

热能工程

燃煤锅炉对流受热面污染沉积对传热熵产的影响

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收稿日期 2007-5-14 修回日期 网络版发布日期 2008-4-15 接受日期

摘要

火电站燃煤锅炉运行中受热面污染沉积使传热过程不可逆程度增大, 熵产增加, 能量品质下降。文中建立了锅炉对流受热面传热熵产计算模型, 并针对一台大型电站锅炉, 结合现场采集的实时运行数据, 利用建立的熵产模型计算了各对流受热面在不同污染状态下(吹灰操作前后)的传热熵产, 分析了不同受热面污染对熵产的影响规律。计算与分析表明, 对于所计算的锅炉, 与其他受热面相比, 吹灰操作对降低省煤器和低温过热器传热熵产的效果最为显著。

关键词 [熵产](#) [优化吹灰](#) [对流受热面](#) [电站锅炉](#)

分类号 [TK 123](#)

Influence of Ash Deposition on the Heat Transfer Entropy Generation of Convective Heating Surfaces for Coal Fired Utility Boiler

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Abstract

For coal fired utility boilers, the ash deposition on heating surfaces can lead to increase entropy generation in heat transfer process with result of heat energy loss both in quantity and quality. The analyzing model of heat transfer entropy generation for convective heating surfaces was established. Using the real time data of a utility boiler, the heat transfer entropy generation of different convective heating surfaces under different ash deposition (before and after soot-blowing) was calculated. The influence of ash deposition on heat transfer entropy generation was analyzed. The calculating and analyzing results indicate that, comparing with the other convective heating surfaces of the boiler, more entropy generation decrements for both economizer and low temperature super heater are observed after soot-blowing.

Key words [entropy generation](#) [soot-blowing optimization](#) [convective heat transfer surfaces](#) [power station boiler](#)

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