

CO-Rich Syngas Production Process

Summary

Expanding off a solid foundation in the hydrogen production area, Air Products has designed an energy-efficient process for producing CO-rich syngas. This reforming process uses intermediate injection of reactants to allow for low temperature steam without coking.

Overview

Current methods for syngas production are thermodynamically inefficient. They use high temperature steam throughout the process to avoid coking. This invention allows the use of high temperature steam only in the critical region and low temperature steam downstream of the critical region. The result is a syngas stream with a higher concentration of CO which requires less CO₂ recycle due to a minimized water gas shift effect at the lower steam temperature. The benefits are two-fold: less expensive CO₂ recycle and less energy required to heat the steam.

CO-rich syngas can be used in CO production, Gas to Liquids (GTL) plants, Fisher-Tropsch (FT) plants, and in methanol production. This technology has been modeled and calculations were done to show the reduction in size required for the CO₂ recycle loop. It employs known process steps in an innovative fashion to solve the coking issue while saving the user both capital and operating costs.

Benefits

- Thermodynamically efficient CO-rich syngas production
- Minimizes water gas shift; reduced CO₂ recycle required
- Uses a mix of low and high temperature steam; reducing energy costs.

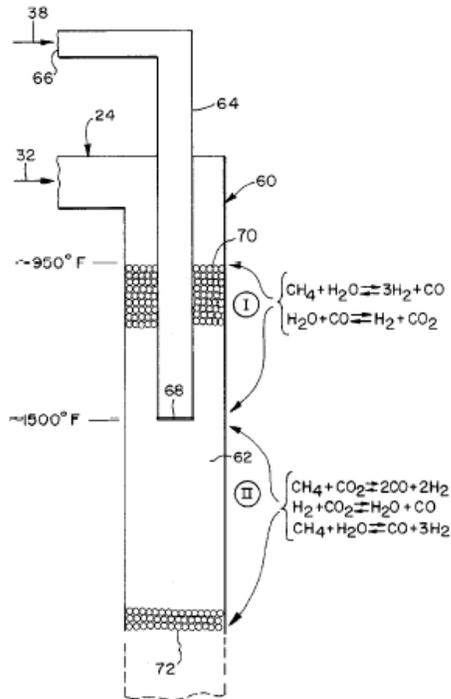
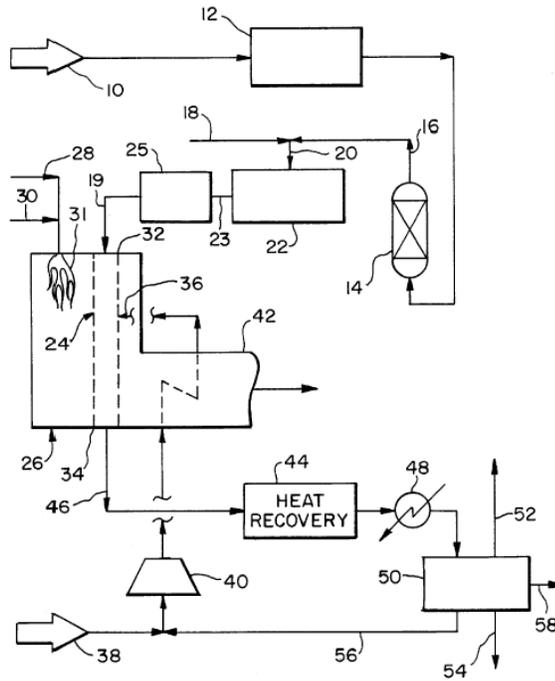
Priority Patent Number	Title	Status	Grant Date
6,527,980	Reforming with Intermediate Reactant Injection	Issued	3/4/2003

Also Offered

Limited technology transfer assistance is available on an hourly basis.

Availability

Air Products is offering this technology for license or sale.





For more information on licensing this technology contact:

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