

# Improving battery enclosure performance

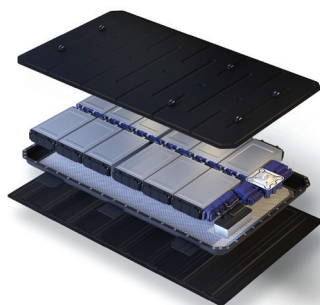
**A**utomotive industry demand for lightweight, durable composite materials that can provide an effective thermal barrier is increasing. This is particularly true in electric powertrain applications, where higher energy density, next generation batteries are coming into the market that last longer and charge faster but require advanced thermal protection. To help vehicle manufacturers with the enclosure of batteries, Huntsman has developed a range of technologies.

Developed for structural / outer sandwich panels, Huntsman provides its RIMLINE® WCM and VITROX® WCM systems. RIMLINE® WCM system is a low viscosity liquid resin developed for wet compression molding of electric vehicle underbody battery protection panels. Developed for use with high- and low-pressure mix machines, RIMLINE® WCM system enables the molding of high fiber volume fraction composites under low pressure. Typical benefits include a long working life, short cure time and internal mold release agents to help reduce overall cycle times and cut equipment costs.



**ALEX STEPUIK,**  
GLOBAL MARKET  
SEGMENT LEADER  
FOR AUTOMOTIVE  
POLYURETHANES AT  
HUNTSMAN, SAID:

“As demand for electric vehicles grows, we’re continually innovating, making it easier than ever for battery manufacturers, automotive OEMs and their suppliers to make new gains in powertrain performance via our multi-chemistry portfolio.”



**POLYURETHANE / EPOXY RESINS FOR BATTERY COVER AND UNDERFLOOR PANELS.**

VITROX® WCM system enables the development of composite battery cover / lid structures with good thermal resistance, while reducing weight and packaging space. Processable via wet compression or compression spray molding, this system could be used to create panels, at a high rate, with a high mechanical load tolerance level.

For the foam core element of sandwich panels, Huntsman has developed its industry-recognized RIMLINE® FC system. This cost-effective polyurethane system has great flow properties to help create complex 3D shapes. Providing possibilities for lightweight, structural protection, it can be overmolded with different materials and cures quickly. Foam cores made from RIMLINE® FC system can vary in density and thickness, depending on requirements. Compression resistance at elevated temperatures also means the foam can resist resin pressure during composite molding.

Huntsman also provides OEM-qualified ARALDITE® epoxy resin systems developed for composite battery enclosures, trays, and underbody shields, which have demonstrated performance and reliability over several years of on-road service. Developed to help meet part specific structural, fire, thermal, environmental and mass production requirements, Huntsman can offer a range of intrinsic

fire-retardant ARALDITE® FST and unfilled mass production systems. Used via WCM, RTM and HP-RTM processes these systems can enable short cycle times with low scrap rates.

With automotive customers increasingly asking for sustainable products and suppliers that support net zero targets, Huntsman can also offer Mass Balance Certified (MBC) epoxy resins from its REDcert<sup>2</sup> certified production site. Its VITROX® and RIMLINE® polyurethane resin and core foam systems can also be provided with ISSC PLUS mass balance certification for MDI.



**SIMON BURKEL,**  
STRATEGIC MARKETING  
MANAGER AUTOMOTIVE  
AT HUNTSMAN  
ADVANCED MATERIALS,  
SAID:

“ARALDITE® MBC epoxy resins can help to support our automotive customers in reducing their carbon footprint without compromising on performance, while helping to avoid lengthy and costly re-qualifications.”

## HUNTSMAN

Enriching lives through innovation

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