

SABIC Innovative Plastics helps TBR USA deliver stylish truck caps featuring lightweight, durable tinted windows thermoformed from Lexan* SLX sheet

Making truck caps lighter and more stylish

Based in Valparaiso, Ind., TBR USA Inc. is a thermoforming company specializing in using innovative materials for single- and twin-sheet forming of large parts. With many years of experience in plastics manufacturing, TBR is able to take a project from idea to production in very short lead times thanks to fully integrated CAD/CAM systems.



Challenge

Meeting an OEM's request for lighter, more stylish truck caps

For automakers, new designs not only need to look great and perform well – they must address growing concerns about fuel consumption. Even a small reduction in vehicle weight can help manufacturers achieve the improved mile-per-gallon numbers that are becoming a top attraction for consumers.

When the OEM wanted a lighter-weight cap for its pickup trucks, the automaker turned to TBR for industry-leading expertise in all-plastic caps. TBR, in turn, needed to find a material that could be thermoformed into curved windows for the new cap design, and would also offer high performance under demanding driving conditions.

“At TBR, we’ve specialized in customized truck caps for years,” said Richard Negrey, Vice President of Engineering. “Replacing glass windows with plastic was a given in achieving the weight goals for this part – the question was which plastic would deliver the best combination of aesthetics, performance and formability.”

Solution

SABIC Innovative Plastics' Lexan SLX sheet for better formability than hard-coated competitors

Based on a long-standing relationship, TBR chose to work with SABIC Innovative Plastics to find an ideal sheet material for the truck cap windows. TBR was looking specifically for a material that could be easily thermoformed but would not require subsequent hard coating to add gloss and tinting. Other desired characteristics were resistance to UV light, chemicals and abrasion.

SABIC Innovative Plastics recommended Lexan SLX 12030SM polycarbonate (PC) sheet, which combines a layer of tinted resin with a clear cap that absorbs UV light. Lexan SLX resin's exceptional gloss level (greater than 100 at 60 C) avoids both the formability issues of a hard coated sheet, and the need to apply a coating after thermoforming. In fact, the SABIC material provides excellent thermoformability of 200 percent draw capability or higher in standard equipment.

SABIC Innovative Plastics' Lexan SLX tinted sheet also delivers excellent resistance to chemicals, good scratch and mar resistance, and high weatherability. It can even be repaired; scratches that do not penetrate below the clear cap layer can be polished out with buffing compound to restore gloss.

“Our new Lexan SLX grades are an excellent candidate for glass replacement applications like the truck cap windows shown above because of their light weight, clarity, impact resistance and the highest gloss level in our portfolio,” said Robert O. Johnson, Lexan SLX Film Global Product Manager, SABIC Innovative Plastics.

“Using Lexan SLX sheet can make a significant difference in the weight – and fuel efficiency – of a vehicle. SABIC Innovative Plastics is committed to environmentally progressive technologies,” Johnson said. “We’re pleased that Lexan SLX sheet is helping to boost fuel economy for these trucks.”

Benefits

TBR truck caps are 50 pounds lighter

By replacing glass windows with shaped windows thermoformed from SABIC Innovative Plastics' Lexan SLX sheet, TBR has been able to reduce

Case Study

Lexan* SLX sheet / TBR USA Inc.

the weight of their truck caps by as much as 50 pounds, while creating a clean, attractive design that complements any vehicle. The SABIC Innovative Plastics' material helped TBR meet the specific performance, aesthetic and environmental requirements of its end customer, while providing a new way to differentiate its truck caps from the competition.

In fact, the new cap design is now being used by TBR in its new Vigo model.

Equally important, Lexan SLX sheet made the windows easier and faster to manufacture; not only can the sheet be thermoformed with ease, but it requires no secondary coating or tinting that can add costs and slow down cycle times.

"The new window designs are rapidly gaining interest in the automotive and RV markets. The advantages of weight and security against conventional glass make this material the future of the aftermarket window industry," added Negrey.

Details at

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