

Abstract

Process and plant for producing a synthesis gas product stream having an adjustable H₂/CO ratio and a pure hydrogen stream

Proposed are a process and a plant for producing a synthesis gas product stream having an adjustable H₂/CO ratio and a pure hydrogen stream, wherein it is provided according to the invention that a substream of a deacidified synthesis gas stream is supplied to a membrane separation plant fitted with a hydrogen-selective membrane and the remaining substream is supplied to a pressure swing adsorption plant, wherein the latter affords a pure hydrogen stream and a fuel gas stream. The hydrogen-enriched permeate stream obtained from the membrane separation is likewise supplied to the pressure swing adsorption plant, thus enhancing the yield of pure hydrogen. The hydrogen-depleted retentate stream obtained from the membrane separation is discharged as a synthesis gas product stream and if of a suitable composition may be utilized as oxo gas.

[Figure 4]