



Nanotechnology Available for License

Efficient, Renewable, and Environmentally Friendly Hydrogen Production Process

Photocatalysts are used to convert inexpensive, non-fossil fuel sources, into hydrogen.

Hydrogen Production Reactor

Researchers at Montana State University and Hamilton College have developed a composite gel hydrogen reactor that encapsulates hydrogenase to optimize process conditions and protect the catalyst from oxygen poisoning. The system incorporates photocatalysts to produce hydrogen from inexpensive or by-product electron donors such as sulfite, organic acids, or ethanol.

Benefits

- Hydrogen can be produced from inexpensive or waste materials such as sulfite, organic acids, or ethanol.
- Cost efficiency is also provided by using photocatalysis which allows light to be used as an energy source.
- The process has the flexibility of using a naturally occurring protein catalyst (hydrogenase) or synthetic nanoparticles containing metals such as Pt, Pd, Fe, Co, or Ni.
- Process longevity is enhanced by encapsulating and protecting the catalysts from oxygen poisoning.

Technology Transfer and Development Status

A patent is pending and research papers are available.

Contact for licensing or further details

Nick Zelter, MSU Technology Transfer Officer, 406/994-7706, nzelter@montana.edu

Montana State University
Technology Transfer Office
304 Montana Hall
Bozeman, MT 59717-2460

Phone: 406/994-7868
Fax: 406/994-4152