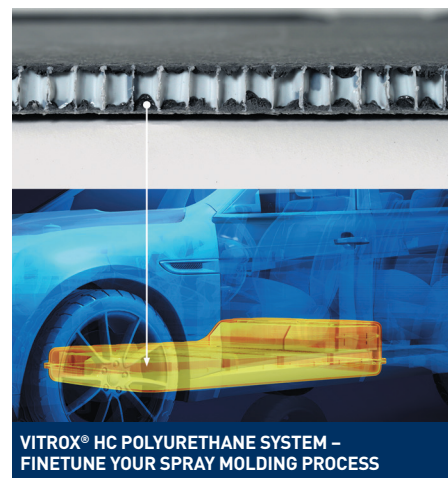
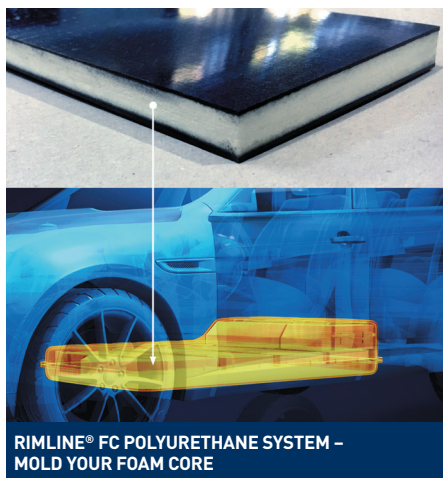
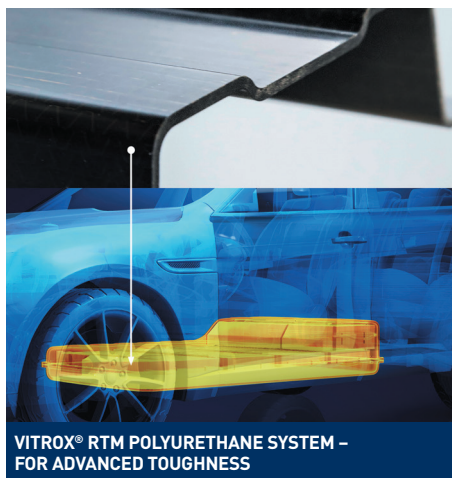


Polyurethanes support innovative multi-material options for battery casings

PU resin-based composites offer automotive designers new potential: reduced weight and properties that meet safety, mechanical and thermal standards.



As electric vehicles become more popular with drivers, automotive engineers are looking at new options for battery pack designs. For their next-generation casings, industrial designers have a range of materials to choose from – including lightweight metals and new composite materials.

The use of composites for automotive parts is growing as their characteristics become better known. In an effort to better understand how these materials can be used for battery casings, Huntsman Polyurethanes, together with 44 companies, is participating in a technical study by the Aachen Center for Integrative Lightweight Production (AZL). This research team has unique expertise in researching materials behavior and production processes for composite-based lightweight technologies.

The project aims to develop a variety of concepts for producing high-performance multi-material battery casings. When completed, it will present an overview of potential applications, including supply chain approaches and a market potential analysis.

Follow-up studies will investigate production aspects and aim to make 'demonstrator products'.

The study is looking at the known characteristics of a range of composites and how they add value to battery casings. For automotive components, composite materials typically offer: lower weight; thermal management – useful for battery operation and charging; fire and crash protection; corrosion resistance and a limitation of noise and vibration.

The Huntsman Polyurethanes team has developed a range of MDI-based formulations for high-performance composites that can be considered for battery case development.

VITROX® RTM polyurethane resins are used in panels and elements made with resin transfer moulding. Their high toughness provides impact protection and resists foreign object penetration, and resin snap cure abilities allow for rapid mass production. Their stretched low-viscosity injection properties limit process pressures, even at high fiber volume fractions.

Elements extruded with aluminium can be replaced by pultrusions, using a tough resin such as RIMLINE® PUL polyurethane resin system, offering toughness for crash elements. A RIMLINE® FC polyurethane system for rigid foam is a fully compatible partner for VITROX® resins and can be used in net shape moulding, to produce sandwich panels at high rate. It withstands high mechanical load levels, impact resistance, offers thermal insu-

lation and resists pressure in composite moulding.

Polyurethanes offer a world of possibilities for automotive design. Battery casings are one of the many innovations that the Huntsman Polyurethanes team is exploring. We look forward to partnering with you for your next battery development project.

Meet us at:

**JEC COMPOSITES
CONNECT** Digital event series for
the composites community
Online June 01-02, 2021

or email us at:

polyurethanes_eu@huntsman.com

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