

Title (en)  
SYNTHESIS GAS FROM SLURRIES OF SOLID, CARBONACEOUS FUELS

Publication  
**EP 0148542 B1 19880316 (EN)**

Application  
**EP 84300138 A 19840110**

Priority  
EP 84300138 A 19840110

Abstract (en)  
[origin: EP0148542A1] Synthesis gas, fuel gas, or reducing gas is produced by the noncatalytic partial oxidation of a slurry of ash-containing solid carbonaceous fuel in a liquid carrier with a free-oxygen containing gas in the free-flow reaction zone of a refractory lined gas generator at an autogenous temperature in the range of about 2350 DEG F. to 2900 DEG F. so that about 75 to 95 weight percent of the carbon in the fuel feed to the reaction zone is converted into carbon oxides. The hot effluent gas stream from the reaction zone containing entrained particulate carbon, unconverted solid carbonaceous fuel, and molten slag is passed through a free-flow radiant cooler where it is contacted by and provides the heat to vaporize an aqueous solution of catalyst consisting of alkali metal and/or alkaline earth metal compound in water. In the presence of the catalyst, H<sub>2</sub>O and at least a portion of the particulate carbon and the carbon in the unconverted solid carbonaceous fuel are reacted together at a controlled temperature to produce additional H<sub>2</sub> and CO<sub>x</sub>. The hot effluent gas stream enters the radiant cooler at a temperature in the range of about 2800 DEG F.-2300 DEG F. and leaves at a temperature in the range of about 1350 DEG F. - 1600 DEG F. Further, the molten slag in the effluent gas stream may be fluxed with the alkali metal and/or alkaline earth metal compound to facilitate separation of the slag from the effluent gas stream.

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Cited by  
EP0305047A3; EP0368476A3; JPH0328294A; US11447576B2; WO2021211530A1; US11286436B2; US11312914B2; US11370983B2; US11802251B2; US11939546B2; US11939547B2

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