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Efficient, Environmentally Conscious Conversion of Biomass to Sustainable Fuel and Chemicals

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Categories:
- Chemical Engineering
- Green Technology

Keywords:
- Biofuels
- Biomass
- Chemical Engineering
- Clean Energy
- Green Technology

Due to its instability, poor combustion performance, and low calorific value, bio-oil is generally upgraded by reducing oxygen content. Hydrodeoxygenation is one commonly used approach. Using hydrogen gas for deoxygenation is expensive given the high cost of production and transportation. A need exists for an efficient process of converting biomass to hydrocarbons using available resources.

Researchers at Purdue University developed a process that uses methane to deoxygenate guaiacol, a model compound for upgrading pyrolysis bio-oils by deoxygenation. This process is both economical and feasible, overcoming the high cost of hydrogen gas used in conventional processes.

Advantages:
-Economic/feasible process for upgrading pyrolysis bio-oils
-Overcomes the high-cost of hydrogen gas

Potential Applications:
-Hydrodeoxygenation processes
-Bio-oils

People:
- Varma (DECEASED), Arvind (Project leader)
- Xiao, Yang

Intellectual Property:

Application Date: July 29, 2016
Type: Utility Patent
Country of Filing: United States
Patent Number: 10,023,809
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