

# Right at the heart of e-mobility

## CHALLENGES

- Temperature management: both cold and hot temperatures have a negative effect on EV battery performance and longevity, making thermal management systems a mission-critical choice for EV makers.
- Safety: lithium batteries have the highest energy density and, therefore, the highest range. However, they are temperature sensitive and prone to thermal runaway if overcharged or cooled insufficiently.
- Ability to withstand environmental conditions: extreme weather brings additional heating or cooling needs that require more energy than more moderate temperatures would.

## REQUIREMENTS

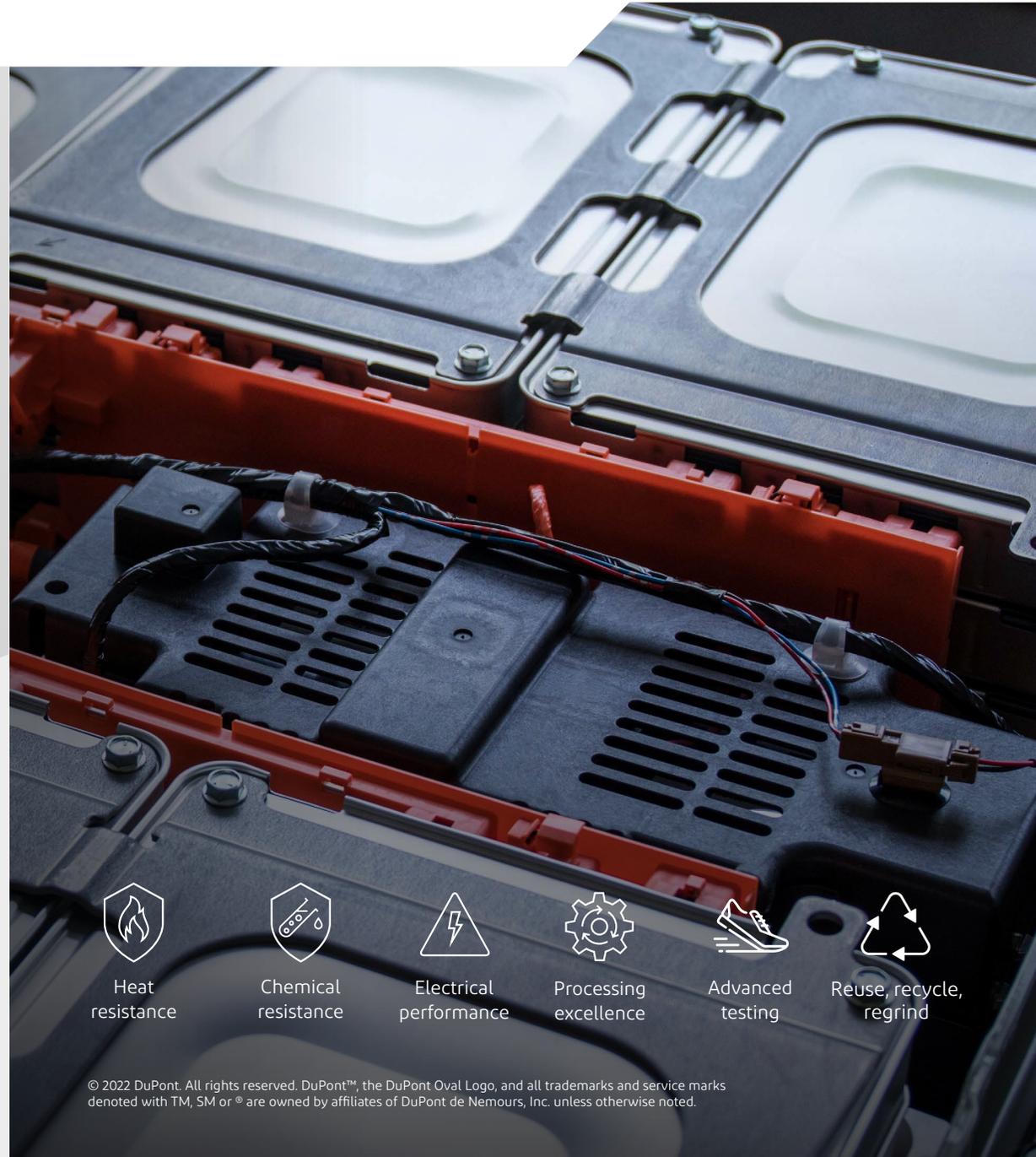
- Battery lifespans: OEMs need to manage consumer concerns about battery longevity.
- Range restrictions and infrastructure: most EV and HEV owners charge at home, but longer commutes need more charging on the road.
- Charging options: consumers

want fast-charging options when on the go.

- Sustainability: at vehicle end-of-life, an EV battery can be repurposed as storage for solar energy or even discounted off-peak electricity.

## SOLUTIONS

- Current cooling plate designs rely on aluminum only, but a hybrid aluminum-plastic concept using **Zytel**<sup>®</sup> polyamide could improve thermal resistance in the lower plate. It would also allow for a high level of functional integration and the possibility of adding turbulators for additional cooling.
- DuPont<sup>™</sup> eCool Multilayer Technology, based on **Zytel**<sup>®</sup> LCPA (Long Chain Polyamide) grades co-extruded with thermoplastic olefin elastomer, offers many benefits including sustainability, coolant/hydrolysis resistance, cost management and design freedom.
- Immersion cooling systems, a highly efficient type of cooling, can be supported with the application of components made from **Crastin**<sup>®</sup> PBT and **Zytel**<sup>®</sup> polyamide.



Heat resistance



Chemical resistance



Electrical performance



Processing excellence



Advanced testing



Reuse, recycle, regrind