AMMONIA AND NUTRIENT ION RECOVERY FROM MANURE WASTEWATER AND ELECTROSYNTHESIS OF VALUE-ADDED CHEMICALS USING ION SELECTIVE REDOX MATERIAL

WARF: P230277US01

Inventors: Song Jin, Rui Wang

The Invention

UW-Madison researchers have developed a new method for recovering NH4+ or K+ ions from manure wastewater. The method includes contacting a manure wastewater stream containing organic matter and salts with an ion-selective redox material (e.g., a Prussian Blue analog, potassium nickel hexacyanoferrate, or copper hexacyanoferrate). In practice, the ion-selective redox material takes up the ions of interest and upon application of a current, this material is oxidized, resulting in the release of the NH4+ or K+ ions. Further, this oxidation reaction can be paired with a cathodic reaction (e.g., hydrogen evolution reaction or two-electron oxygen reduction reaction). The result of these paired reactions is the coproduction of hydrogen or hydrogen peroxide, respectively.

Additional Information

For More Information About the Inventors

- Song Jin

Publications

- Read a news story about this technology.

Tech Fields

- Animals, Agriculture & Food : General agriculture technologies
- Clean Technology : Biobased & renewable chemicals & fuels

For current licensing status, please contact Jennifer Gottwald at jennifer@warf.org or 608-960-9854

Figures