# A Multi-attribute assessment of environmentally sound electric vehicle battery technologies

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Abstract

The present study aims to assess environmental impacts associated with recycling and disposal management of 4 electric battery technologies and select the most favourable one by considering their manufacturing, political and social viability, environmental impacts and exposure and toxicity potential issues using multi-attribute decision analysis methods. Since data used are usually variable and uncertain, fuzzy linguistic approach (FLA) is applied to address ambiguity and its results are compared to the ranking using the analytic hierarchy process (AHP) technique. The recycling assessment ranks the batteries in the following preferential order: Nickel-metal (NiMH) hydride>Sodium-sulphur (NaS)>Lead-acid (PbA)>Nickel-cadmium (NiCd). Almost similar results were also obtained using FLA.