

AQUEOUS POLYMER-BASED REDOX FLOW BATTERY

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With an increasing energy demand and declining climate conditions caused mainly by fossil fuels, our society, is more than ever in need of using renewable energy sources. Although promising renewable energy technologies exist, they are hindered by glaring obstacles; One of which is a cost-effective, reliable storage systems that can withstand storing the excess energy these energy sources generate.



Redox flow batteries have the potential to solve the storage system issue at hand, however, many of those batteries rely heavily on expensive separator membranes and expensive metals, which make redox flow batteries less desirable in industry. This research focuses on designing a cost-effective, reliable redox flow battery. This is done by utilizing water-soluble polymers. This will not only eliminate the need for expensive metals, but also eliminate the need for expensive separator membranes. Furthermore, the battery designed is expected to be capable of having good energy density and a lifecycle withstanding 10,000 charge/discharge cycles while maintaining capacity.

