

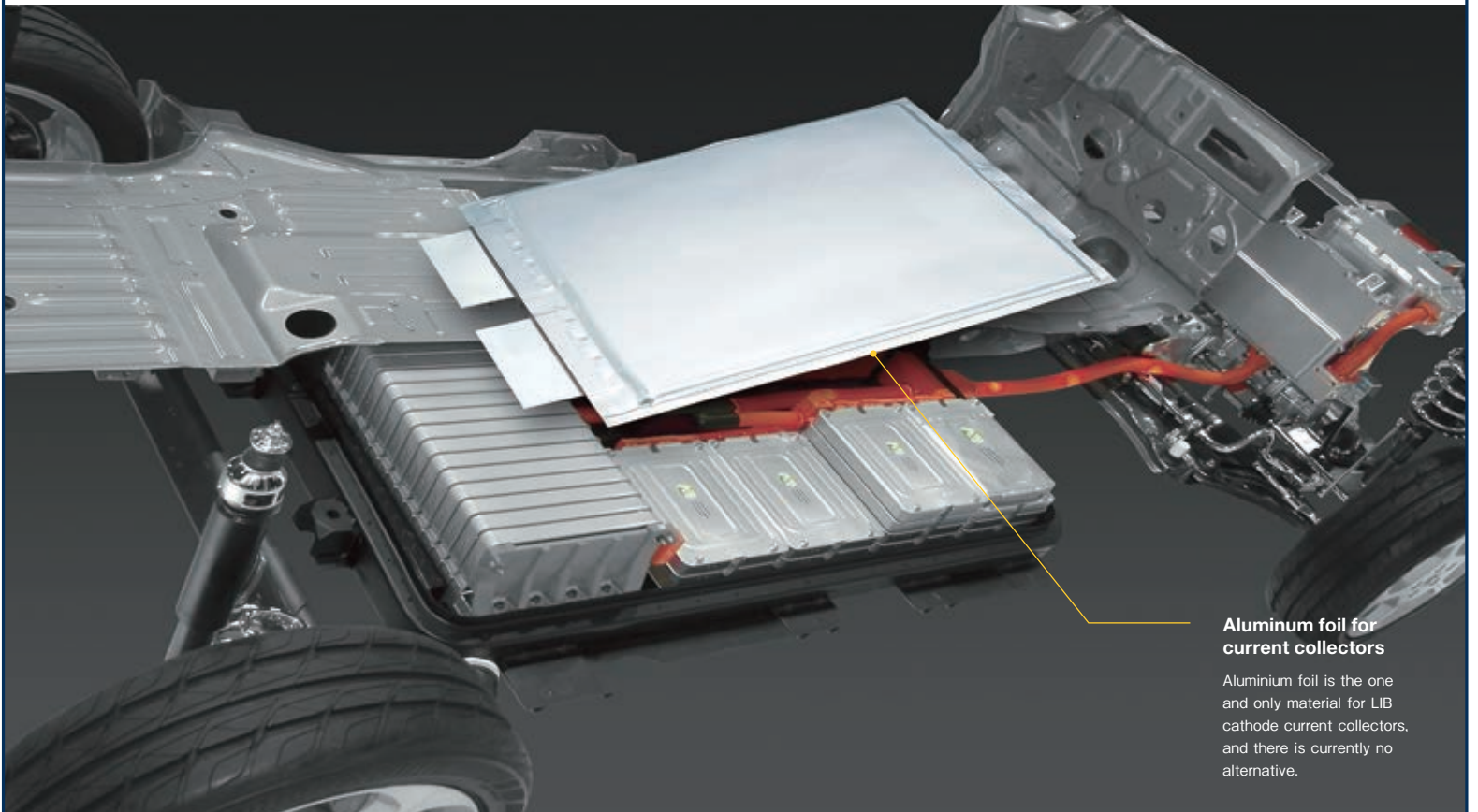
ALUMINUM FOR LITHIUM-ION BATTERIES

FOR FUTURE AUTOMOBILE

Comprehensive development of lithium-Ion battery materials for automotive applications

From Smartphones and Notebooks to BEVs, HEVs and PHEVs

Automotive LIB materials are rapidly expanding in line with the development of next-generation vehicles.



Aluminum foil for current collectors

Aluminium foil is the one and only material for LIB cathode current collectors, and there is currently no alternative.

Demand for next-generation vehicles, such as BEVs and HVs, continues to grow worldwide as environmental awareness increases against the backdrop of soaring energy prices and rising CO2 emissions. It is predicted that the share of next-generation vehicles in the overall automotive market will exceed 10% by 2030, and that the market size will be almost seven times larger than it is today. In the US, California's Zero Emission Vehicle (ZEV) regulations have been tightened further since 2018. The ZEV regulation requires automakers to sell a certain number of vehicles with zero emissions, such as BEVs and HVs, and the percentage has increased to 16% of sales from 2018.

The proliferation of EVs are influencing the development of secondary battery materials.

The proliferation of electric vehicles is influencing the development of secondary battery materials. As battery capacity is directly related to the range per charge, increasing the energy density per weight is a key theme for battery materials. For this reason, the development of high performance aluminium alloy current collector electrode foil materials is underway. For the battery case, high-strength aluminium alloy is formed into a rectangular shape suitable for compactness and lightness, so the know-how of press forming process was used for battery material development. Busbars for battery cells are being replaced by aluminium instead of copper, but there are still issues to be resolved. For automotive secondary batteries, UACJ is developing a comprehensive range of aluminium materials, including base metal development, surface treatment, joining technology and

processing technology. The development of battery housings using aluminium extruded shapes is also underway.



ENGINEER INTERVIEW



In the development of battery housing materials, the UACJ's extensive metallurgical knowledge and expertise in press forming processes and welding are being applied. In busbars for battery cells, UACJ is striving to overcome technical challenges, such as improving the formability of aluminium busbars and stabilising the low contact resistance.

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