

1 5 ADVANCED PFBC COMBINED CYCLE SYSTEM

Keywords : High efficiency generation , CO₂ reduction , PDU Test , A-PFBC , Fluidized bed ,
Limestone dry desulfurization , CaS oxidization

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Substance

The A-PFBC system incorporates the partial gasification of coal in a gasifier, the desulfurization of H₂S in a limestone desulfurizer, and the combustion and oxidization of gasifier char and desulfurizer CaS in a PFBC oxidizer. A-PFBC system has the advantages of higher plant efficiency, which potential exists of 46% HHV(net plant efficiency).

From 1996, CCUJ,EPDC,CEPCO(joined in 1999) and MHI(joined in 2002) started the A-PFBC PDU(Process Development Unit) Test Project being mainly aimed for a process verification, operation & control confirmation, comprehension of desulfurization & oxidization characteristic. The capacity of PDU test plant is 15ton/day (Coal) class. Its foundation work for construction was started at EPDC' Wakamatsu site in 1999, and the PDU test plant was constructed in July 2001. PDU Test Run was started in July 2001 and under Test now until March 2003.

This paper presents the outline of the A-PFBC system and the results of the PDU Test such as startup operation of the plant, partial gasification characteristic, desulfurization characteristic and characteristic of 3 reactors combined system.

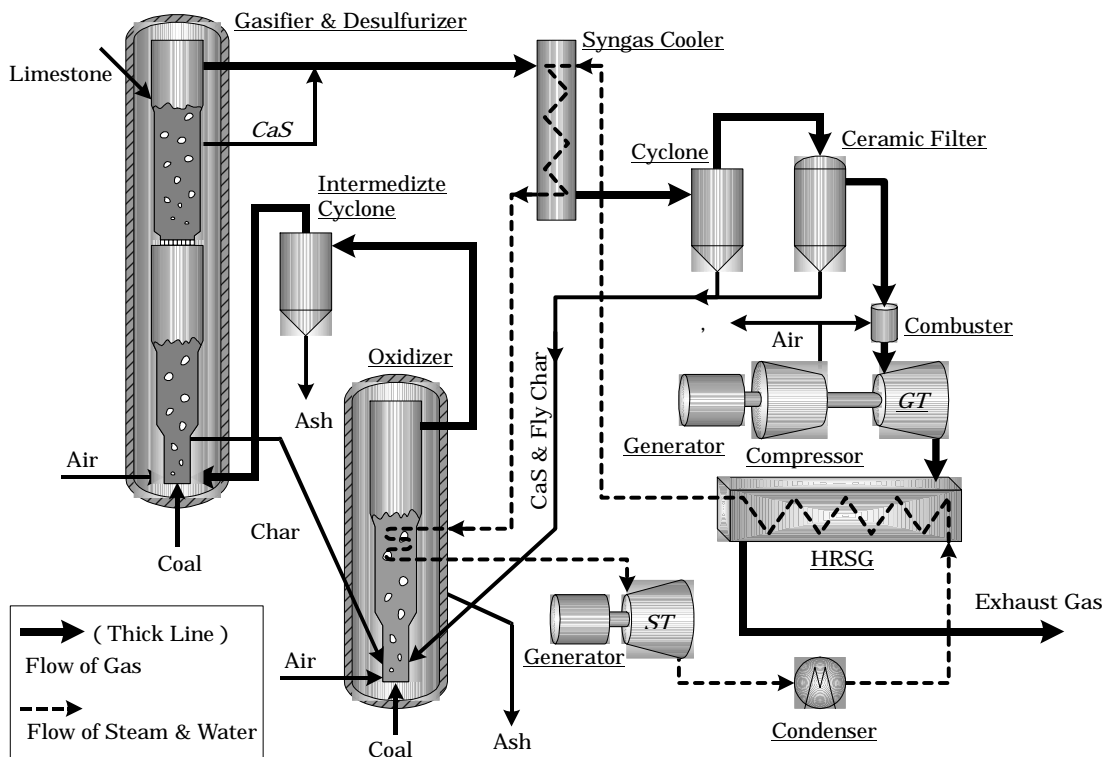


Figure. A-PFBC(Series Type) Simplified Flow Diagram