

Unfolding of non-aqueous redox flow battery by a Na- β -alumina tubular membrane attempt: A prototype redox flow battery performance evaluation

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A redox ion cross over in a non-aqueous redox flow battery development is big issue. Here in, the Na- β -alumina as separator was introduced and its performance evaluated using different type of electrolytes on vanadium (III) acetylacetonate charging and discharging performance in acetonitrile medium. Electrolyte type was selected based on the solution resistance using impedance analysis. Then, charging-discharging of Na- β -alumina was performed by galvanostatic mode using 0.01 mA/cm² and 0.0015 mA/cm² charging and discharging respectively. A columbic and voltage efficiencies were calculated using the charging-discharging data.

Key words: Na- β -alumina, non-aqueous, RFB, V(III)(acetylacetonate), electrolyte