Environmental Assessment Category of Solid State Capacitors

Based on the generated LCIs of the AECs and ReCiPe2016, fossil depletion, climate change, and terrestrial ecotoxicity were identified as the key environmental impact categories in the production stage for the AEC product family.

DOI: 10.1016/J.APENERGY.2018.03.067 Corpus ID: 116200951; Life cycle assessment and environmental profile evaluations of high volumetric efficiency capacitors @article{Smith2018LifeCA, title={Life cycle assessment and environmental profile evaluations of high volumetric efficiency capacitors}, author={Lucy Smith and Taofeeq Ibn-Mohammed and ...

Biomass-derived carbon materials (BDCMs) have been considered as promising and practical candidates for electrode materials of solid-state supercapacitors (SSCs), due to their low cost, good ...

The electricity used (798,545 kWh per 100,000 capacitors) and the raw material aluminum ingots (5130 kg per 100,000 capacitors) are the environmental hotspots for high-voltage AECs" life...

A model of the environmental effect on capacitance stability with temperature and frequency in Polymer Tantalum capacitors is proposed based on electrical characterization of ...

The goal of this study is to assess the environmental performances of two types of aluminum electrolytic capacitors, namely "Type 1" and "Type 2". The two capacitors differ for the ...

This report provides quantitative analysis of Solid State Ultracapacitors (SSUs) from technological and financial perspectives. SSUs are Ultracapacitors with solid electrolytes predicted to have ...

The aim of this study is to compare the environmental impact due to the stages of production (from the raw materials supply to the assembly) and end-of-life (recycle or ...

influences the environmental performances of the capacitor. LCA is an important tool to evaluate the environmental impacts of capacitors, especially during the design phase of the devices. The growing production of these components is reflected in a tangled network of suppliers and manufacturers [16], [17]. Research Method

This study focuses on evaluating the environmental impacts on high-voltage AECs and identifying the environmental hotspots including critical environmental impact ...

This study focuses on evaluating the environmental impacts on high-voltage AECs and identifying the

environmental hotspots including critical environmental impact categories and key flows (inputs and outputs), in order to seek opportunities for improvement from the manufacturers" environmental management and industrial chain collaboration.

With current material performance and energy mixes, the graphene-based supercapacitor would increase impacts in all environmental categories analysed, ranging from 27% higher human toxicity to...

A model of the environmental effect on capacitance stability with temperature and frequency in Polymer Tantalum capacitors is proposed based on electrical characterization of fabricated capacitors and high-resolution scanning electron microscopy (SEM) images of the unformed tantalum anodes and tantalum anodes with different anodic oxide film ...

Environmental analysis of a nano-grid: A Life Cycle Assessment. Renewable energies are often subject to stochastic resources and daily cycles. Energy storage systems ...

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Supercapacitor technology has been continuously advancing to improve material performance and energy density by utilizing new technologies like hybrid materials and electrodes with nanostructures. Along with fundamental principles, this article covers various types of supercapacitors, such as hybrid, electric double-layer, and pseudocapacitors. Further, ...

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