ACID-BASE ELECTROCHEMICAL FLOW BATTERY (ABEFB)

TECNOLOGÍA PATENTADA

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RESUMEN

The research group of Applied Electrochemistry and Electrocatalysis of the University of Alicante has developed an electric energy storage system. This system uses neutralization acid-base free energy for discharge process (use as battery), while charge process is performed by inverting previous reactions. The electrodic reactions are hydrogen evolution and oxidation reactions so no net hydrogen consumption exists.

The research group is looking for companies interested in licensing the technology, developing R & D projects to optimize this initial idea and/or to adapt this development to their needs for a future commercial exploitation of the patent.

VENTAJAS Y ASPECTOS INNOVADORES

ADVANTAGES OF THE TECHNOLOGY

- High faradic efficiency in the process. Higher faradic efficiency and reversibility than other systems.
- It takes advantage of hydrogen self-supply.
- Simplicity of the system and utilization of simple and environmentally friendly substances.
- Cheaper reagents than those of other redox flow systems.
- High energy storage capacity inasmuch as it only depends on hydronium and hidroxyl ions concentration in the system.
- No imbalance of evolved redox pairs in the system is considered. Only pH adjustment system could be used if it necessary.

INNOVATIVE ASPECTS OF TECHNOLOGY

- The advantages of this technology are associated to innovative aspects of this technology.
- The own simplicity of the concept adds an undoubtable innovative character because this electric energy storage system is based in the use of “neutralization energy” of the system.
- The utilization of hydrogen production and self-supply is considered as chain gear which operates this system.
- Hydrochloric acid and sodium hydroxide solutions with sodium chloride are mainly used as reagents. All reagents are very cheap and environmentally friendly.

APLICACIONES DE LA OFERTA

Electric energy generation and storage.

COLABORACIÓN BUSCADA

Companies interested in acquisition of this technology are looked for. In this case, a commercial prototype could be developed by:

- License agreements of the patent.
- R & D proyects.