

200,000 SCFH Hydrogen Plant for Sale

Capacity: 200,000 SCFH

Year Built: 2006

Raw Materials: Natural Gas, Steam

End Product: Hydrogen

Technology: Hydro-Chem

Process Information:

Flow from PSA/SCFH	209,951
Temperature, °F	100
Pressure, psig min.	250
Hydrogen Purity	99.99
LP Hydrogen @ 250 psig/SCFH	66,493
HP Hydrogen @ 500 psig/SCFH	141,801
Recycle Hydrogen /SCFH	1,657

Major Equipment

- (1) Feed heater
- (1) Hydrotreater Vessel
- (2) Desulfurizer Vessels
- (1) Steam / Gas Lateral Heat Exchanger
- (1) Feed Superheater
- (1) Reformer
- (1) Reformer Effluent Steam Generator
- (1) Shift Converter Vessel
- (1) Shift Effluent Steam Generator
- (1) Boiler Feedwater Heat Exchanger
- (1) Deaerator Heat Exchanger
- (1) Hot & (1) Cold Condensate Drum



BRIEF PLANT DESCRIPTION

This 200,000 SCFH Hydrogen Generation Plant takes Natural Gas feed by the refinery @ 345 psi at 70 °F flows through the Feed Heater, heated to 750 °F, before entering the Hydrotreater where unsaturated hydrocarbons are converted to saturated hydrocarbons, onwards to the Desulfurizer Vessels where sulfur is removed from the feed gas. The gas is mixed with saturated steam, heated as it passes through the Super Heater, then heated further and reacted with a catalyst to produce a mixture of hydrogen, carbon dioxide, carbon monoxide, water, and methane as the gas passes through the Reformer. The gas flows through the Reformer Effluent Steam Generator, enters the process side of the Feed Heater, into the Shift Converter vessel where steam and carbon monoxide are catalyzed forming more hydrogen and carbon dioxide. The process gas stream is cooled before entering the Hot Condensate Drum and continues onto the Cold Condensate Drum where moisture from the stream is condensed and separated from the process gas (crude hydrogen) stream before entering the Pressure Swing Absorption (PSA) System, which mixes the cold condensate and boiler feedwater for the deaerator. The PSA purification system uses absorption to remove all impurities such as carbon monoxide, methane, carbon dioxide and nitrogen, producing a high purity hydrogen product. All steam is generated by recovering waste heat.

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