



## Material advances: Custom polycarbonate sheet replaces fritted glass



Because of their high impact strength and excellent light transmission, Makrolon® polycarbonate sheet products offer an unsurpassed level of security to any transportation glazing application. To meet the demand for a polycarbonate sheet grade that offers high abrasion resistance and ink adhesion, Covestro has developed Makrolon® Frit Polycarbonate (FP) sheet.

**Makrolon® FP** is a hard coated polycarbonate product that includes a customizable black-out border to allow for innovative installation methods, eliminating the common threaded hardware, clips and glazing channels. The black frit provides a bondable surface for the life of the product and protects the adhesive against UV degradation. State-of-the-art manufacturing and inspection processes deliver low optical distortion. The advanced hard coat technology offers excellent abrasion and chemical resistance, and long lasting

outdoor weathering performance. Makrolon® FP is available in clear, standard, and custom tints in tandem with tailored frit and is frequently used in heavy equipment cab safety glazing, marine and mass transit glazing applications.

The product was developed in response to customer requests to print on Makrolon® AR (abrasion resistant) polycarbonate sheet -- a challenge, as it was difficult to achieve good ink adhesion on the AR coating. One of the attributes of the AR coating is its graffiti resistance and the ability to easily remove ink or paint. With new technology developments, printing directly on the coated sheet yields high surface adhesion. Robust adhesion is critical because the window is held in place with adhesive applied to the frit ink rather than with mechanical fasteners.

After extensive laboratory testing, Covestro beta tested the product with customers who were eager to adopt the new technology and obtained field application data.

The new Makrolon® FP product allows for enhanced aesthetics and reduced installation costs. It can be used for a direct replacement for fitted glued-in glass windows without the need to redesign the application to accommodate bolts or other hardware necessary to secure polycarbonate windows. Original equipment manufacturers can offer customers the option to upgrade to polycarbonate windows over glass, and capitalize on the benefits of polycarbonate including safety, anti-vandalism and light weight without expensive redesign or need for dual inventories.

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