



Production of Synthetic Coal from Renewable Biomass

Synthetic coal-like material is produced from high growth rate, renewable algae biomass using a hydrothermal carbonization process. The process yields two components: a solid coal-like material and a liquid fraction that contains significant amounts of nitrogenous solutes.

The conversion process is rapid and occurs at relatively mild conditions of low temperature and pressure without the costly need to dry the feedstock.

The resulting synthetic coal may be used directly as a fossil coal replacement in power plants due to its similar carbon and energy contents but without sulfur and heavy metals contamination. In addition, the utilization of algae as a feedstock results in a carbon neutral material and process. This process could be coupled with an algae farm and algal oil extraction process to provide both oil and a solid fuel source thereby eliminating the problems associated with algae disposal after oil extraction.

Features & Benefits

- Carbon and energy content similar to bituminous coal could serve as direct coal replacement in power plants
- Synthetic coal is sulfur and heavy metal free
- Carbon neutral process by using power plant stack gas to grow the algae and eliminate food vs fuel issue present with some other biomass feedstocks.
- Process works with wet biomass, eliminating costs and time associated with drying the biomass feedstock.

Technology Status

Process has been demonstrated in batch mode at laboratory scale, Multiple micro algae species have been tested. The energy content (BTU) and composition of the synthetic coal has been found to be at the high end of bituminous coal's energy content range.

IP Status

Patent pending

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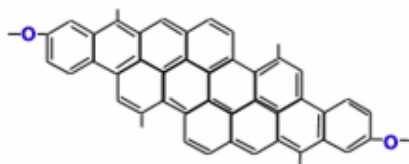
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UM Docket Z09032
090408

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