LEXAN™ DPHPxxS FILM

DESCRIPTION

LEXAN™ DPHPxxS is a one side primed film designed for increased digital UV ink adhesion under laminating adhesive exposure where other polycarbonate film solutions may not perform as needed. Due to rapid development of ink adhesion, post drying of the printed artwork prior to adhesive lamination can be eliminated (with many digital ink sets) thus reducing production cycle time. LEXAN DPHPxxS graphic films are high-performance coated films offering very good chemical and abrasion resistance together with unique processing characteristics. These highly durable, easily printed films create new opportunities in graphic design with a unique package of benefits: Flexible UV processing, Multiple topside selective texturing, Color topside texturing, Durability of coating and texture adhesion when exposed to strong household chemicals such as Wisk¶ or Formula 409#.

TYPICAL PROPERTY VALUES*

PROPERTY	ASTM (ISO) TEST METHOD	UNITS USCS (SI)	HP12S	HP40S	HP60S	HP92S
MECHANICAL						
Tensile Strength @ Yield	ASTM D882 (ISO	psi (MPa)	8800 (60)	8800 (60)	8800 (60)	8800 (60)
Ultimate	ASTM D882 (ISO	psi (MPa)	9000 (62)	9000 (62)	9000 (62)	9000 (62)
Tear Strength						
Initiation	ASTM D1004	lb/mil (kN/m)	1.51 (264)	1.51 (264)	1.51 (264)	1.51 (264)
Propagation	ASTM D1922	g/mil (kN/m)	40 (14)	40 (14)	40 (14)	40 (14)
THERMAL						
Vicat Softening Temperature, B	ASTM 1525	°F (°C)	320 (160)	320 (160)	320 (160)	320 (160)
Heat Deflection Temp. by TMA at 1.8 Mpa	ISO 75 Modified	°F (°C)	290 (145)	291 (145)	292 (145)	293 (145)
Shrinkage at 302°F (150°C)	ASTM D1204	%	1.40%	1.40%	1.40%	1.40%
PHYSICAL						
Density	ASTM D792 (ISO	slug/ft^3 (kg/m^3)	2.3 (1200)	2.3 (1200)	2.3 (1200)	2.3 (1200)
Surface Energy (1st surface / 2nd surface)	ASTM D5946-01	-	44 / 34	38 / 34	38 / 34	36 / 34
Surface Tension (1st surface / 2nd surface)	Dyne Pens	Dyne	>44 / 38-40	40-42 / 38-40	32-34 / 38-40	38-40 / 38-40
Pencil Hardness (coated	ASTM D3363	-	HB-F	HB-F	HB-F	HB-F
Taber Abrasion	ASTM D1044	delta Haze	<2	4	3	4
OPTICAL						
Light Transmission	ASTM D1003	%	91	92	92	92
Yellowness Index	ASTM D1925	%	0.9	0.8	0.8	0.5
Haze	ASTM D1003	%	45	12	6	0.5

PROPERTY	ASTM (ISO) TEST METHOD	UNITS USCS (SI)	HP12S	HP40S	HP60S	HP92S
OPTICAL						
Gloss over Flat Black min/max @ 60	ASTM D523-60 (ISO 2813)	_	12	40	60	92

◆ These are typical properties and are not intended for specification purposes. If minimum certifiable properties are required, please contact your local POLYVANTIS representative or the POLYVANTIS Quality Services Department.
Reported Values are based on 0.010" (0.250 mm) Thickness unless otherwise noted.

¶ Wisk is a registered trademark of Lever Brothers Company.

Formula 409 is a registered trademark of Clorox Company.

MANUFACTURING SPECIFICATIONS

For gloss level 12 and above:

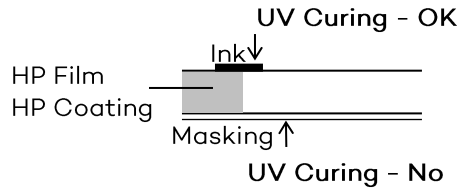
NOMINAL GAUGE RANGES	MIN./MAX LIMIT OF NOMINAL
≤0.010" (0.250mm)	±10%
>0.010" (0.250mm)	±5%

For gloss level 12 and above:

NOMINAL GAUGE RANGES	MIN./MAX LIMIT OF NOMINAL
≤0.010" (0.250mm)	-10%, +20%
>0.010" (0.250mm)	-5%, +10%

MASKING

The standard masking on HP film is not designed to have UV radiation (for curing) passed through it. If this is required, alternate masking is available. Please contact your sales representative for more details.



CHEMICAL AND ABRASION RESISTANCE

A unique feature of LEXAN™ DPHPxxS films is receptivity to multiple-pass, first-surface decoration for selective textures and/or color graphics. This feature requires that the coating be chemically sensitive to a variety of ink formulations. As a result, the coating is subject to attack by aggressive industrial chemicals and some strong household cleaners. Both the chemical resistance and the hardness of the coating can be enhanced by exposing the coated surface of the film to UV ink curing conditions.

TABER ABRASION RESISTANCE (ASTM D1044) LEXAN HP92S GRAPHIC FILM

CONDITION CS10F WHEEL, 500 GRAMS	UNITS	AS MANUF.	POST CURED*
25	Change in % Haze	1.7	1
50	Change in % Haze	3.2	2
100	Change in % Haze	6.5	4.1
200	Change in % Haze	12.9	9

* Post cure conditions: One elliptical focused medium pressure mercury vapor lamp at 300 watts/inch and a conveyor speed of 20 feet/minute

CHEMICAL RESISTANCE

CHEMICAL	RESULTS†	
	As Manufactured	Post Cured††
One Hour Continuous Surface Contact at 73° F		
Acetone	Failed	Passed
MEK	Failed	Passed
Toluene	Failed	Passed
Methylene Chloride	Failed	Passed
Isopropyl Alcohol	Passed	Passed
Cyclohexanone	Failed	Passed
Ethyl Acetate	Failed	Passed
Xylene	Failed	Passed
40% NaOH	Failed	Passed
Concentrated HCl	Passed	Passed
Gasoline (Regular)	Passed	Passed
Gasoline (Unleaded)	Passed	Passed
Butyl Cellosolve	Failed	Passed
CHEMICAL	**RESULTS†**	
	As Manufactured	Post Cured††
24 hour continuous Surface Contact at 120°F		
Coffee	Passed	Passed
Top Job¥	Passed	Passed
Fantastik ##	Passed	Passed
Formula 409 #	Passed	Passed
Windex w/ Ammonia D ###	Passed	Passed
Wisk ¶	Passed	Passed
Downy #	Passed	Passed
Spray N Wash##	Passed	Passed
Clorox*	Passed	Passed
Mustard	Passed	Passed
Mr. Clean #	Passed	Passed
Ketchup	Passed	Passed
Tea	Passed	Passed
Tomato Juice	Passed	Passed
Lemon Juice	Passed	Passed
Grape Juice	Passed	Passed
Vinegar	Passed	Passed
Milk	Passed	Passed

† Failure constitutes any of the following: non-removable stain or cloudiness, blistering, delamination, or cracking of the coating or failure to pass crosshatch tape adhesion.

†† Post cure conditions: One elliptical focused medium pressure mercury vapor lamp at 300 watts/inch and a conveyor speed of 20 feet/minute

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Formula 409 and Clorox are registered trademarks of the Clorox Company

Top Job, Downy, and Mr. Clean are registered trademarks of Procter & Gamble

Fantastik and Spray 'N Wash are registered trademarks of Texize, Division of Norton Norwich Products, Inc.

Windex w/Ammonia D is a registered trademark of Drackett Products Company

SAFETY

The processing guidance given in this documentation is given in good faith and the trust that in all cases you wear the correct Personal Protective Equipment (PPE), e.g. helmet, proper gloves, safety goggles etc. to safely fabricate, e.g. (but not limited to) sawing, cutting, forming our sheets and films. In all cases you should follow local and national regulations around the wear of PPE's prescribed or mandatory to perform these tasks in a safely manor.

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LEXAN™ POLYCARBONATE FILM & SHEET Tough, Virtually Unbreakable

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