Aluminium set to make a charge on battery technology

Submitted by: BCM Public Relations
Monday, 15 May 2017

Rapid charge, long life batteries made from low-cost and abundant aluminium are set to emerge from research led by Taiwan's Industrial Technology Research Institute (ITRI). Unveiled at the All Energy event in Glasgow last week, aluminium ion batteries could displace the lead-acid batteries commonly found in automotive applications in just two years.

Developed in a collaborative research project together with Stanford University in the USA, the aluminium ion technology is expected to possess similar performance characteristics to existing battery designs. However, in contrast to the currently dominant technologies such as lithium ion, aluminium is a very common element and is therefore easily obtained at a relatively low cost.

Aluminium battery technology is also able to withstand 10,000 charge and discharge cycles without perceptible degradation in performance, far exceeding many of the existing battery designs and significantly reducing the specific cost.

Furthermore, aluminium ion technology is inherently safe - at high temperatures for example - and the batteries may even be pierced without risk of fire. This safety aspect is crucial for mass production and widespread application of new battery technology.

The elegant aluminium battery design is based on aluminium and an aluminium salt electrolyte gel from ITRI, together with a graphite membrane developed by Stanford University.

In addition to its attractive power density, rapid charging capability, low cost, long lifespan and safety characteristics, the aluminium ion technology is flexible and formable, making it suitable for numerous applications.

This year the novel battery design has already been presented with the prestigious 2017 Edison Award.

ITRI lead researcher Dr Chien-Chih Chiang explains that the next phase of development is now aimed at doubling or tripling the energy storage capacity of the battery technology.

Dr Chiang says: "Currently energy densities are around 40 kWh/kg for this aluminium ion battery technology, we expect to boost that to 60-80 kWh/kg before launching the system on a commercial basis."

With technology trials underway in an electric scooter, aluminium ion batteries are already suitable for commercial production, but ITRI is seeking additional collaborative partners to accelerate the process of development and roll-out.

Commenting during a presentation on international cooperation on renewable energy projects in Taiwan held at the All Energy Exhibition and Conference in Glasgow, Scotland, this week Dr Chiang observed: "High speed charge/discharge, greater durability, safe and low cost, are the advantages of an Aluminium battery. We believe that this type of battery technology can be a good solution for energy storage

systems in renewable energy field”.

Distributed via Press Release Wire (https://pressreleases.responsesource.com/) on behalf of BCM Public Relations

Copyright © 1999-2024 ResponseSource, The Johnson Building, 79 Hatton Garden, London, EC1N 8AW, UK

e: info@responsesource.com t: 020 3426 4051 f: 0345 370 7776 w: https://www.responsesource.com

responsesource