



GE Advanced Materials



LEXAN[®] EXL Resin

Product managers can benefit when LEXAN® EXL resin makes their products better.

Building on the strength of standard LEXAN® resin – one of the toughest plastics available – LEXAN EXL resin has added even greater impact performance and low temperature ductility. So at ice-cold hockey rinks, helmets made with LEXAN EXL resin are chosen to hold tough against the puck. And LEXAN EXL resin helps outdoor mailbox units stand strong against vandals, no matter what the weather.

The new, expanded product portfolio of LEXAN EXL resins – which now 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 requiring durability and flexibility can use LEXAN EXL resin to create new, innovative products with greater reliability, in many cases replacing traditional metal.

And for superior aesthetics, LEXAN EXL resins also offer a broad spectrum of opaque 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.



Itech uses EXL1330 resin for its new ice hockey helmet.



American Locker has successfully used LEXAN EXL resin in its outdoor mailboxes for almost 10 years.



Motorola uses EXL1414 resin for its new V300 phone.

Figure 1 – The Opaque LEXAN EXL Resin Portfolio

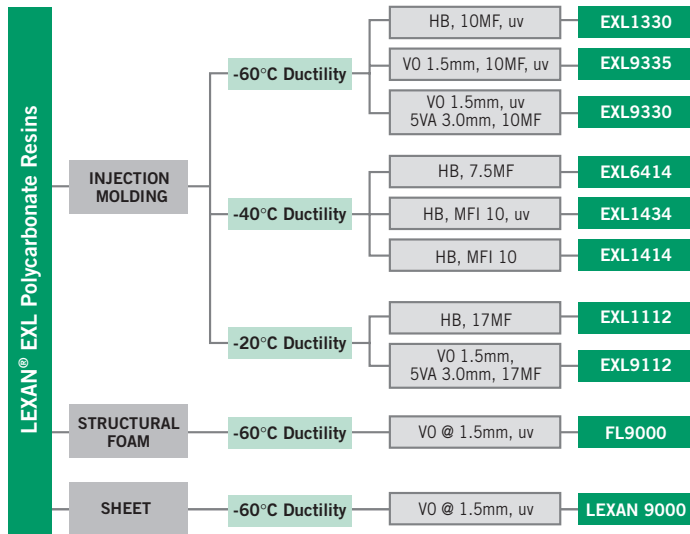


Figure 2 – Impact Performance

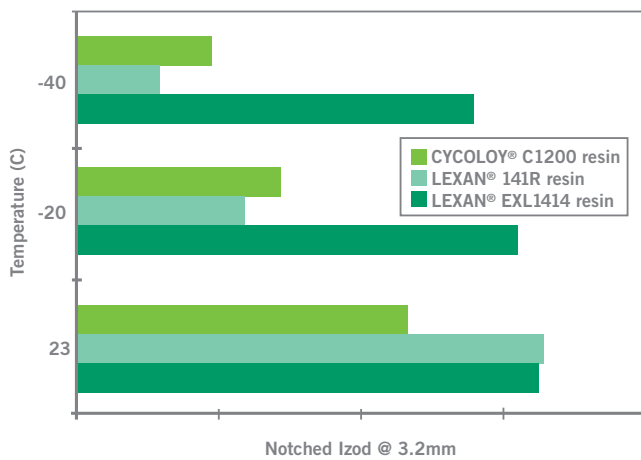
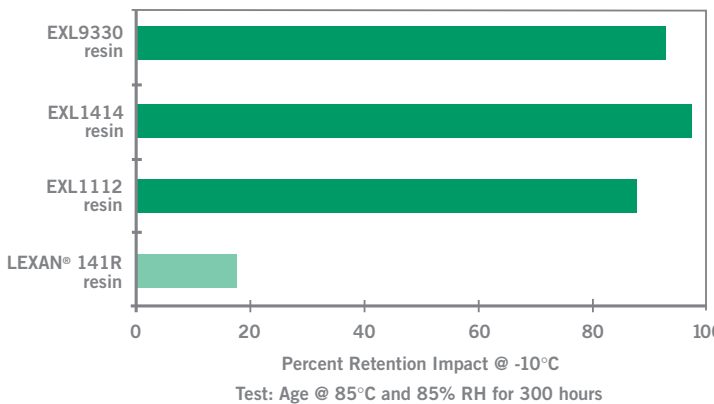


Figure 3 – Heat and Humidity Performance



Engineers can specify performance from the full LEXAN® EXL resin portfolio.

Potential Benefits of LEXAN® EXL Resin

Impact	Best-in-class ductility to -60°C
Flow	Outstanding balance of ductility and viscosity
Weatherability	Excellent retention of properties upon outdoor exposure
Aging	Better retention of properties vs. other polycarbonate resins
Flame Retardant	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

LEXAN EXL resins are available in pellet and sheet form for injection molding, structural-foam molding and thermoforming. 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. It is the low-temperature ductility of the silicone that gives these materials their outstanding impact performance (see Figure 2). And because silicone is relatively unaffected by heat or humidity, these materials retain their properties for a longer time than standard polycarbonate resins (see Figure 3).

As part of our commitment to these products, we have established global manufacturing capability and supply. Wherever you manufacture your product, we can meet your material needs.

New transparent resins built on the same LEXAN EXL resin technology are currently under development.

Figure 4 – Effective Viscosity @ 315°C Melt/82°C Mold

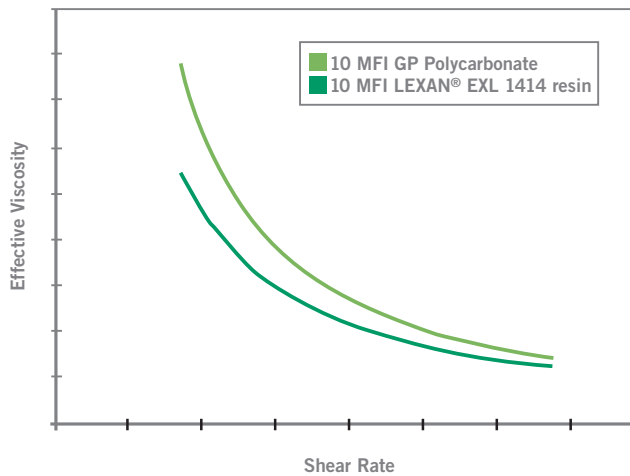


Figure 5 – Part Ejection Pressure

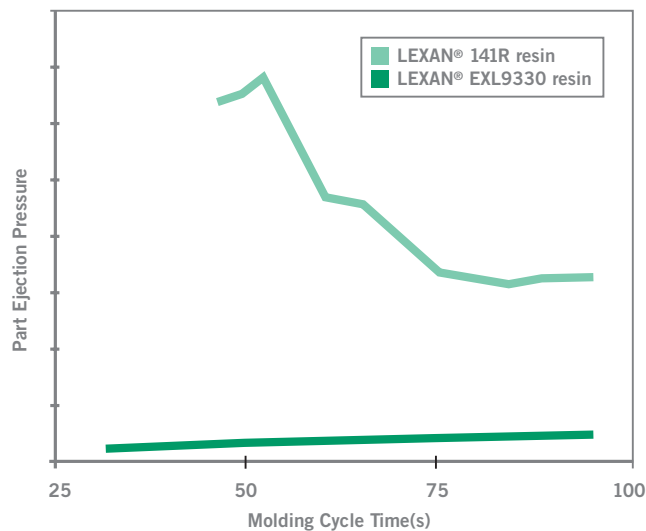
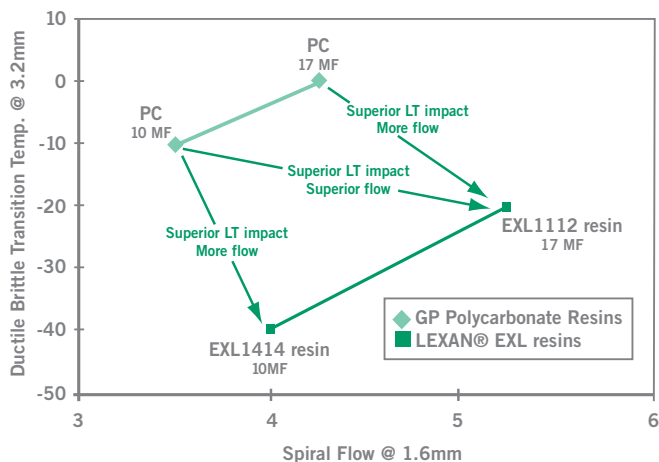


Figure 6 – Flow and Ductility Benefits



Life can get easier for molders when they use LEXAN® EXL resin, and recommend it to their customers.

The unique composition of LEXAN EXL resins can yield significant processing benefits. Extensive studies at GE Advanced Materials' Polymer Processing Development Center have found that compared to a standard polycarbonate of the same melt flow, LEXAN EXL resins often exhibit a 10% reduction in injection pressure (see Figure 4). The silicone component of the copolymer is bound to the resin, so there is very little tool deposit during molding, yet it 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 resins. This may result in significant cost savings compared to standard PC resins. Alternatively, if part sticking in the tool is a problem, LEXAN EXL resins may also be a useful solution.

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

Possible processing benefits when using LEXAN EXL resins (depending on tool design):

- Lower injection pressures
- Lower ejection pressures
- Higher flow
- Shorter production cycle time


Share our strength.


We've strengthened many of the properties of LEXAN® resin, including the brand. Using LEXAN EXL resin in consumer applications qualifies our customers to be considered for the LEXAN branding program.

Lexan® is a registered trademark of the General Electric Company.

When a puck hits it at 101 mph,
feel sorry for the puck.

Imagine going that fast and slamming into one of the world's toughest high impact plastics. GE Lexan® EXL resin. Lexan is what makes so many things you enjoy from DVDs to sunglasses to lightweight computers (not to mention hockey masks!), so incredibly durable. Pity the poor hockey puck. Ouch.

Visit gelexan.com to learn more. 

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NORYL® Resin

Softfx™ Resin

STARFLAM® Resin

SUPEC® Resin

THERMOCOMP® Resin

ULTEM® Resin

VALOX® Resin

VERTON® Resin

Visualfx™ Resin

XENOY® Resin

XYLEX™ Resin

To learn more about how LEXAN® EXL resin can deliver added value to your application, please contact your local GE representative.

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