

METHOD TO PRODUCE SYNGAS



INVENTION

A process and apparatus for producing syngas from low grade coal and biomass.

The process includes (i) gasification of a mixture of low grade coal and biomass, (ii) reforming the gasified mixture, and (iii) removing CO₂ from the gasified and reformed syngas mixture.

MARKET SIZE AND GROWTH

The global syngas market grew at a CAGR of 10% during 2014-2019¹.

The global market for syngas chemicals will grow from \$46.8 billion in 2017 to \$72.4 billion by 2022, at a compound annual growth rate (CAGR) of 9.1% for the period of 2017-2022.

Some of the key players in the market are Air Liquide, BASF SE, Siemens AG and Royal Dutch Shell.

APPLICATIONS

Syngas has applications in

1. Electricity generation
2. Production of Synthetic Diesel
3. Dimethyl ether
4. Methanol
5. Substitute to greenhouse gases

ADVANTAGES

- This method can be used with a low grade coal feedstock such as Indonesian coal
- The co-gasification apparatus includes a CO₂ absorber to remove CO₂ from the syngas stream.
- The method uses aquatic biomass like *Nannochloropsis oculata*

PROJECT STATUS

- Simulations were run to confirm the yield percentages.
- A process and apparatus for small scale lab-level syngas generation has been developed.

LOOKING FOR DEVELOPMENT PARTNER

We are looking for an industrial company who can partner for scaling up the process, redesign the apparatus for high throughput and large quantity production, and perform the techno-economic analysis.

Our ultimate objective is to license the intellectual property (IP) to such partner for commercialization.

PATENT PROTECTION

A patent application covering this method and apparatus 16362127 has been filed in US. The IP is owned by King Fahd University of Petroleum & Minerals (KFUPM).

ABOUT KFUPM

KFUPM was established in year 1963 and is located in Dhahran city of Saudi Arabia. KFUPM currently ranks at 186 in QS World University Rankings 2021. KFUPM's Innovation & Technology Transfer office strives for taking innovation from lab to market place.

For further information please contact
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¹Syngas & Derivatives, Markets & Markets

²Syngas Chemicals: Global Markets to 2020, BCC Research