

# LEXAN™ HPxxX FILM

## PRODUCT DATASHEET

### DESCRIPTION

LEXAN™ HPxxX graphic film is a first-surface printable high-performance coated film offering high quality chemical/abrasion resistance, plus very good UV resistance. These performance capabilities, along with LEXAN film's ease of processing, make HPxxX film a good choice for outdoor and indoor graphic applications where color stability and the ability to use light or white ink systems are important. Suitable applications include: Appliance Labels, Warning Labels on Outdoor Equipment, Gasoline Pumps, Outdoor Lenses, Marine Graphics, Outdoor Menu Boards, Any Overlay Where Light or White Inks are used.

### TYPICAL PROPERTY VALUES

PROPERTY	ASTM TEST METHOD	UNITS USCS	VALUE	ISO TEST METHOD	UNITS (SI)	VALUE
<b>MECHANICAL</b>						
Tensile Strength @ Yield	ASTM D882	psi	8800	ISO 527	MPa	60
Ultimate	ASTM D882	psi	9000	ISO 527	MPa	62
Tear Strength						
Initiation	ASTM D1004	lb/mil	1.51	ISO 34	kN/m	264
Propagation	ASTM D1922	g/mil	40		kN/m	14
<b>THERMAL</b>						
Vicat Softening Temperature, B	ASTM 1525	°F	320	ISO 320	°C	160
Heat Deflection Temp. by TMA at 1.8 Mpa		°F	290	ISO 75 Modified	°C	145
Shrinkage at 302°F (150°C)	ASTM D1204	%	1.40%			1.40%
<b>PHYSICAL</b>						
Density	ASTM D792	slug/ft <sup>3</sup>	2.3	ISO 1183	Kg/m <sup>3</sup>	1200
Surface Energy (1st surface / 2 <sup>nd</sup> surface)	ASTM D5946-01	-	37/34			
Surface Tension (1st surface / 2 <sup>nd</sup> surface)	Dyne Pens	Dyne	36-38/38-40			
Pencil Hardness (1st surface / 2 <sup>nd</sup> surface)	ASTM D3363	-	HB-F/B-HB			
Taber Abrasion	ASTM D1044	delta Haze	11			
<b>OPTICAL</b>						
Light Transmission	ASTM D1003	%	92			
Yellowness Index	ASTM D1925	%	0.7			
Haze	ASTM D1003	%	0.5			
Gloss over Flat Black min/max @ 60	ASTM D523-60	%	92	ISO 2813	%	92
UV %Transmission at 380 nm	UV/Visual Spectroscopy	%	39			

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

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## MANUFACTURING SPECIFICATIONS

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NOMINAL GAUGE RANGES	MIN./MAX LIMIT OF NOMINAL
0.007" (0.175mm)	-10% / +24%
0.010" (0.250mm)	-10% / +20%
0.015" (0.375mm)	-5% / +12%
0.020" (0.500mm)	-5% / +10%

## UV RESISTANCE

LEXAN HPxxX film utilizes a proprietary coating technology developed by SABIC. This special coating resists virtually all yellowing and hazing – no matter how bright the sun. With a yellowness index of 3.0 at 1000 hours of QUV testing, LEXAN HPxxX film is a natural choice for demanding outdoor applications and indoor applications where color stability and first-surface printability is important.

## CHEMICAL AND ABRASION RESISTANCE

A unique feature of LEXAN HPxxX film is its 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 hardness of the coating can be enhanced by exposing the coated surface of the film to UV ink curing conditions. We recommend that only UV-curable inks which are compatible with LEXAN HP films be used. Please consult the LEXAN HP Films Technical Guide for more details. Along with very good UV resistance, LEXAN HPxxX film also has chemical and abrasion resistance comparable with the original HPS series of films.

## TABER ABRASION RESISTANCE (ASTM D1044) LEXAN HPxxX GRAPHIC FILM

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CONDITION	UNITS	AS MANUFACTURED	POST CURED †
<b>CS10F WHEEL, 500 GRAMS</b>			
25	Change in % Haze	1.5	2
50	Change in % Haze	2.5	3.4
100	Change in % Haze	3.5	5.5
200	Change in % Haze	7.5	13.1

† 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 <sup>1</sup>	
	As Manufactured	Post Cured
One Hour Continuous Surface Contact at 73° F		
Acetone	Failed	Failed
MEK	Failed	Passed
Toluene	Passed	Passed
Methylene Chloride	Failed	Failed
Isopropyl Alcohol	Passed	Passed
Cyclohexanone	Passed	Passed
Ethyl Acetate	Passed	Passed
40% NaOH	Passed	Passed
Concentrated HCl	Passed	Passed
Gasoline (Regular)	Passed	Passed
Gasoline (Unleaded)	Passed	Passed
Butyl Cellosolve	Failed	Passed

24 hour continuous Surface Contact at 120°F		* A few small coating blisters
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	Failed	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

<sup>1</sup> 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

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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 Dracett Products Company

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