2019|02|03

# 125 million by 2030

*According to the International Energy Agency (IEA), that's how many EVs will be on the road, up from 3 million in 2017.*


## Nicolas Riem, Henkel Technical Service Engineer On xEVs and Battery Performance

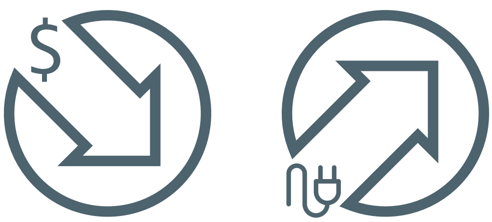
The electrification of cars is a given, but what does that mean for the future of automotive battery designs? It’s an interesting question and one with no simple answer. Riem notes that while design standardization would be ideal, it’s not the reality today.

“Currently, there is tremendous battery pack diversity in design and application, depending on the type of hybrid, plug-in or full EV vehicle design” says Riem, an expert in thermal management engineering. “Unfortunately, this can sometimes create confusion as it relates to the differences in battery chemistry, form factor and pack design. What is consistent across all of these various battery structures, however, is the need to control heat for optimal performance.”

Rest assured, standardization is a top priority and thermal management is critical for its progress.

# Batteries now cost less, weigh less and last longer*

*Battery cost is declining as energy density increases; the need for reliable thermal control is greater than ever before.*




Expanding the number of electric vehicles on the road requires development of new types of battery systems to meet the demands of the modern driver. According to Riem, “True EVs that rely only on electric power must compete with the expectations set by hybrid technology and traditional fuel-powered vehicles. Next-generation EVs have to be competitive when it comes to driving range, acceleration, charge time, convenience and cost.”

Battery designs that deliver these capabilities will no doubt have exponentially greater power densities and thermal loads.

*MIT Technology Review, December 17, 2018

# Cool xEVs take many forms

Efficiently managing the heat generated during all phases of battery function drives performance for the long haul. “Cooling the battery system effectively extends its lifetime, enables more reliable operation and a better overall experience. And there are numerous considerations for the best thermal control approach.”

Riem explains that thermal management materials are integrated throughout the battery structure and take many forms – from pads to adhesives to liquids.

For Henkel, it’s not just about innovating and expanding the power storage thermal materials portfolio; it’s about understanding the system requirements and process parameters holistically. “We’ve gone from developing liquid gap fillers for small, millimeter-sized deposits to innovating materials that can be automatically dispensed in liters to accommodate battery thermal control needs while facilitating high-volume manufacturing.”

Riem sees well beyond today’s disparate EV battery systems to a more standardized approach in the near future, with thermal transfer capability being a significant enabler of next-generation designs.

Different dispensing patterns


**Nicolas Riem, Henkel**


Riem joined Henkel in 2016, as product developer in the Adhesive Technologies R&D division. Since 2017, he has been working as a Technical Customer Service Engineer with focus on the Thermal Interface Material technology for Automotive Electronics business unit across EIMEA region.

Riem holds an engineering degree in chemistry from the Superior School of Organic and Inorganic Chemistry.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