

LEXAN[™] F6000 SHEET



SABIC's ultra-tough, flame-retardant (FR) LEXAN™ F6000 polycarbonate (PC) sheet has been chosen by Plexx AS, a leading Norwegian plastics converter, to thermoform the first European passenger train window frames. The frames will be used in Norwegian State Railways train cabins. This advanced, tailor-made PC material replaces sheet molded composite (SMC) for significantly improved performance and faster cycle times, while avoiding the multiple secondary operations required for SMC.

"We had two main goals in upgrading from SMC to LEXAN F6000 sheet: cutting the cost of the window frames and developing a much improved product for market differentiation," said Arild S. Johnson, managing director, Plexx AS. "With SABIC Innovative Plastics' help, we achieved these goals and more. Compared to SMC, LEXAN sheet is faster and easier to process, provides greater design flexibility and toughness, and keeps its attractive appearance even after heavy use. In short, the SABIC Innovative Plastics team gave us a customized, high-end polycarbonate grade, enabling us to create a unique product that stands out in the marketplace and, most important, meet our customers' needs." LEXAN F6000 sheet, which can be custom colored, delivers exceptional color and texture retention after thermoforming and provides durability for the demanding public rail environment. The material complies with railway fire protection requirements: UL94 V0 at 1.5 mm flame retardance according to ASTM E162, and low smoke (ASTM E662) and toxicity (BSS 7239 and SMP 800 C) performance.

GETTING ABOARD A NEW TREND IN TRAIN WINDOWS

LEXAN F6000 sheet offers a number of important advantages over traditional SMC for window frames. First, it is significantly cost-effective, even though only the periphery of the sheet is used, the center portion is recycled. Second, by streamlining the production process, the SABIC material cuts cycle times by up to 80 percent vs. SMC. Molded-in color avoids the need for secondary operations such as painting and sanding; thermoforming does not require gluing or hand work; and the material does not need a curing step – all of which were required with SMC frames. LEXAN F6000 sheet also offers sustainability advantages over SMC, including reduction of volatile organic compound (VOC) emissions associated with conventional painting and curing. Because LEXAN F6000 sheet is approximately 30 percent lighter than traditional SMC, window frames for railway carriages made with the resin can potentially contribute to fuel conservation. This opaque PC sheet is produced with a special, durable texture that avoids the appearance of abrasion and fingerprints, helping to maintain an attractive appearance under heavy use conditions. SABIC Innovative Plastics' ColorXpress facility delivered an exact match to the custom redorange tint that is the brand of Norwegian State Railways. The company also customized the flame retardance of the material to comply with fire/smoke/toxicity (FST) standards mandated in Norway.

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