

## Description

Lexan HP92X 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 HP92X 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
Propogation	ASTM D1922	g/mil	40		kN/m	14
<b>Thermal</b>						
Vicat Softening Temperature, B	ASTM 1525	°F	320	ISO 306	°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%
Brittleness Temperature	ASTM D746	°F	-211		°C	-135
<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 / 2nd surface)	ASTM D5946-01	-	37/34			
Surface Tension (1st surface / 2nd surface)	Dyne Pens	Dyne	36-38/ 38-40			
Pencil Hardness (1st surface / 2nd surface)	ASTM D3363	-	hb-f / b-hb			
Taber Abrasion	ASTM D1044	delta Haze	11			
<b>Optical</b>						
Refractive Index @77 °F(25°C)	ASTM D542A	-	1.5			
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			

## UV Resistance

Lexan HP92X film utilizes a proprietary coating technology developed by SABIC Innovative Plastics. 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 HP92X 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 HP92X 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 HPXXW film also has chemical and abrasion resistance comparable with the original HPS series of films.

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

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**Taber Abrasion Resistance (ASTM D1044)**

**Lexan HP92X Graphic Film**

Condition CS10F Wheel 500 Grams	Units	As Manufactured	Post Cured <sup>‡</sup>
25	Change in % Haze	3	2
50	Change in % Haze	4.5	3.4
100	Change in % Haze	6.2	5.5
200	Change in % Haze	14.4	13.1

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

**Manufacturing Specifications**

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%

**Chemical Resistance**

Chemical	Results <sup>1</sup>	
	As Manufactured	Post Cured <sup>‡</sup>
<b>One Hour Continuous Surface Contact at 73° F</b>		
Acetone	Failed	Failed
MEK	Failed	Passed
Toluene	Passed	Passed
Methylene Chloride	Failed	Failed
Isopropyl Alcohol	Passed	Passed
Cyclohexanone	Passed	Passed
Ethyl Acetate	Passed	Passed
Xylene	Passed	Passed
40% NaOH	Passed	Passed
Concentrated HCl	Passed	Passed
Gasoline (Regular)	Passed	Passed
Gasoline (Unleaded)	Passed	Passed
Butyl Cellosolve	Failed	Passed
<b>24 Hour Surface Exposure at 120° F</b>		
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

i 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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