

## SABIC Innovative Plastics helps C&D Zodiac soar above competitors with high-performance sheet for aircraft interiors

OSU 65/65-compliant Lexan\* XHR6000 sheet features low-temperature thermoforming that cuts development costs and time

Based in Huntington Beach, Calif. and part of the Zodiac Group, C&D Zodiac is a fabricator of components for aircraft cabin interiors. The company's OEM customers include Boeing, Embraer and Bombardier. To meet the needs of today's aviation industry, which faces severe cost pressures due to oil prices, C&D sought new materials that could help reduce the high cost and extensive time required to develop new thermoformed components. The company, a longstanding customer of SABIC Innovative Plastics, requested a sheet material that could be thermoformed at a lower temperature while meeting all relevant mandates for heat release, smoke, flame and toxicity. A second key item on C&D's "wish list" was improved aesthetics, including inherent textures and bright white colors.



### Challenge

#### Lower-temperature processing to reduce development costs and improve aesthetics

C&D Zodiac develops and fabricates components used in the cabins of commercial aircraft. These parts must meet strict requirements for heat release (OSU standard), flame and smoke (FAR 25.853) and toxicity (specified by OEM). Because existing plastic sheet products such as polyphenylsulfone (PPSU) require high temperatures for thermoforming, C&D was forced to use metal tooling for prototypes. "It's expensive and time-consuming to build hard tooling for these parts, and if there's a change in design, the tool has to be reworked or even replaced with a new one," said Danny Martin, general manager of C&D Zodiac. "Our customers were asking for a way to shorten the time and lower the cost of part development. One way to do that is to use less-costly wood or epoxy tools for prototypes. But they can't take high heat."

A further challenge of high-temperature thermoforming was its negative effect on textured plastic. The heat from processing tended to "wash out" any pattern in the sheet, forcing C&D to build texture into the tooling instead – another expensive item.

Still another challenge was finding a way to provide bright white and custom-colored parts without using paint or a cap layer that could scratch off and that required expensive secondary operations. "OEMs want white and special colors for their latest aircraft models to provide a calming and pleasant cabin environment," Martin said. "But the existing materials either weren't available in those colors, or had poor UV resistance that caused rapid yellowing."

Finally, C&D Zodiac wanted excellent stain resistance and cleanability to maintain the attractive appearance of cabin components, which often receive heavy wear.

### Solution

#### A Lexan XHR6000 (Xtremely Low Heat Release) sheet for low-temperature processing

At the time SABIC Innovative Plastics sought Martin's input, the company had been working on a Lexan sheet grade specifically designed to meet stricter standards for heat release in the aviation industry. Lexan XHR6000 sheet is an aircraft-grade, flame-retardant thermoplastic sheet based on a unique Lexan polymer. It offers robust OSU 65/65, smoke, flame and toxicity compliance.

# Lexan\* sheet / C&D Zodiac

“Our goal was to deliver a product that met every one of C&D’s requested properties so their team didn’t have to keep making compromises or requesting exceptions for traditional materials each time a new component was developed,” said Paul DiSciullo, industry manager - Transportation for SABIC Innovative Plastics. “Lexan XHR6000 sheet addresses the full spectrum of challenges, from robust compliance to lower-temperature thermoforming capability to improved appearance.”

## Benefits

### Faster customer service through reduced development time and cost

With Lexan XHR6000 sheet, C&D Zodiac is able to significantly reduce development time and costs for new aircraft interior parts. Martin said, “We initially used the Lexan XHR6000 sheet for a door liner for the Boeing 787. We were able to cut tool development time by about two-thirds by using a wood tool instead of metal. Creating a metal tool takes about eight weeks, and we made our tool in less than three weeks.”

Wood is also about 40 percent less expensive than metal, and can be modified or replaced much more quickly and cheaply in the event that the OEM makes design alterations.

Another important benefit of the new sheet is its improved aesthetic properties. “We not only get bright white and other beautiful colors, but the color goes through the entire part – it isn’t just on the surface where it could be scratched off.”

With low-temperature thermoforming, C&D can take advantage of texture in the sheet instead of incurring the cost of texturing the mold.

Lexan XHR6000 sheet has been engineered to resist common stains and clean up easily with warm water, alcohol or household cleansers.

“This new sheet product is helping C&D stand out from the competition because we can provide better service and value to our customers – through faster turnaround times, quicker response to changes, lower costs and superior aesthetics for the newest aircraft models,” said Martin. “And Lexan XHR6000 sheet meets key safety and performance standards.”

Martin continued, “We asked for everything we could think of in a material, and SABIC Innovative Plastics delivered it all. That’s the way a supplier is supposed to perform.”

## Details at

[www.cdzodiac.com](http://www.cdzodiac.com)

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