

论文

华能北京热电厂CO2捕集工业试验研究

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摘要:

我国首套电厂CO2捕集工业级示范系统已在华能北京热电厂建成并成功示范运行, 证明该技术适合于在商业运行燃煤电厂进行捕碳。该文介绍了该系统的工业运行情况和试验结果。试验结果表明: 前期钝化过程, 吸收剂中的抗氧化剂和缓蚀剂, 以及Fe3+浓度的变化在正常范围内; 调试过程烟气在较大负荷下达到了设计要求; 系统运行过程中CO2捕集效率为80%~85%, 截至2009年1月底, 已生产99.7%的CO2约900 t; 运行过程中, 由于电站系统负荷变化, 使得烟气温度波动, 导致系统的水失衡; 研究提出并对比了进行水洗预处理和提高吸收塔出口温度2种解决方案, 发现采用预处理脱水能获得更低的蒸汽消耗, 但却需要提供额外的动力和冷却水。

关键词: CO2捕集 燃煤电厂 胺 示范

Industrial Test of CO2 Capture in Huaneng Beijing Coal-fired Power Station

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Abstract:

The first CO2 capture industrial-scale plant in China was demonstrated in Huaneng Beijing Power Plant, which shows the technology is a good option for capturing CO2 from commercial coal-fired power plants. The commissioning and industrial test were introduced. The tests show that in the early passivation phase the concentration variations in amine, anti-oxidant and Fe3+ were in the normal range, and the main parameters achieved the design value. The efficiency of CO2 capture was about 80%~85%, and about 900 t CO2 (99.7%) had been captured before February 2009. During operation, water unbalance problems in the system happened when the power station load changes greatly. Two solutions were proposed and compared, and it is found that pre-dewater solution has a lower steam consumption but extra power and water requirement.

Keywords: CO2 capture coal-fired power plant MEA demonstration

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