



## Coal Refinery and Product Processes

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#### Patent Status:

Patent Pending

### Description of Technology

In a declining coal market, the need for other uses of coal are being explored. Currently, different methods like pyrolysis, gasification, and coal liquefaction and being used on coal to use it for other non-energy purposes, but all of these methods have their drawbacks.

Researchers at the University of Wyoming have invented a way to utilize coal in a non-combustion method. The method extracts the polar molecules out of the coal via a continuous extraction using dimethylformamide at 140 C, and also extracts the non-polar molecules via supercritical CO2 extraction at 40 C. This gives the coal a highly exfoliated and high surface area form. Normal mechanical processes applied to coal such as ball milling or grinding do not make the coal fine enough for the needed applications. The coal can then be used in products such as soil remediation additives, gas/fluid absorbents, graphene oxide spray slurries, and chars for gasification and hydrogenation.

### Applications

This new method makes coal into a fine enough powder to be used in soil remediation additives, gas/fluid absorbents, graphene oxide spray slurries, and chars for gasification and hydrogenation.

### Features & Benefits

- Creates a non-combustion use for coal
- Creates a powder from coal that is finer than normal mechanical methods
- The product can be used in a variety of applications

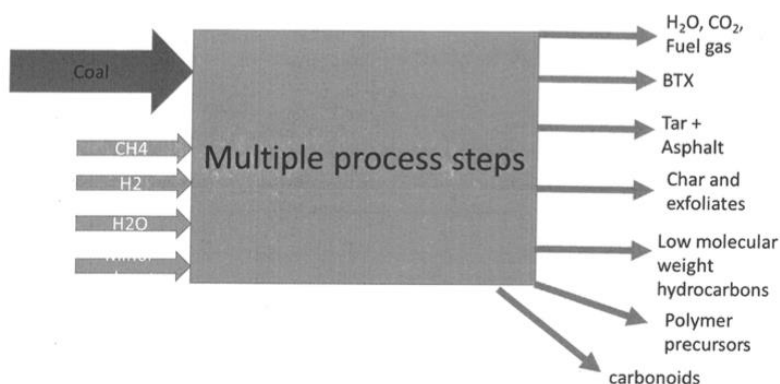


Figure: Coal refinery flow diagram

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