

Lexan[®] HPXXS Film

Product Datasheet

DESCRIPTION

Lexan[®] HPXXS 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 Values¹

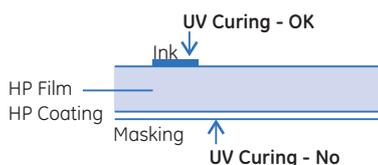
Property	ASTM (ISO) Test Method	Units USCS (SI)	HP12S	HP40S	HP60S	HP92S
Mechanical						
Tensile Strength						
@ Yield	ASTM D882 (ISO 527)	psi (MPa)	8800 (60)	8800 (60)	8800 (60)	8800 (60)
Ultimate	ASTM D882 (ISO 527)	psi (MPa)	9000 (62)	9000 (62)	9000 (62)	9000 (62)
Tear Strength						
Initiation	ASTM D1004	lb/mil (kN/m)	1.51 (264)	1.51 (264)	1.51 (264)	1.51 (264)
Propogation	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)	290 (145)	290 (145)	290 (145)
Shrinkage at 302 °F (150 °C)	ASTM D1204	%	1.40%	1.40%	1.40%	1.40%
Physical						
Density	ASTM D792 (ISO 1183)	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 (1st surface / 2nd surface)	ASTM D3363	-	hb-f/b-hb	hb-f/b-hb	hb-f/b-hb	hb-f/b-hb
Taber Abrasion	ASTM D1044	delta Haze	<2	4	3	4
Optical						
Refractive Index @ 77 °F (25 °C)	ASTM D542A	-	1.5	1.5	1.5	1.5
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
Gloss over Flat Black min/max @ 60°	ASTM D523-60 (ISO 2813)	-	12	40	60	92

Manufacturing Specifications

Nominal Gauge Ranges	Min./Max Limit of Nominal
0.007" (0.175 mm)	± 10%
0.010-0.015" (0.250-0.375 mm)	± 5%
0.020-0.030" (0.500-0.750 mm)	± 3%

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.



1 These are typical properties and are not intended for specification purposes. If minimum certifiable properties are required, please contact your local GE Advanced Materials, Specialty Film & Sheet representative or the GE Advanced Materials, Specialty Film & Sheet Quality Services Department. Reported values are based on 0.010" (0.250 mm) thickness unless otherwise noted.
* Lexan is a trademark of General Electric Company.

GE Advanced Materials Specialty Film & Sheet

CHEMICAL AND ABRASION RESISTANCE

A unique feature of Lexan® HPXXS Films is receptivity to multiplepass, 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 HPXXW Grapic Film

Condition CS10F Wheel 500 grams	Units	As Manufactured	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.

- * Wisk is a registered trademark of Lever Brothers Company
- * Formula 409 is a registered trademark of 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

* 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.

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
24 Hour Surface Exposure 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

Europe:

GE Advanced Materials
Specialty Film & Sheet
Plasticslaan 1
PO Box 112
NL - 4600 AC Bergen op Zoom
The Netherlands
Tel. (31) (164) 292742
Fax. (31) (164) 291986

Americas:

GE Advanced Materials
Specialty Film & Sheet
One Plastics Avenue
Pittsfield, MA 01201
USA
Tel. (1) (413) 448 7110
Fax. (1) (413) 448 7506

Pacific:

GE Advanced Materials
Specialty Film & Sheet
1266 Nanjing Road (W)
16th Floor, Plaza 66
200040 Shanghai
China
Tel. (86) 21 6288 1088
Fax. (86) 21 6288 0818

For more information call:
(800) 451-3147

Visit us online at:
www.geadvancedmaterials.com

©2004 General Electric Company
All Rights Reserved

DISCLAIMER: THE MATERIALS, PRODUCTS AND SERVICES OF THE BUSINESSES MAKING UP THE GE ADVANCED MATERIALS UNIT OF GENERAL ELECTRIC COMPANY, ITS SUBSIDIARIES AND AFFILIATES, ARE SOLD SUBJECT TO GE ADVANCED MATERIALS' STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, GE ADVANCED MATERIALS MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (i) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING GE ADVANCED MATERIALS' PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN GE ADVANCED MATERIALS' STANDARD CONDITIONS OF SALE, GE ADVANCED MATERIALS AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN. Each user bears full responsibility for making its own determination as to the suitability of GE Advanced Materials' products, materials, services, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating GE Advanced Materials' products, materials, or services will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of GE Advanced Materials' Standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by GE Advanced Materials. No statement contained herein concerning a possible or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of General Electric Company or any of its subsidiaries or affiliates covering such use or design, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right.

*Trademark of General Electric Company.

