

## عنوان مقاله:

Thermal Analysis of Superheater Platen Tubes in Boilers

## محل انتشار:

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## خلاصه مقاله:

Superheaters are among the most important components of boilers and have major importance due to this operation in high temperatures and pressures. Turbines are sensitive to the fluctuation of superheater temperature; therefore even the slightest fluctuation in the outlet vapor temperature from the superheaters does damage the turbine axis and fins. Examining the potential damages of combustion in the boilers and components such as the superheaters can have a vital contribution to the progression of the productivity of boiler, turbine and the power plant altogether it solutions are to be found to improve such systems. In this study, the focus is on the nearest tube set of superheaters to the combustion chamber. These types of tubes are exposed to a wide range of combustion flames such that the most heat transfer to them is radiation type. Here, the ۳۲۰ MW boiler of Isfahan power plant (Iran), the combustion chamber, ۱۶ burners and the platen superheater tubes were remodeled by CFD technique. The fluid motion, the heat transfer and combustion processes are analyzed. The two-equation turbulence model of k- $\epsilon$  is adopted to measure the eddy viscosity. The eddy dissipation model is used to calculate the combustion as well as the P-1 radiation model to quantify the radiation. The overheated zones of superheater tubes and the combustion chamber are identified in order to improve this problem by applying the radiation thermal shields and knees with porous crust which are introduced as the new techniques.

## کلمات کلیدی:

Boiler, Superheater platen, combustion, Thermal shields, Porous crust

## لینک ثابت مقاله در پایگاه سیویلیکا:

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