

# **BIOMASS SYNGAS PURIFICATION PROCESS UNDER POSITIVE PRESSURE FOR PRODUCING OIL AND SYSTEM CONFIGURATION THEREOF**

## **ABSTRACT**

Provided is a biomass syngas purification process under positive pressure for producing oil and the system thereof. In the process, an oxidation air blower is employed to blast a high-temperature pyrolysis gasifier; a high-temperature syngas extracted from the gasifier enters a water-cooled chilling tower via a water-cooled flue, and the gas is partly chilled to solidify slag by spraying water; the waste heat is recovered by a waste heat boiler of a water-tube type and a waste heat boiler of a heat-tube type in two stages with double pressure; the by-products, middle pressure steam and low pressure steam, are ejected externally; after the heavy tar is condensed and recovered by the waste heat boiler of the heat-tube type, the resulting syngas enters a Venturi scrubber without padding, scrubbing dust extraction, a wet electrostatic precipitator for deep dust extraction, and is purified by removing tar fog; then the acceptable syngas is transported to a wet gas-holder for storage or supplied for use down-stream. The purification aims of cooling of the syngas in stages, gradient recycling of waste heat, stepwise dust extraction and tar removal are achieved and the technical problems of a complex system, long flow, high energy consumption, low efficiency, and poor stability and economy are resolved by optimizing the process and controlling the appropriate process parameters.

Fig. 1