

Title (en)
IMPROVED SYSTEM AND INTEGRATED CHEMICAL REACTOR FOR HYDROGEN PRODUCTION THROUGH STEAM REFORMING OF HYDROCARBONS

Title (de)
VERBESSERTES SYSTEM UND INTEGRIERTER REAKTOR ZUR WASSERSTOFFPRODUKTION DURCH DAMPFREFORMIERUNG VON KOHLENWASSERSTOFFEN

Title (fr)
SYSTEME AMELIORE ET REACTEUR CHIMIQUE INTEGRE PERMETTANT DE PRODUIRE DE L'HYDROGENE PAR REFORMAGE DE VAPEUR D'HYDROCARBURES

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Abstract (en)
[origin: WO0202220A1] The present invention provides a reactor, which includes: a unitary shell assembly (10) having an inlet (1) and an outlet (8); a flow path extending within the shell assembly (10) from the inlet (1) to the outlet (8), the flow path having a steam reformer section with a first catalyst (5) and a water gas shift reactor section with a second catalyst (50), the steam reformer section being located upstream of the water gas shift reactor section; a heating section within the shell assembly (10) and configured to heat the steam reformer section; and a cooling section within the shell assembly (10) and configured to cool the water gas shift reactor section. The present invention also provides a simplified hydrogen production system, which includes the catalytic steam reforming and subsequent high temperature water gas shift of low-sulfur (< 100ppm by mass) hydrocarbon fuels followed by hydrogen purification through the pressure swing adsorption (PSA).

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