Rethinking the HUD: Toward augmented reality for head-up displays

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autoengineering.sae.org
SWM International has more than 30 years of experience developing and manufacturing high-performance extruded polyurethane films for a variety of markets. The company’s leading glass lamination films, sold under the name Argotec™ Interlayer Films, were created for demanding applications in aerospace, automotive and building/construction markets.

In an interview with SAE’s Automotive Engineering, Tom Niziolek, Commercial Director, Optical, explains the new, unique characteristics and benefits of Argotec™ Interlayer Films in automotive glazing.

Niziolek: Manufacturers are using advanced glass-lamination technology to improve passenger comfort while simultaneously ensuring their safety. We are seeing a growing demand for efficient light filtration: TPU technology filters the UV spectrum while allowing natural light to pass through, in turn providing glare and heat reduction to passengers. Reducing outside noise also is a concern and TPU has exceptional sound-deadening properties that assist with decreasing road noise.

AE: “Panoramic” sunroofs have become a common feature in passenger vehicles. Is TPU a good solution for these very large glass applications?

Niziolek: TPU is a very good material choice to build highly impact-resistant, transparent and lightweight glazing composites for panoramic sunroofs. With the growth of transparent materials for head-up displays (HUDs), TPU is an enabler for HUDs and other high-tech vehicle features.

AE: What should designers and engineers know about TPU lamination film when considering their options for glass applications? Can SWM be a design resource for them?

Niziolek: A key advantage of TPU compared to traditional lamination films is TPU’s ability to bond to both glass and plastic surfaces; TPU is well-suited for bonding of dissimilar glazing layers like glass to polycarbonate, or acrylic or polyester. Also, TPU is a very stable and durable film across a wide range of temperatures—in a laminate, it will last through many years of UV exposure without any color change.

AE: What are some of the advantages of TPU for glass lamination film compared with “more-traditional” polyvinyl butyral (PVB)?

Niziolek: TPU is a very good material choice to build highly impact-resistant, transparent and lightweight glazing composites for panoramic sunroofs. With the growth of transparent materials for head-up displays (HUDs), TPU is an enabler for HUDs and other high-tech vehicle features.

AE: What are the changing requirements and potential future applications that you see for advanced glass-lamination technology? What else can these materials do?

Niziolek: There is growth in designing “operator”-controlled vehicle switchable shading—not just dark-tinted glass, where TPU is very compatible with the liquid-crystal technology being used for these applications. SWM is a resource and material consultant and partner to aid in forward-thinking designs for vehicles. When it comes to custom engineering, we work directly with glazing designers and manufacturers to understand their requirements and create custom solutions using our advanced film technology.
WHO IS SWM?

**Superior Window Materials**

SWM provides engineered materials to a wide range of industries and applications. We are a leading supplier of high-strength thermoplastic polyurethane (TPU) films for laminated glazing composites for windows. Glass manufacturers for automotive, military and aerospace applications trust high-performance, lightweight Argotec™ interlayer films to create strong bonds with fewer deformities. Solutions today, engineered for tomorrow. Get to know SWM. You’ll like what we’re all about.

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