

## 1 BPD

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The extra-heavy oil fractions upgrading process, which consists of a rapid thermal pyrolyzer (RTP) of extra-heavy oil and gasifier/combustor of RTP residue to produce syngas as well as supply heat to the pyrolyzer are developed in KIER (Korea Institute of Energy Research). The rapid thermal pyrolysis (RTP) characteristics of heavy oils have been determined in a pilot-scale fluidized bed reactor with capacity of 1 BPD (barrels per day). The fluidized bed reactor consists of a riser and the flow characteristics of silica sand particle and heavy oils (B-C oil, oil sand bitumen) inside the riser in terms of reactor temperature and pressure is investigated. The operation characteristics such as startup, steady-state, and shutdown of the process were reported. The improvement of SCO product in terms of decrease in viscosity and impurities were observed for the result of RTP process.