

Lexan* film & sheet



Colors and design come to
life in the graphics industry

SABIC Innovative Plastics Specialty Film & Sheet provides value-added solutions across a wide variety of industries, ranging from graphics and electronics to building and construction. These solutions are founded on a portfolio of high quality materials backed by advanced technical support around the world.

SABIC Innovative Plastics benefits from global cross-business resources and expertise. The polymer processing development center in the USA and its technical centers in the Netherlands, Japan, China and India help keep customers at the leading edge of film and processing technology. Hands-on engineering support for customers covers most aspects of application development: from design reviews, prototyping and testing, to thermoforming, injection molding and insert mold decoration (IMD).

Lexan* polycarbonate graphic film & sheet

Clear added-value performance

For the graphics industry, a range of tailor-made Lexan polycarbonate graphic film and sheet products helps deliver top quality performance and unlimited versatility. These materials are characterized by outstanding optical clarity and mechanical strength, consistent printability and ease of processing. Top quality is available in a wide choice of standard and high performance grades and a variety of surface finishes and textures. From anti-fog goggles to skid-resistant floor graphics, from crystal clear LED displays to large-scale in-mold decorated parts, end products are durable, eye-catching and cost-effective.

Printability

Lexan polycarbonate films may be an excellent candidate for screen or offset printing and they offer unlimited possibilities to achieve a variety of graphic effects and intricate designs. They can be first (front) surface printed and, due to their excellent clarity across all gauges, they may be suitable for second-surface printing. They offer excellent ink adhesion without pre-treatment and consistently enhance colors, with no loss of depth or vividness in second-surface printing. The films are compatible with a broad range of inks including conventional solvent-based inks, many UV-curing inks, water-based inks and infrared curing inks.

Optical clarity

Across all gauges, high light transmission and low haze values make Lexan film one of the highest clarity films available. Most Lexan films transmit 90% of visible light, which is a key reason why these materials are commonly used for LED/LC windows.

Thermal stability

The high heat resistance and dimensional stability of Lexan film allows close-tolerance registration after repeated heating and drying cycles, as well as close proximity to illumination sources and other heat-emitting components. The film permits end-use performance to 133°C (270°F), with a continuous use temperature of 85°C (185°F).

Formability

Lexan film's high melt strength facilitates thermoforming using a wide range of techniques. These include vacuum forming, pressure forming, embossing, matched metal forming, hydroforming, drape forming, thermal forming and pressure assist forming. Lexan film also offers the capability to produce deep-drawn, three-dimensional parts.

Design freedom

The Lexan film portfolio provides broad design versatility through its wide range of product options. These fall into four broad categories: polished films, textured films, flame retardant films and high performance films.



Polished grades

Lexan* polished films and sheet offer 86% to 92% light transmission across all gauges. Their outstanding clarity may make them well suited for LED/LCD display windows and for applications where second-surface printing is desirable, such as fascia panels for household appliances, audio/video equipment and automotive dials. These films are available in custom colors, subject to a minimum order quantity. In addition, various maskings are available to meet customer requirements.

The addition of polished optical grades to the Lexan film portfolio provides superior film cleanliness and/

or low stress for demanding optical applications. Extruded in a Class 10.000 clean room, these materials are manufactured from Lexan optical quality resin, which is renowned for its consistent high purity and processability.

Lexan films with both surfaces polished can be embossed or selectively textured by screen printing for aesthetic purposes. Screen printing can also provide a mar-resistant finish. Standard grades are available specifically for use with conventional solvent-based inks as well as UV-curing inks.

Polished graphic grades (gauges up to 750 microns)

| Grade | Surface | Gauges (microns) | Gauges (mills) | Roll widths (mm) | Roll widths (inch) |
|-------------|-------------------------------|------------------|----------------|-------------------|--------------------|
| 8010 | clear, polished | 125 - 750 | 5 - 30 | 915 / 1220 (1524) | 36 / 48 (60) |
| 8020 | coloured, polished | 250 - 750 | 10 - 30 | 915 / 1220 | 36 / 48 |
| 8040 | clear, FDA approved, polished | 175 - 750 | 7 - 30 | 915 / 1220 (1524) | 36 / 48 (60) |

Polished optical grades

| Grade | Surface | Gauges (microns) | Gauges (mills) | Roll widths (mm) | Roll widths (inch) |
|--------------|------------------------------|------------------|----------------|------------------|--------------------|
| OQ | optically clear polished | 175 & 650 | 7 & 25 | 1220 / 1270 | 48 / 50 |
| T2FOQ | optically clear / low stress | 175 - 500 | 7 - 20 | 1220 / 1270 | 48 / 50 |

Graphic sheet (gauges above 750 microns)

| Grade | Surface | Gauges (microns) | Gauges (mills) | Max sheets sizes (mm) | Max sheets sizes (inch) |
|--------------|------------------|------------------|----------------|-----------------------|-------------------------|
| 80330 | clear, polished | 750 - 2000 | 30 - 80 | 1250 x 2050 | 50 x 80 |
| 80550 | clear, polished* | 750 - 2000 | 30 - 80 | 1250 x 2050 | 50 x 80 |
| 80650 | clear, polished* | 750 - 2000 | 30 - 80 | 1250 x 2050 | 50 x 80 |

* Specifically developed for UV curing ink systems.

Lexan 80330

- High heat resistance
- Excellent dimensional stability
- Excellent impact performance
- Superior optical properties for back-printed, see-through applications
- High precision die-cutting with burr-free edges



Lexan 8010

- True color reproduction
- Excellent depth effect in multi-layer printing
- UV/non-UV stabilized



Lexan 80550/80650

- High heat resistance
- Excellent dimensional stability
- Excellent impact performance
- Tailor-made for UV curing ink systems
- Substrate color consistency
- Superior brightness (towards blue)
- Optimum ink adhesion, even at low energy curing levels
- High precision die-cutting with burr-free edges



Lexan 8040

- FDA approved
- True color reproduction
- Excellent depth effect
- High heat resistance
- Excellent dimensional stability
- UV/Non-UV stabilized



Textured grades

The range of Lexan* textured films offers broad design flexibility and aesthetic appeal. Many grades are available in custom colors, subject to a minimum order quantity. Products can be designed with square corners, straight sides, narrow-width lines and flat plateaus. Consistent high performance in embossed applications is possible thanks to the films' outstanding dimensional stability and ductility.

Lexan textured films are typically used for membrane switch overlays, automotive dials, audio/video remote control fascias, labels for industrial equipment, control panels for HV/AC equipment and digital media applications.

- Polished** Excellent printing surface with true ink color fidelity and optics. Particularly effective for LED/LCD windows. Provides primary substrate finish for screener-applied selective textures.
- Fine matte:** Good printing surface, Offers increased scratch resistance compared to polished. Wet-out-window capable for automotive display applications.
- Matte** Light diffuser. Hides filaments and eliminates 'hot spots' in back-lit applications. The preferred finish for 'dead front' graphics. Offers reduced surface reflection and gloss.
- Velvet** Hides scratches, fingerprints and marring for heavy-use applications. Also acts as a diffuser for "windowed" or back-lit applications.
- Suede** Excellent in very heavy-wear applications. Resists abrasion while maintaining its attractive appearance.

Textured grades (gauges up to 750 microns)

Textured one side

| Grade | Surface | Gauges (microns) | Gauges (mills) | Roll widths (mm) | Roll widths (inch) |
|--------------|-----------------------|------------------|----------------|------------------|--------------------|
| 8A13 | matte / polished | 125 - 635 | 5 - 25 | 915 / 1220 | 36 / 48 |
| 8A13F | fine matte / polished | 250 - 500 | 10 - 20 | 915 / 1220 | 36 / 48 |
| 8A35 | velvet / polished | 125 - 750 | 5 - 30 | 915 / 1220 | 36 / 48 |
| 8A37 | brushed / polished | 250 - 500 | 10 - 20 | 915 / 1220 | 36 / 48 |
| 8A73 | matte / polished | 250 - 500 | 10 - 20 | 915 / 1220 | 36 / 48 |
| T2F | matte / polished | 175 - 635 | 7 - 25 | 1220 / 1524 | 48 / 60 |

Textured both sides

| Grade | Surface | Gauges (microns) | Gauges (mills) | Roll widths (mm) | Roll widths (inch) |
|--------------|---------------------|------------------|----------------|-------------------|--------------------|
| 8B35 | velvet / matte | 75 - 500 | 3 - 20 | 915 / 1220 / 1524 | 36 / 48 / 60 |
| 8B35E | velvet / matte | 125 - 500 | 5 - 20 | 915 / 1220 | 36 / 48 |
| 8B35F | velvet / fine matte | 175 - 750 | 7 - 30 | 915 / 1220 | 36 / 48 |
| 8B36 | suede / matte | 250 - 500 | 10 - 20 | 915 / 1220 | 36 / 48 |
| 8B38 | velvet / fine matte | 175 - 1000** | 17 - 40 | 915 / 1220 | 36 / 48 |
| DM35 | velvet / matte | 125 - 375 | 5 - 15 | 915 / 1524 | 36 / 61 |
| GS135 | velvet / matte | 250 - 500 | 10 - 20 | 1220 | 46 |

** 1000 only available sheeted 2050 x 1250 mm

Textured grades

Lexan* 8A13/8A13F

- High thermal stability permits close proximity to illumination sources/heat emitting components
- Dimensional stability allows close tolerance printing registration after repeated heating and drying cycles



Lexan GS135

- Transparent PVF/PC laminated film
- Superior chemical resistance
- Long-term weatherability
- Improved abrasion resistance
- Rated UL94 VTMO



Lexan 8A35

- High temperature resistance
- Excellent dimensional stability
- Mar resistance



Lexan TRUE-2-FORM* (T2F*)

- Excellent formability facilitates large-scale production using IMD
- Tight graphics registration
- Capability to mold large, deep parts



Lexan 8A73

- Superior light diffusion properties
- Superior clean edge die-cut ability



Lexan DM Series

- Scratch-resistant first surface
- Custom widths and lengths for digital media
- Reverse wound available



Lexan 8B35

- Excellent printability without pre-treatment



Lexan 8B38

- Low gloss
- Wide range of surface finishes



Textured grades - flame retardant

Flame retardant grades

Lexan flame retardant films offer screen printers the same printability and ink adhesion as other Lexan graphic films, combined with superior flame retardancy, (meeting UL94-V0 and VTMO standards), excellent dielectric strength, low moisture absorption and high dimensional stability. These films are available in a choice of textured finishes.



Flame retardant grade

| Grade | Surface | Gauges (microns) | Gauges (mills) | Roll widths (mm) | Roll widths (inch) |
|-------------|---------------------|------------------|----------------|-------------------|--------------------|
| FR60 | polished / polished | 250 - 750 | 10 - 30 | 915 / 1220 (1524) | 36 / 48 / 60 |
| FR63 | matte, polished | 250 - 635 | 10 - 25 | 915 / 1220 | 36 / 48 |
| FR65 | velvet / matte | 250 - 500 | 10 - 20 | 915 / 1220 (1524) | 36 / 48 / 60 |
| FR66 | suede / matte | 250 - 500 | 10 - 20 | 915 / 1220 | 36 / 48 |
| FR83 | matte, polished | 50 - 175 | 2 - 7 | 915 | 36 |

High performance grades

Lexan* high performance films offer exceptional resistance to attack by chemicals and to abrasion, making them good candidates for a wide range of applications. These include flat membrane switch overlays for microwave ovens, lenses for cell phones and other handheld devices, anti-reflective computer screens and display windows for audio/video equipment, labels for washing machines and anti-fog lenses for goggles, eyewear and gauges.

Chemical and abrasion resistant grades

| Grade | Coated surface | Uncoated surface | Gauges (microns) | Gauges (mills) | Roll widths (mm) | Roll widths (inch) |
|--------------------|-----------------------------|------------------|------------------|----------------|------------------|--------------------|
| HP92 S or H | polished (92% gloss) | polished | 175 - 750 | 7 - 30 | 1220 | 48 |
| HP60 S or H | very fine matte (60% gloss) | polished | 175 - 750 | 7 - 30 | 1220 | 48 |
| HP40 S or H | fine matte (40% gloss) | polished | 175 - 750 | 7 - 30 | 1220 | 48 |
| HP12 S or H | matte (12% gloss) | polished | 175 - 750 | 7 - 30 | 1220 | 48 |

Chemical, abrasion and UV resistant grades

| Grade | Coated surface | Uncoated surface | Gauges (microns) | Gauges (mills) | Roll widths (mm) | Roll widths (inch) |
|----------------|----------------------|------------------|------------------|----------------|------------------|--------------------|
| HP92 W | polished (92% gloss) | polished | 175 - 635 | 7 - 25 | 1220 | 48 |
| HP12 W | matte (12% gloss) | polished | 175 - 635 | 7 - 25 | 1220 | 48 |
| HP92 WP | polished (92% gloss) | polished | 175 - 635 | 7 - 25 | 1220 | 48 |

Anti-fog grades

| Grade | Coated surface | Uncoated surface | Gauges (microns) | Gauges (mills) | Roll widths (mm) | Roll widths (inch) |
|--------------|----------------|------------------|------------------|----------------|------------------|--------------------|
| HPFAF | anti-fog | polished | 175 - 750 | 7 - 30 | 1220 | 48 |

Abrasion resistant anti-fog grades

| Grade | 1st Coated surface | 2nd Coated surface | Gauges (microns) | Gauges (mills) | Roll widths (mm) | Roll widths (inch) |
|---------------|--------------------------------|--------------------|------------------|----------------|------------------|--------------------|
| HP92AF | abrasion resistant (92% gloss) | anti-fog coating | 500 - 750 | 20 - 30 | 1220 | 48 |

Optical performance

| Grade | Coated surface | Uncoated surface | Gauges (microns) | Gauges (mills) | Roll widths (mm) | Roll widths (inch) |
|--------------|-------------------------|------------------------|------------------|----------------|------------------|--------------------|
| OQ92S | 92% gloss optical grade | polished optical grade | 175 - 750 | 7 - 30 | 1220 | 48 |

High performance grades

Lexan* HP92S

- First surface printable
- Excellent abrasion resistance
- Chemical resistance



Lexan HP92H

- Excellent chemical and abrasion resistance
- Extreme durability



Lexan HP92W

- High UV, chemical and abrasion resistance
- Extreme durability



Lexan HPFAF

- One-side hard-coated
- Permanent anti-fog properties
- Scratch and abrasion resistance
- Antistatic properties
- Clear/custom colors available



Lexan HP92AF

- Two-side hard-coated
- 2nd surface: permanent anti-fog properties
- Scratch and abrasion resistance
- Antistatic properties
- Clear film



Lexan HP92WP

- High UV, chemical and abrasion resistance
- Hard-coated surface
- Printable



Global application development

SABIC Innovative Plastics technical support

SABIC Innovative Plastics' Specialty Film & Sheet business is a leading supplier of high-performance engineering film and sheet products, serving customers around the world in a broad spectrum of industries and applications.

Recognized as a center of excellence, the polymer processing development center in the USA is equipped with state-of-the-art laboratories and facilities for printing, thermoforming, injection molding and prototype testing. Engineers, designers and technologists explore and extend the boundaries of film application development through sophisticated material analysis and advanced processing technology. This includes vacuum and pressure forming, silk screening, IMD and embossing.

With satellite development centers in the Netherlands, Japan, China and India, SABIC Innovative Plastics Specialty Film & Sheet offers customers around the world access to this full range of laboratory, testing and design services, complemented by local hands-on technical support.



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