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Deoxygenation Process of Pyrolysis Bio-oils Using Methane and Bimetallic Catalysts

An economical and feasible process uses methane to deoxygenate bio-oil precursors, overcoming the high cost of hydrogen gas in conventional upgrading methods.

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

TRL: 3

Intellectual Property:

Provisional-Patent, 2015-07-31, United States | Utility Patent, 2016-07-29, United States

Technology ID
2016-VARM-67236

Category
GreenTech/Carbon Management
Energy & Power Systems/Power Generation

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View online

Keywords: bio-oil upgrading, hydrodeoxygenation process, methane deoxygenation, biomass conversion, hydrocarbons, guaiacol deoxygenation, pyrolysis bio-oils, reducing oxygen content, efficient deoxygenation, catalytic HDO