

Green Electrodes

Metal Free Electrodes for Organic Batteries

Invention

Storage of energy is one of the key factors in the ongoing renewable energy transformation. Among others, batteries play an important role in energy storage. Raw material cost is a significant part of the manufacturing cost. In particular, cost for the cathode is the major part of the overall cost. Among cost for cathode materials such as cobalt and nickel, there are also environmental issues in mining those metals.



Sample picture © istock – Teka77

In addition, depending on the application batteries require different properties ranging from weight, charging & discharging, capacity to flexible batteries for specific applications.

Therefore, scientists at University of Cologne have developed a metal free, printable electrode based on an organic compound prepared by polymerization of triaryl amine.

Commercial Opportunities

One area that offers enormous growth and savings potential, relates to so-called real-time location systems (RTLS) and smart-active labels. Here, special wireless components are used to monitor in real time the movement of goods, people, vehicles or similar. Most of the RTLS also require a wireless power supply. One important required feature in those applications is plasticity, and, thus, the compatibility with flexible parts such as packing material.

Current Status

The technology requires further F&E activities and is available for collaboration and / or licensing. In particular, the researchers are interested in collaboration partnerships.

An invention of the University of Cologne.

Competitive Advantages

- Metal free electrode
- Light weight
- Printable, flexible material

Technology Readiness Level

123456789

Experimental proof of concept

Industries

- Batteries
- Packaging
- Transport / Tracking

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