Available Technologies

Integrated Reactor & Centrifugal Separator & Uses Thereof

Applications:

- Production of biodiesel by the esterification of organic oils and fats
- Synthesis of methyl esters (biodiesel)
- Separation of biodiesel from immiscible glycerol byproducts
- Oxidation of organic precursors into intermediate compounds

Advantages:

- Reactor/separator
  - Enables chemical reactions in which miscible or immiscible reactant solutions produce immiscible product solutions
  - Faster than conventional kinetically controlled mass transfer systems
- Process
  - Continuous, two-phase operation
  - High throughput
  - Intensified
    - Combines reaction and phase separation
    - Provides intensive multiphase mixing
    - Enables short residence time
    - Requires small footprint

Contact:
Mark Reeves
Oak Ridge National Laboratory
P.O. Box 2008, Mail Stop 6196
Oak Ridge, TN 37831
(865)576.2577
reevesme@ornl.gov
www.ornl.gov/adm/partnerships/

PARTNERSHIPS

Summary:

Technology Description

A method and apparatus for producing a biodiesel product. The method includes continuously contracting a triglyceride containing component with an alcohol and a catalyst at an elevated temperature in a centrifugal reactor/separator. A less dense phase including the biodiesel product is continuously separated from a more dense phase containing glycerine in the reactor/separator.

Technology Application

For production of biodiesel by the esterification of organic oils and fats.

Stage of Development: Proof-of-Principle

Patent Status: Patent pending

Licensing Status: Available for licensing