

Dynamic simulation of an entrained-flow gasifier in an IGCC power plant

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A dynamic simulation model of a dry feed entrained-flow coal gasifier in an integrated gasification combined cycle (IGCC) power plant is developed to provide a better understanding of the entrained-flow gasifier dynamics. The Shell gasifier, the most prevalent dry feed entrain-flow coal gasifier is modeled and simulated in gPROMS. The dynamic behavior of the gasifier's key variables (e.g. temperature and composition of the syngas, thickness of the fluid and the solid slag) are studied after step change in the inlet flow rate and conditions. Implications for the process control are given.