



STRONG+ VERSATILE

LEXAN™ EXL RESIN



CHEMISTRY THAT MATTERS™

SABIC

Founded in 1976, SABIC is today the first public, global multinational enterprise headquartered in the Middle East. Our products range from bulk commodity chemicals to highly engineered plastics for demanding applications. We are a leading producer of polyethylene, polypropylene, glycols, methanol and fertilizers and the world's third largest polyolefin producer.

SABIC's offerings include Chemicals, Polymers, Specialties, Agri-Nutrients and Metals. In Saudi Arabia, the Netherlands, Spain, the USA, India, China and Japan, our dedicated Technology & Innovation centers research ways to meet our customers' needs with excellence.

INNOVATING FOR CUSTOMER SUCCESS

We believe that SABIC customers deserve the full benefit of every advantage our enterprise can offer. After all, our success is defined by our customers' success. And with more than 80 years of experience pioneering advanced engineering thermoplastics, SABIC is positioned to help create new opportunities for growth and breakthrough applications.

We offer expertise and experience to our customers in a variety of ways:

- Material solutions to help drive innovation and market leadership.
- Design, logistics and processing expertise to spark new ideas and better efficiencies.
- Unwavering commitment to build long-term relationships with ingenuity, trust and continuous improvement.

It's what we strive for and work to deliver... a mutual benefit.

Excellence and nothing less.

INTRODUCTION

When impact resistance matters, LEXAN EXL resin can help make products better.

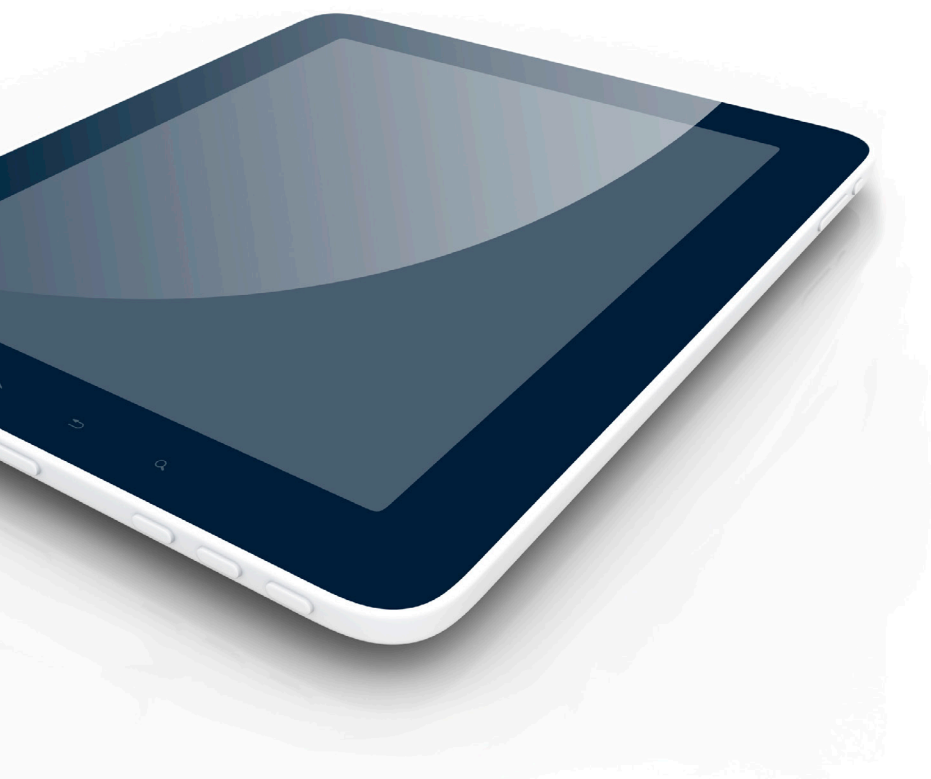
LEXAN EXL resin takes the strength of standard LEXAN resin - one of the toughest plastics available - to the next level. With even greater impact performance and low temperature ductility, LEXAN EXL resin forms the helmets of choice for hockey players, holding tough against the puck on ice-cold rinks. Outdoor mailbox units made with LEXAN EXL resin stand strong against vandals in the face of trying weather.

The product portfolio of LEXAN EXL resins - which includes flame retardant, UV-stabilized and high-flow products - offers outstanding performance in segments such as telecommunications, sporting goods, industrial devices, and automotive.

Design engineers seeking durability and flexibility can use LEXAN EXL resin to create new, innovative products with greater reliability, in many cases replacing traditional metal.

For superior aesthetics, LEXAN EXL resins also offer a broad spectrum of opaque and transparent colors, which can be custom color matched to specific requirements.

Parts made from LEXAN EXL resins can have high surface finish and outstanding appearance, making them suitable for many demanding applications such as mobile phones or helmets. LEXAN EXL resin helps mobile phone designers meet challenging drop test toughness requirements in cold outdoor environments.



POTENTIAL BENEFITS OF LEXAN EXL RESIN

Specify your performance requirements with the LEXAN EXL resin portfolio.

LEXAN EXL resins are available in pellet form for injection molding. The copolymer structure of LEXAN EXL resins combines the best of polycarbonate and siloxane properties, resulting in a significant upgrade to the polycarbonate and polycarbonate blend materials available in the market today.

The outstanding impact performance of these materials can be attributed to the low-temperature ductility of the silicone (see Figure 3). And because silicone is relatively unaffected by heat or humidity under typical aging conditions, the materials retain their properties longer than standard polycarbonate resins (see Figure 4).

POTENTIAL BENEFITS OF LEXAN EXL RESIN

Impact	Best-in-class ductility to -60 °C with an outstanding balance of ductility and viscosity
Weatherability	Excellent retention of mechanical properties upon outdoor exposure
Aging	Better retention of properties vs. other polycarbonate resins
Flame retardance	FR grades can be used in many ECO-compliant applications
Knitline strength	A significant improvement over PC/ABS material
Chemical resistance	Improved chemical resistance to some chemicals compared to standard polycarbonate

With confidence in our products and a strong commitment to our customers, we have established global manufacturing capability and supply. We can meet your material needs wherever you manufacture your product.

FIGURE 1 LEXAN EXL OPAQUE RESIN PORTFOLIO

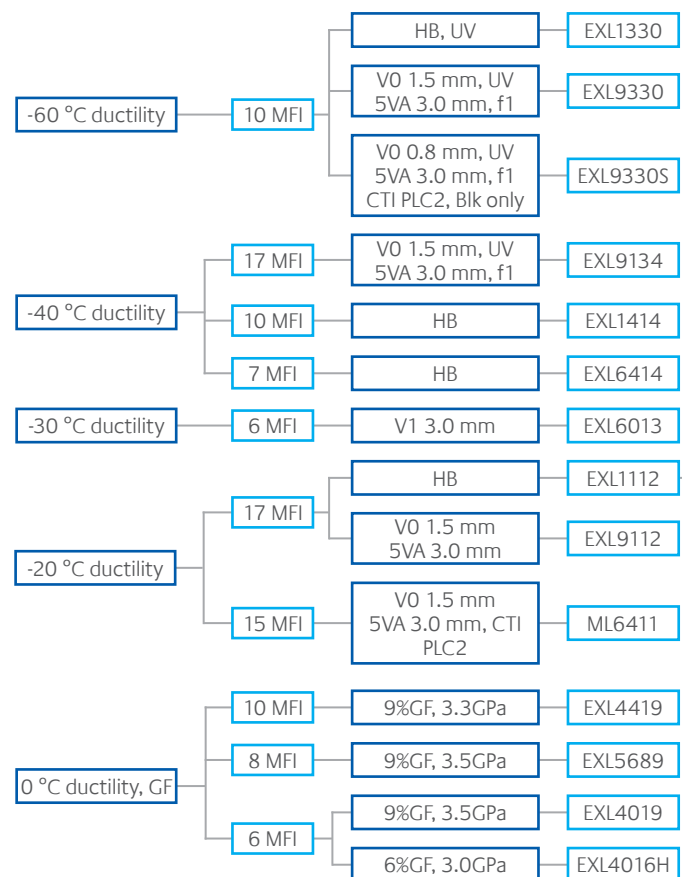


FIGURE 2 LEXAN EXL CLEAR RESIN PORTFOLIO

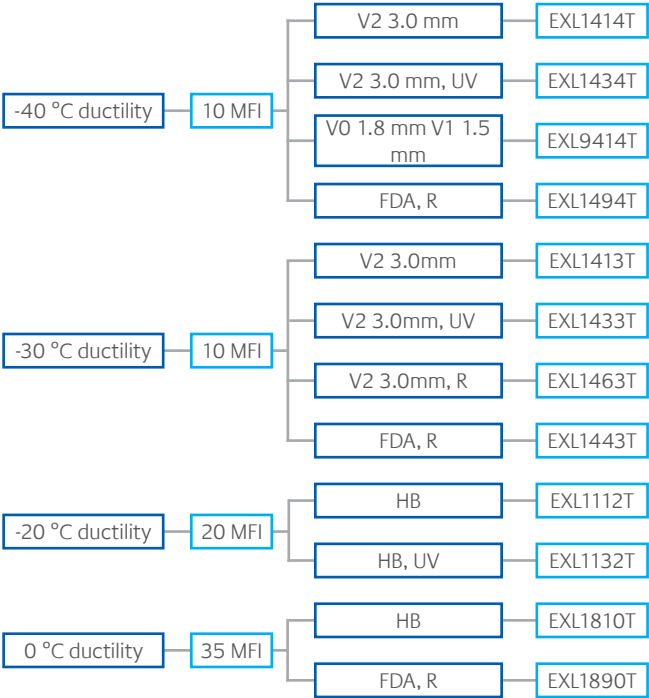


FIGURE 3 IMPACT PERFORMANCE

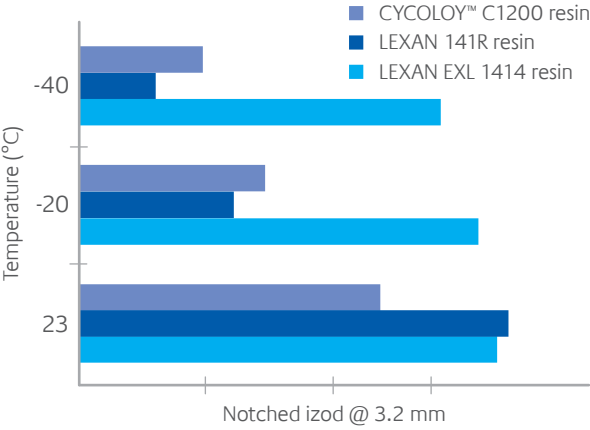
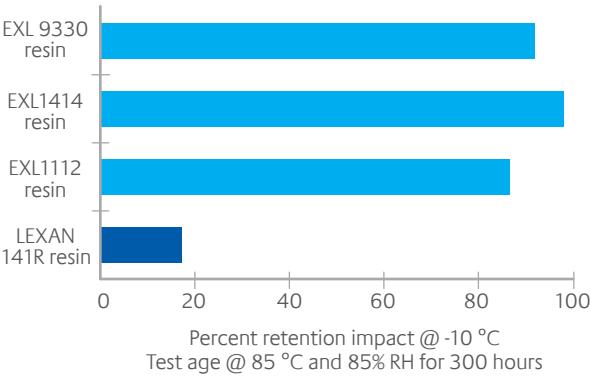


FIGURE 4 HEAT AND HUMIDITY PERFORMANCE



PROCESSING BENEFITS OF LEXAN EXL RESIN

Extensive studies at SABIC's Polymer Processing Development Center have found that compared to a standard polycarbonate resin of the same melt flow, LEXAN EXL resin often exhibits a 10% reduction in injection pressure (see Figure 4).

Note that the silicone component of the copolymer is bound to the resin, so there is very little tool deposit during molding. This still results in lower part ejection pressures (see Figure 5) due to its inherent high release properties.

Depending on tool design, it may be possible to reduce cycle times by up to 40% by using LEXAN EXL resin compared to PC resin. This may result in significant cost savings. Alternatively, if part release from the tool is a problem, LEXAN EXL resin may also be a useful solution.

Spiral flow studies have confirmed a significant improvement in flow length. It is also often possible to replace a standard 10-meltflow polycarbonate with a 17-meltflow LEXAN EXL resin, which has both improved flow and better low temperature ductility (see Figure 6).

FIGURE 5 EFFECTIVE VISCOSITY @ 315 °C MELT / 82 °C MOLD

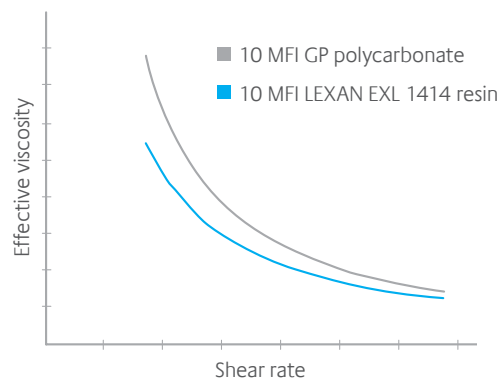
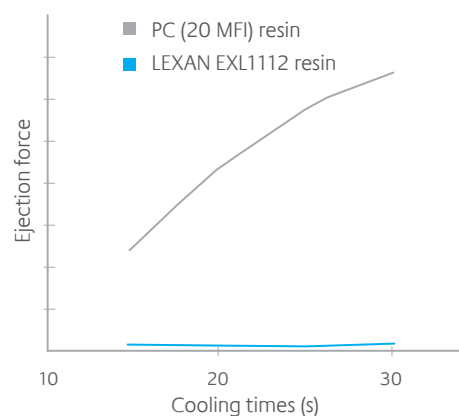


FIGURE 6 PART EJECTION PRESSURE

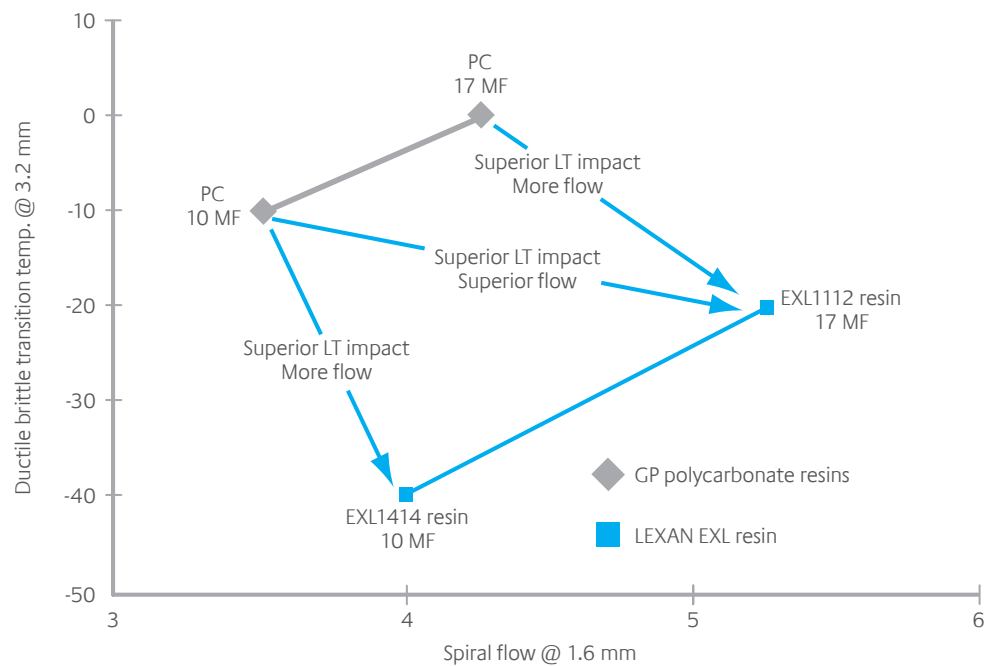


In summary, possible processing benefits when using LEXAN EXL resin (depending on tool design) include:

- Lower injection pressures
- Lower ejection pressures
- Higher flow
- Improved ductility/toughness
- Shorter production cycle time
- Lower draft angles
- Complete with snap fit, metal insert designs

The improved toughness of LEXAN EXL resin may offer a solution where standard PC or PC/ABS blends show limitations. Typically, LEXAN EXL resin will offer enhanced performance due to use of snap fit or metal insert designs and allowance for lower draft angles and lower levels of molded-in stresses, as compared to standard PC.

FIGURE 7 FLOW AND DUCTILITY BENEFITS



CONTACT US

Middle East and Africa

SABIC Global Headquarters

PO Box 5101
Riyadh 11422
Saudi Arabia
T +966 (0) 1 225 8000
F +966 (0) 1 225 9000
E info@sabic.com

Americas

2500 CityWest Boulevard
Suite 100
Houston, Texas 77042
USA
T +1 713 430 2301
E productinquiries@sabic.com

Technical Answer Center

T +1 800 845 0600

Europe

Plasticslaan 1
PO Box 117
4600 AC
Bergen op Zoom
The Netherlands
T +31 164 292911
F +31 164 292940

Technical Answer Center

T (0) 0 800 1 238 5060
T2 00 36 1 238 5060
E webinquiries@sabic.com

Asia Pacific

2550 Xiupu Road
Pudong
201319 Shanghai
China
T +86 21 2037 8188
F +86 21 2037 8288

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