

Selective Reductant Electrowinning for Metal Recovery and Waste Reduction

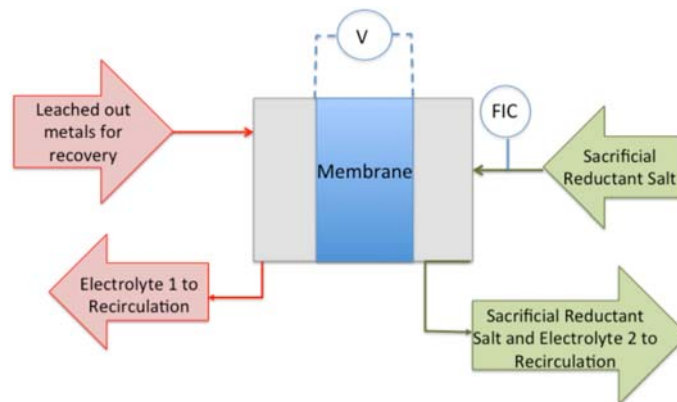
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Overview

A selective reductant electrowinning process developed by Ohio University researcher, Dr. Gerardine Botte, shows great promise in capturing metals in industrial processes and waste streams. This new process is highly efficient in comparison to existing approaches, and shows potential for both lowering costs and generating new revenue streams for companies in multiple industries.

Metals are often used as base catalysts (Ni, Co, Cr, Ag, Au, Fe, Cu, and Zn) in industrial processes. These metals eventually lose their catalytic functions and become waste. In other situations, metals leach into water and waste streams during manufacturing processes. This new electrowinning process offers an economical and efficient means for capturing these metals, either for reuse or to be sold.

Various metals are also found in municipal wastewater streams. The use of this technology in water remediation allows for not just the removal of metals, but also inorganics and other organic compounds.



Benefits

- Energy efficient process, offering substantial savings over traditional electrowinning
- Process is selective, allowing for specific metals to be targeted for recovery
- Allows metal recovery from waste streams, allowing metals to be reused or sold



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Commercial Applications

- Manufacturing—especially electronics and batteries
- Oil production and refining
- Water treatment/remediation
- Chemical plants

About the Inventor

Dr. Gerardine Botte (Distinguished University Professor and Russ Professor) is the Founder and Director for the Center for Electrochemical Engineering Research (CEER). Dr. Botte has been working on the analyses of electrochemical systems for the past seventeen years. Dr. Botte has been involved in the scale up of several electrochemical technologies, their commercialization, and in the spin-off of companies. Before attending graduate school, Dr. Botte worked as a process engineer in a petrochemical complex where she was involved in the synthesis of fertilizers and polymers.



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