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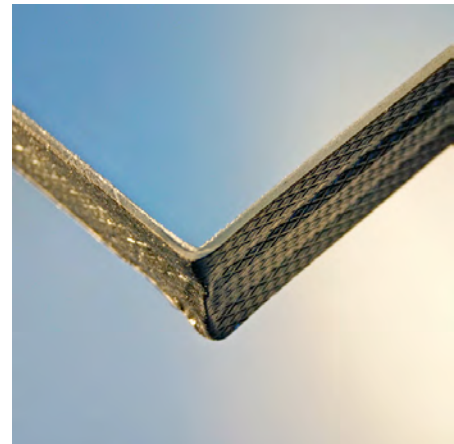
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**FOR IMMEDIATE RELEASE**

## **Tests Prove ArgoEdgeSealPLUS® Protects Polycarbonate Layers Better in Laminated Security Glass Composites**

GREENFIELD, MA, September 19, 2011 — Argotec Inc., one of the world's largest producers of thermoplastic polyurethane (TPU) film and sheet, earlier this year introduced their new **ArgoEdgeSealPLUS**, a patent-pending, TPU-Foil-TPU construction used to protect the edges of both TPU- and PVB-interlayered laminated glass composites. The company today announced it has completed rigorous testing that demonstrates a significant advantage over other edge seal products in protecting the polycarbonate component in autoclave-laminated security glazing composites. (PVB edge seal products are typically not used in these applications because polyvinyl butyral is incompatible with polycarbonate).

Bullet- and blast-resistant composites are normally constructed of layers of glass and polycarbonate that are bonded together with an aliphatic polyurethane optical interlayer film. Argotec utilized the ISO 22088-3 bent-strip method to test **ArgoEdgeSealPLUS** and its predecessor, BOC-9450 Edge Seal™, exposing both to MEK (methyl ethyl ketone), a solvent found in many window caulks and sealants. (BOC-9450 Edge Seal, a highly successful, dual-layer TPU product, was developed by Argotec in 1995 and is now the standard edge seal design utilized by 90 percent of all glass laminators using polyurethane interlayers).



**Fig. 1 ArgoEdgeSealPLUS TPU-foil-TPU construction protects laminated glass & polycarbonate composites from solvents found in window caulks & sealants.**

As shown in the photos below, a two-week immersion in a 100% MEK solution caused the polycarbonate test sample encased in BOC-9450 Edge Seal to buckle, crack and fog to an opaque white. The sample wrapped in protected by **ArgoEdgeSealPLUS** remained flat, transparent and clear.



**Fig. 2 Polycarbonate sample remains flat and clear (right half of photo) when protected from MEK solution by ArgoEdgeSealPLUS TPU-Foil-TPU material.**



**Fig. 3 Polycarbonate sample buckles, cracks and fogs to an opaque white (right half of photo) when MEK solvent penetrates TPU-TPU edge seal material wrapping.**

The sample shown in Fig. 2 was encased in **ArgoEdgeSealPLUS** and fully protected from solvent penetration and degradation. The failure mechanism exhibited in the Fig. 3 sample was that the MEK solvent solution permeated the two layers of TPU in the BOC-9450-wrapped the polycarbonate. A modified ASTM E-96 permeation test comparing the two edge seal materials confirmed the visual results, as shown in the table below (an ASTM F-1249 moisture permeation test is provided for comparison with the MEK solvent test):

Permeation (method)	Material Tested	g/m <sup>2</sup> -week
Moisture-H <sub>2</sub> O (ASTM F-1249)	BOC-9450 Edge Seal (TPU – TPU)	250
	<b>ArgoEdgeSealPLUS</b> (TPU – Foil – TPU)	1.2
Solvent-MEK (ASTM E-96B)	BOC-9450 Edge Seal (TPU – TPU)	20
	<b>ArgoEdgeSealPLUS</b> (TPU – Foil – TPU)	2

The Conclusion:

The impermeable foil layer sandwiched between two layers of TPU in **ArgoEdgeSealPLUS** provides superior chemical resistance and protection for laminated security glass composites containing a polycarbonate layer when compared with standard TPU-TPU edge seal constructions.

**ArgoEdgeSealPLUS** can be used to protect any laminated glass composite produced by an autoclave process: glass-to-glass; glass-to-polycarbonate; glass-to-acrylic; and glass-to-other optical substrates. Whether for security glazing or architectural applications, it provides not only a highly impermeable chemical barrier but also serves as a 50-mil “bumper” that reduces the potential for mechanical damage during handling and installation. The diamond pattern imparted by the clear carrier to the outer layer of the edge seal also creates an aesthetically pleasing appearance on the composite edge.

Argotec is a privately held, global supplier of custom-engineered, high-performance, polyurethane film and sheet for a wide variety of critical applications, including optical interlayer films for security and architectural laminated glass. Further information about the company and its products may be obtained by calling (413)772-2564, faxing (413)772-2565, e-mailing [info@argotec.com](mailto:info@argotec.com), or visiting the Argotec website: [www.argotec.com](http://www.argotec.com). Or visit the company’s **ArgoEdgeSealPLUS** pages in McGraw-Hill Construction’s Sweets Network®.

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To obtain hi-resolution digital files of any of the photography shown in this release, please contact Rob Nicoll, Nicoll Marketing Communications, at 413/238-4425 or [RPNicoll@verizon.net](mailto:RPNicoll@verizon.net).



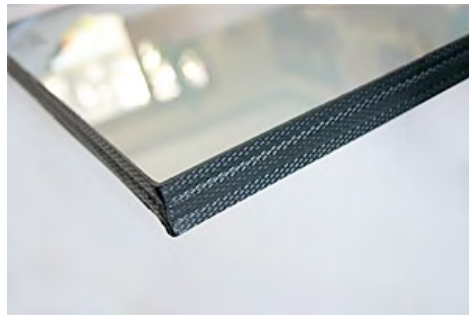
The clear, diamond-pattern-embossed carrier may be removed following lamination to the composite edge

A thinner layer of black polyurethane cushions the edge of the glass composite and accepts the embossed pattern of the carrier through the autoclaving process for an aesthetically pleasing appearance

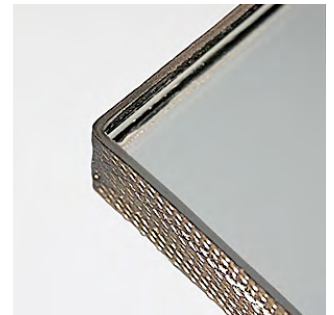
The foil layer provides dramatically enhanced moisture and solvent resistance

A thick adhesive layer of clear TPU bonds ArgoEdgeSealPLUS to the glass laminate

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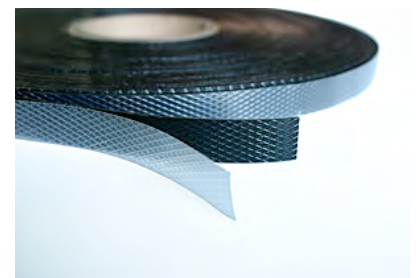
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