

عنوان مقاله:

Numerical Investigation of Influence of Dilution in Air and Fuel Sides on MILD Combustion

محل انتشار:

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خلاصه مقاله:

Understanding of how and where NO_x formation occurs is very important for efficient and clean operation of utility burners. FGR1 and FIR2 are new methods adopted to control NO_x formation in combustion chamber. In this methods flue gas decreases flame temperature and reaction rate, resulting in the diminish in thermal NO_x emission. In the present study, the MILD3 combustion burner have been simulated, and result validated with experimental data. In order to modification, variations including temperature and flow of air inlet are performed. Also the effect of FGR/FIR methods on NO_x reduction by using CO₂, H₂O, and N₂ as diluents gases are investigated. Results show that FIR is more effective to reduce NO_x emission than FGR, and H₂O dilutor due to large specific heat, is more effective to reduce NO_x product compared to CO₂ and N₂ diluters. Also with increasing the velocity and flow of air inlet, the thermal NO_x concentration decreases.

کلمات کلیدی:

MILD Combustion , CFD, Flue Gas Recirculation (FGR), Fuel Induced Recirculation (FIR), NO_x Emission

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