TRANSCONTINENTAL

reflex™
SteriTouch®

reflex™ LT and LT DIGITAL High Performance Films

DATASHEET

PRODUCT DESCRIPTION

reflex™ high performance hard coated polyester films offer world class performance working on critical components including human machine interface device (HMI), membrane touch switch (MTS), printed electronics and surface protection applications. All reflex™ LT films offer antimicrobial technology which is built into the hardcoated surface.

reflex™ LT films are based on optical grade, highly stabilized polyester film. Transcontinental Advanced Coatings adds a rugged textured hardcoat formulation to one side of the base film coupled with a print receptive coating on the second side. These are applied in a cleanroom certified to ISO Class 7. The print receptive coating is tailored for adhesion with both solvent and UV screen print inks.

reflex™ LT Digital is coated with a print receptive coating adding outstanding adhesion characteristics to many UV inkjet digital printing platforms.

Transcontinental Advanced Coatings offer performance characteristics that optimize hardness, emboss-ability, chemical resistance and flexibility providing long switch life for the MTS market and giving excellent tactile feedback.

MARKETS and APPLICATIONS

- Membrane Touch Switch
- *Functional Controls*
- *Medical and Hospitality*
- *Sensors*
- *Printed Electronics*
- *Durable Labels*
- *Surface Protection*

Product	Thickness	Description
reflex™ LT	125µ, 175µ	Lightly textured, hardcoated polyester
reflex™ LT Digital	125µ, 175µ	Lightly textured, hardcoated polyester with enhanced ink adhesion primer for UV Inkjet printing

PROPERTIES	TEST METHOD	TYPICAL VALUES		UNITS
		LT 175	LT 125	
TOTAL THICKNESS	Caliper	195	145	microns
OPTICAL				
Light Transmission	ASTM D1003	87		%
Gardner Haze	QCTM 137**	58		%
Gloss Level	ASTM D2457	15		%
Yellowness Index	ASTM E313-05	2.2		
Degree of Texture	QCTM-146** See notes (a)	Meets standard p1866		
MECHANICAL				
Switch Test	See notes (b)	>3million		flexes
Mar Resistance: Pencil	See notes (c)	3H		
Taber Abrader	QCTM 149** See notes (d)	3		Delta
Cross Hatch Adhesion	ASTM D3359	>3B		
ELECTRICAL				
Volume Resistivity	ASTM D257*	10^{15}		ohm/m
Surface Resistivity	ASTM D257*	10^{13}		ohm/sq
Dielectric Strength	ASTM D149*	125		kV/mm
THERMAL				
Usage Temperatures	Suggested minimum	-40		°C
	Suggested maximum	120 (80°C if embossed)		°C
DIMENSIONAL STABILITY				
MD	30mins @ 120°C	-0.30		%
TD	30mins @ 120°C	-0.1 to +0.1		%
Flammability	UL Flame Class*	VTM-2		

*Figures from PET base film **Figures derived from Internal Test Methods

TES

Degree of texture is determined by visual assessment against internal standards

Switch Life: A standard rubber finger (45° Shore hardness) is used to flex an embossed dome switch continuously at a rate of 2 flexes/second. Pressure applied must be sufficient to force the apex of the dome to make contact with the support table. The switch should be examined at regular intervals to check for flaking off or cracking in the hardcoat and graphic ink layer

Pencil Test: Increasingly hard grades of pencil lead are scored across the surface of the coated PET. The point of the pencil is moved along the surface of the film with increasing force until the pencil breaks or until the surface of the coated film is scratched. The tests are continued until the pencil scratches the surface. The value given is the highest hardness value which does not scratch the coated film

Taber Test: A Taber abrader (CF10F Type 4 wheel; 250g load; 10 cycles) is used to abrade the test sample. Measurement of the haze value, before and after abrasion, are taken and the change recorded. The average of three test samples is given

CHEMICAL RESISTANCE SPOT TEST

reflex™ polyester films have been tested for their chemical resistance as per ASTM F1598-95(2007). The products have been tested using the following chemicals for an exposure time of 1hr and 24hrs.

CHEMICAL GROUP	EXAMPLES USED	EFFECT (1hr)	EFFECT (24hrs)
Acids (dilute mineral)	10% HCl Acid	Pass	Pass
(dilute organic)	Acetic Acid (Vinegar)	Pass	Pass
Alcohols	Methanol	Pass	Pass
	Ethanol	Pass	Pass
	IPA	Pass	Pass
Aliphatic Hydrocarbons	n-Heptane	Pass	Pass
Alkalis (Dilute)	2% NaOH	Pass	Slight Stain
Aromatic Hydrocarbons	Toluene	Pass	Pass
Chloriniated Hydrocarbons	1-1-1 Trichloroethane	Pass	Pass
Esters	Ethyl Acetate	Pass	Pass
Aliphatic Ketone	Acetone	Pass	Pass
Aromatic Ketone	Cyclohexanone	Pass	Pass

RESISTANCE TO HOUSEHOLD CHEMICALS

reflex™ has been tested with a range of materials typically found in the home. The test involved subjecting reflex™ to the following materials for a period of 1hr and also 24hrs as per ASTM F1598-95(2007)

MATERIAL USED	EXAMPLES USED	EFFECT (1hr)	EFFECT (24hrs)
Domestic Cleaners	"Flash" cleaner	NS	SS
	Cream cleaner ("CIF") type)	NS	NS
Domestic Fat / Oil	Vegetable Oil	NS	NS
MATERIAL USED	**EXAMPLES USED**	**EFFECT (1hr)**	**EFFECT (24hrs)**
Domestic Foodstuffs	Blackcurrant	NS	NS
	Brown Sauce	NS	NS
	Milk	NS	NS
	Tomato Puree	NS	NS
	Hot Curry Powder (paste)	SS	SS
	Beetroot Juice	NS	NS
	Fabric Cleaner	NS	NS
KEY	No Stain	NS	
	Slight Stain	SS	
	Stain	SS	

TREATMENT	BACTERIA / MOULD	TEST RESULT	TEST METHOD
None	E-Coli	Biocidal Pass	JIS Z 2801:2000
None	PS. Aeruginosa	Biocidal Pass	JIS Z 2801:2000
None	Sal. Entertidis	Biocidal Pass	JIS Z 2801:2000
None	Kl. Pheumoniae	Biocidal Pass	JIS Z 2801:2000
None	B. Cereus	Biocidal Pass	JIS Z 2801:2000
None	MRSA	Biocidal Pass	JIS Z 2801:2000
None	AS. Niger	Biocidal Pass	JIS Z 2801:2000
None	Pe. Funiculosum	Biocidal Pass	JIS Z 2801:2000
None	Str. Mutans	Biocidal Pass	JIS Z 2801:2000
Soaked in IPA for 24hrs	E-Coli	Biocidal Pass	JIS Z 2801:2000
Soaked in IPA for 24hrs	MRSA	Biocidal Pass	JIS Z 2801:2000
Soaked in Chlorine Bleach for 24hrs	MRSA	Biocidal Pass	JIS Z 2801:2000
Soaked in Chlorine Bleach for 24hrs	E-Coli	Biocidal Pass	JIS Z 2801:2000
Soaked in ethanol for 24hrrs	MRSA	Biocidal Pass	JIS Z 2801:2000
Soaked in ethanol for 24hrrs	E-Coli	Biocidal Pass	JIS Z 2801:2000
Soaked in Quartenary Ammonium for 24hrs	MRSA	Biocidal Pass	JIS Z 2801:2000
Soaked in Quartenary Ammonium for 24hrs	E-Coli	Biocidal Pass	JIS Z 2801:2000
Soaked in Phenol Base Disinfectant for 24hrs	MRSA	Biocidal Pass	JIS Z 2801:2000
Soaked in Phenol Base Disinfectant for 24hrs	E-Coli	Biocidal Pass	JIS Z 2801:2000
15 Year Lifetime Test[0]	E-Coli	Biocidal Pass	JIS Z 2801-01
15 Year Lifetime Test[0]	AS. Niger	Biocidal Pass	AATCC Method 30
15 Year Lifetime Test[0]	MRSA	Biocidal Pass	JIS Z 2801-01
Abraded[1]	MRSA	Biocidal Pass	JIS Z 2801:2000
UV Exposed (Front & Back)[2]	MRSA	Biocidal Pass	JIS Z 2801:2000
Embossed[3]	MRSA	Biocidal Pass	JIS Z 2801:2000

[0]Film samples are tested by LawLabs using standard test protocols that stimulate real life changing regimes representing a period of 15years

[1]Simulated Wear Test

[2]Simulated Graphics Printing and Window Lacquer

[3]Tested on Embossed Samples

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