

Plastics innovations from ExxonMobil, Borouge and Sabic have raised the bar in car manufacturing as more companies aim to reduce their carbon footprint by combining technology and innovation.



ExxonMobil innovation collaborates with the stylish Laguna Coupe

# Car Sophistication

The new Renault Laguna Coupe wears its front and rear bumpers made from ExxonMobil Chemical's Exxtral performance polyolefins. The Exxtral BMU131 performance polyolefin is being used for the front bumper, front grille and headlight trim, and Exxtral BMU133 polyolefin for the rear bumper.

Exxtral BMU131 polyolefin is a UV-stable grade exhibiting excellent aesthetics because of its broad processing window which helps to eliminate large-part injection molding challenges such as "tiger stripes." Requiring no mixing or blending at the molding presses, these ready-to-inject, fast-cycling grades can improve productivity and deliver cost savings.

Both grades are characterized by a unique impact strength that provides the essential balance between stiffness and toughness required for bumper applications. They offer a low coefficient of linear thermal expansion (CLTE) for excellent dimensional stability.

The Laguna Coupe application is an excellent example of collaboration between the automotive original equipment manufacturer (Renault), the Tier One supplier (Plastic Omnium), and the specialty compound supplier (ExxonMobil Chemical) to meet expectations across the supply chain.

## Soft Touch

ExxonMobil Chemical has introduced Santoprene TPV 8211-85 M350, a high-flow thermoplastic vulcanizate (TPV) that does not compromise on surface quality in automotive interiors, whilst keeping production costs low.

Matching the needs of automotive original equipment manufacturers (OEMs) and Tier 1 suppliers looking for cost-effective solu-

tions to enhance the appearance, style and feel of a range of automotive interiors, Santoprene TPV M350 offers a range of benefits including high "comfort touch", low and stable gloss level, high scratch and mar resistance, good abrasion and chemical resistance, low fogging and odor emission. The unique "comfort touch" provided by Santoprene TPV M350 prevents the cushion-like indentation that is often associated with



ExxonMobil Chemical's Santoprene TPV M350 provides a unique "comfort touch" and excellent surface qualities for automotive interiors while offering significant cost reduction opportunities.



Borouge Daplen can be found in the BMW X5 series

alternative foamed material structures when pressed. Also colorable, Santoprene TPV M350 is ideal for door panels, center consoles, B-C pillars, lower instrument panels and the back cover of seats.

The "comfort-touch" texture is achieved by the process of using two-component injection molding or mono-sandwich molding onto a rigid PP substrate to produce an unfoamed structure that does not indent. Santoprene TPV M350 is an ideal alternative to the more common materials such as rigid polypropylene (PP), PP with soft-touch paint, and in some cases PVC or TPO skins.

"Automotive OEMs and Tier 1 suppliers are looking for value-added, high quality interiors with the opportunity for significant system cost savings. Santoprene TPV M350 can help them meet this challenge through part function integration, production flexibility and supply chain optimization," said Hermann-Josef Holz, market developer, global automotive marketing, ExxonMobil Chemical. "It also provides sustainability opportunities because less labor and time is required, scrap can be reduced and recycling improved."

## Safe and 'Green' Performance

To cater to the booming automotive industry in China, Borouge has a strong foothold in providing innovative materials, such as the Daplen PP resins and Xmod high performance short glass fibre-reinforced compounds. These materials are among specifiers' top choice in the development of interior, exterior and under-bonnet parts that meet the manufacturing, performance, weight-saving and fuel-reduction challenges facing the automotive industry. Leveraging Borealis' proven track record and major international certifications, Borouge has expanded its offerings in the automotive sector to supply to other related mobility markets such as motorcycles, railways and other transportation.

The unique patented Borstar technology provides resins for complicated applications, helping car manufacturers in cost-effective solutions for critical aspects of automotive design such as "zero gap" fit for bumpers and off-line painted body panels. In China, Shanghai Volkswagen turned to Daplen for



Hyundai "ix-onic" Concept Vehicle using SABIC innovative plastics' Lexan glazing technology

its dashboard applications to ensure reliable safety performance through its better impact-to-stiffness ratio and because the material's recycling capability makes it a more environmentally-friendly choice.

Elsewhere in the world, other leading automakers, including Volkswagen and Opel, have incorporated Borouge's latest Daplen thermoplastic olefins (TPO) in their bumpers, dashboards, door panels and truck claddings. For example, Daplen was used in the Fiat 500, "Car of the Year 2008", in the Skoda Fabia, as well as for the Opel Insignia, named "Car of the Year 2009". Daplen is part of the recent smart-for-two concept and the BMW X5.

## Aerodynamic Creation

SABIC Innovative Plastics and Hyundai joined forces to design a sculpted, three-dimensional backlight with integrated roof and vertical-spoiler features and an integrated high-mounted brake light. On each side of the rear window two vertical spoilers are integrated to reduce aerodynamic drag. The upper part of the window features a complex concave shape to make it possible to integrate the roof spoiler in the rear window. Additionally, Exatec glazing helped to incorporate the third brake light in the upper part of the rear window. Finally, a three-dimensional curvature surrounds the rear wiper to enhance its visual integration into the molded backlight.

Prior to the "ix-onic" glazing project, SABIC Innovative Plastics collaborated with

Hyundai on the QarmaQ Advanced Technology Demonstration Vehicle, which showcased a panoramic wrap-around glazing area and C-shaped side windows created using Exatec glazing technology. Exatec solutions are part of the SABIC Innovative Plastics' "Signature Surfaces" offering.

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