

New energy storage battery box materials

What materials are used in battery boxes?

This study focuses on comparing three battery boxes: a base case steel battery enclosure (1400 mm × 1200 mm × 200 mm), and two alternative lightweight materials: aluminum alloy and CF-SMC.

Are battery boxes environmentally friendly?

In the above study, a life cycle assessment of battery box made from three different materials was conducted to analyze their environmental impacts in practical applications. The results indicate that lightweight materials, such as aluminum alloy and CF-SMC, generally have lower environmental impacts compared to steel box.

Who makes EV battery box covers?

CSP is North America's largest manufacturer and molder of composite materials. The company has produced more than 30 different composite battery-box covers for EVs in China and North America, including the Chevrolet Spark EV. The move from supplying battery box covers to fully assembled, multi-material battery enclosures is in full swing.

What is the best material for a battery enclosure?

Research on lightweighting in combination with battery boxes has also been conducted. Kaleg et al. 13 selected the 5052-0 series aluminum alloy as the material for the battery enclosure and, through finite element analysis, determined that a material thickness of 2 mm and a mass of 6.51 kg were the optimal design for the battery pack.

Can battery boxes reduce the environmental impact of lithium-ion battery packs?

Therefore, reducing the environmental impacts of battery boxes can effectively enhance the environmental benefits of lithium-ion battery packs. Lightweighting, as one of the measures for energy saving and emission reduction in automobiles, is widely applied to automotive components such as seats 10, engine hoods 11, and fenders 12.

What is a battery pack enclosure made of?

The battery pack enclosure is made from polyethylene terephthalate, comprising 17 % of the battery's total mass. The passive cooling mechanism uses stainless steel and aluminium, accounting for 0.5 % and 16.2 % of the battery's overall weight, respectively.



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