical Information**

Thickness	Film Adhesive Liner	50 microns 21 gsm 130 gsm
Service Temperature		-196°C* to +120°C  * Service temperature range can be affected by application surface and curvature.
Minimum Application Temperature		4°C

Adhesion (Typical values) FTM 1 N/25mm @ 23°C, 50% RH	Initial Tack	24 Hours
Stainless Steel Glass Polypropylene	12.2 n/25mm 12.8 n/25mm 4.2 n/25mm	15.6 n/25mm 16.1 n/25mm 6.5 n/25mm
Shear Resistance FTM8	>600 Minutes	
Dimensional Stability FTM14	Excellent	
Chemical Resistance AATCC8 Grey scale, 1 = poor, 5 = superior	3 - Good	
Outdoor durability	2 years vertical exposure	
Notes:	Cryogenic polyester will not adhere to wet surfaces Cryogenic polyester will not adhere to some slip coatings applied to glass vials	

<p><b>Environmental Performance</b></p> <p>Cryogenic polyester was thermal transfer printed with Lighthouse speciality black resin ribbon. The printed labels 35mm x 22mm were applied to 12.1mm diameter centrifuge tubes, glass and treated polypropylene. The labels were applied for one hour prior to environmental testing.</p>		
Test Environment	Test Specification	Test Result
Environmental cycling	3 hours at 80°C ± 4°C 1 hour at 23° ± 2°C and 50% relative humidity ± 5% RH 3 hours at -40°C ± 2°C 1 hour at 23°C ± 2°C and 50% relative humidity ± 5% RH 16 hours at 38°C ± 2°C and 95 to 98% relative humidity – 5 cycles completed	Pass – no delamination
Elevated temperature exposure	168 hours 90°C	Pass – no delamination

Thermal shock	6 hours at -80°C followed by immediate submersion in 100°C de-ionised water – 10 cycles completed	Pass – no delamination
Liquid nitrogen cycling	-196°C storage for 6 hours, removed and left at room temperature for 4 hours – 5 cycles completed	Pass – no delamination
Liquid nitrogen exposure	240 hours exposure at -196°C, removed and left at room temperature for 1 hour prior to evaluation	Pass – no delamination

<p><b>Chemical Resistance</b></p> <p>Cryogenic polyester was thermal transfer printed with Lighthouse speciality black resin ribbon. The printed labels were immersed in the test solutions for 5 minutes prior to conducting crockmeter testing with 3N of force. The crocking cloth was immersed in test solution and rubbed back and forth over test print; one back and forth motion counts as one cycle.</p>		
Test Solution	Test Specification	Test Result
Isopropanol	20 cycles with 3N weight and saturated crocking cloth	No visible effect
Synthetic perspiration	20 cycles with 3N weight and saturated crocking cloth	No visible effect
50% acetic acid	20 cycles with 3N weight and saturated crocking cloth	No visible effect
De-ionised water	20 cycles with 3N weight and saturated crocking cloth	No visible effect
10% hydrochloric acid	20 cycles with 3N weight and saturated crocking cloth	No visible effect
10% sodium hydroxide	20 cycles with 3N weight and saturated crocking cloth	No visible effect

Compliance	RoHS 2 REACH
Shelf Life (When stored at 21°C & 50% relative humidity)	2 Years

Compatible Ribbons for Printing	Speciality Ribbon Range
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**IMPORTANT NOTICE**

All Lighthouse products are subject to careful quality control throughout the manufacturing process and are warranted to be of merchantable quality and free from manufacturing defects.

Published information concerning Lighthouse products is based on research, which the Company believes to be reliable, although such information does not constitute a warranty.

Because of the variety of uses of Lighthouse products and the continuing development of new applications, the purchaser should carefully consider the suitability and performance of the product for each intended use. We recommend the purchaser conducts their own testing to determine the suitability for their required application. The purchaser shall assume all risks

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regarding such use. The seller shall not be liable for damages in excess of the purchase price of the product nor for incidental or consequential damages.  
All specifications are subject to change without prior notice.