POLYVANTIS

PRODUCT DATASHEET

# LEXAN™ DPHPxxW FILM

## DESCRIPTION

LEXAN™ DPHPxxW 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 ™ DPHPxxW graphic film is a high-performance coated film offering very good chemical/abrasion resistance, plus very good UV resistance. These performance capabilities, along with LEXAN film's ease of processing, make DPHPxxW film a good choice for outdoor graphic applications such as: Warning Labels, Outdoor Menu Boards, Gasoline Pumps, Outdoor Lenses, and Marine Graphics.

## TYPICAL PROPERTY VALUES*

| PROPERTY | ASTM (ISO) TEST METHOD | UNITS USCS (SI) | HP12W | HP92W |
|---|---|---|---|---|
| MECHANICAL | | | | |
| Tensile Strength @ Yield | ASTM D882 (ISO 527) | psi (MPa) | 8800 (60) | 8800 (60) |
| Ultimate | ASTM D882 (ISO 527) | psi (MPa) | 9000 (62) | 9000 (62) |
| Tear Strength | | | | |
| Initiation | ASTM D1004 | lb/mil (kN/m) | 1.51 (264) | 1.51 (264) |
| Propagation | ASTM D1922 | g/mil (kN/m) | 40 (14) | 40 (14) |
| | | | | |
| THERMAL | | | | |
| Vicat Softening Temperature, B | ASTM 1525 | °F (°C) | 320 (160) | 320 (160) |
| Heat Deflection Temp. by TMA at 1.8 | ISO 75 Modified | °F (°C) | 290 (145) | 290 (145) |
| Shrinkage at 302°F (150°C) | ASTM D1204 | % | 1.40% | 1.40% |
| | | | | |
| PHYSICAL | | | | |
| Density | ASTM D792 (ISO 1183) | slug/ft$^3$ (kg/m$^3$) | 2.3 (1200) | 2.3 (1200) |
| Surface Energy (1st surface / 2nd | ASTM D5946-01 | - | NA/34 | NA/34 |
| Surface Tension (1st surface / 2nd | Dyne Pens | Dyne | NA/38-40 | NA/38-40 |
| Pencil Hardness (coated surface) | ASTM D3363 | - | HB-F | HB-F |
| Taber Abrasion | ASTM D1044 | delta Haze | <1 | <2 |
| | | | | |
| OPTICAL | | | | |
| Light Transmission | ASTM D1003 | % | 90 | 92 |
| Yellowness Index | ASTM D1925 | % | 1.3 | 0.7 |
| Haze | ASTM D1003 | % | 56 | 0.5 |
| Gloss over Flat Black min/max @ 60 | ASTM D523-60 (ISO 2813) | _ | 12 | 92 |
| UV% Transmission at 380 nm | UV/Visual Spectroscopy | % | 14 | 39 |

- 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.

## MANUFACTURING SPECIFICATIONS

For Gloss level 12 and above:

| NOMINAL GAUGE RANGES | MIN./MAX LIMIT OF NOMINAL |
|---|---|
| ≤0.010" (0250mm) | ± 10% |
| >0.010" (0.250 mm) | ± 5% |

For Gloss level below 12:

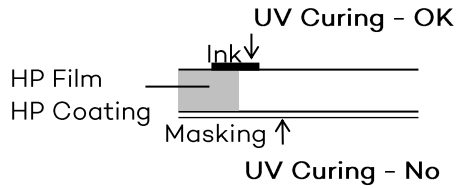
| NOMINAL GAUGE RANGES | MIN./MAX LIMIT OF NOMINAL |
|---|---|
| ≤0.010" (0250mm) | - 10%, +20% |
| >0.010" (0.250 mm) | -5%, +10% |

## UV RESISTANCE

LEXAN™ DPHPxxW film utilizes a proprietary coating technology developed by POLYVANTIS. This special coating resists yellowing and hazing - no matter how bright the sun. With a yellowness index of less than 3.0 at 1000 hours of QUV testing and less than 2.0 at 1000 hours of Xenon Arc testing. LEXAN DPHPxxW film is a natural choice for demanding outdoor applications.

## 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

Along with very good UV resistance, LEXAN DPHPxxW film also has chemical and abrasion resistance comparable with the original HPS series of films.

## TABER ABRASION RESISTANCE (ASTM D1044) LEXAN™ DPHPxxW GRAPHIC FILM

| CONDITION CS10F WHEEL, 500 GRAMS | UNITS | HP12W | HP92W |
|---|---|---|---|
| 25 | Change in % Haze | 0.4 | 2 |
| 50 | Change in % Haze | 0.6 | 2.9 |
| 100 | Change in % Haze | 2 | 6.6 |
| 200 | Change in % Haze | 6.7 | 13.8 |

## CHEMICAL RESISTANCE

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

[¶] Wisk is a registered trademark of Lever Brothers Company

[#] 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 safe manor.

POLYVANTIS

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LEXAN™ POLYCARBONATE FILM & SHEET Tough, Virtually Unbreakable

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