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Microbial Electrolytic Cell

AzTE Cases # M09-021 & M09-025

Inventors

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Invention Description

Hydrogen is a potentially significant contributor to global energy sustainability if it is produced from renewable, non-fossil fuel resources such as biomass and sunlight. The use of Microbial Electrolytic Cells (MEC) has become an attractive alternative source for biological H_2 production. MEC's have many advantages over other biohydrogen processes, such as having a variety of organic donor substrates and that the non-fermentable substrates are completely oxidized to CO_2, resulting in high hydrogen conversion yields. MEC's include two redox steps, one occurring at the anode and the other occurring at the cathode. Balancing the relationship between the two redox steps influences the conversion efficiency.

Researchers at Arizona State University's Biodesign Institute have developed a novel MEC cell and collection method that maximizes hydrogen production at a MEC cathode by efficient capture, thus minimizing waste.

Potential Applications

- Efficient production and capture of hydrogen for use as a clean renewable energy source

Benefits and Advantages

- Efficient hydrogen production
- Maximum hydrogen capture
- Clean, renewable fuel source

Intellectual Property Status:
Patent Pending

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