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3D Modeling of the Two-Stage Combustion of Ekibastuz Coal in the Furnace Chamber of a PK-39 Boiler at the Ermakovo District Power Station

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Abstract

The processes of combustion of high-ash coal in the combustion chambers of steam boilers are numerically investigated using 3D mathematical modeling methods. The investigations are carried out for the example of combusting Ekibastuz coal in the furnace chamber of a PK-39 boiler at the Ermakovo district power station. The calculated fields of the velocities, temperature, and concentrations of CO, CO2, O2, CH4, and NOX along the furnace space are given and compared with experimental data.