

发电

煤粉在循环流化床高温空气下的燃烧与NOx排放

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摘要: 高温空气燃烧技术具有低污染物排放的优越性能, 有望应用于煤粉的燃烧。搭建了煤粉高温空气燃烧热态试验台, 由下行火焰的煤粉燃烧室和提供高温空气的循环流化床组成, 煤粉燃烧室内径为220 mm、高3000 mm。用一种烟煤做了燃烧试验, 试验结果表明: 煤粉燃烧室上下温度均匀; 煤粉燃烧室上部的还原区当量系数为0.8时, NOx排放水平在252~294 mg/m3之间, 低于国家2003年制定的火电厂污染物排放标准35%~44%; 循环流化床提供的高温空气中NOx的浓度对煤粉燃烧室内煤粉中的N向NOx的转化比影响很小; 煤粉中的N向NOx的转化比可降低到25%。关键词: 高温空气燃烧; 循环流化床; 煤粉; 氮氧化物

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Pulverized Coal Combustion and NOx Emissions in High Temperature Air From Circulating Fluidized Bed

Abstract: Technology of high temperature air combustion with the advantage of pollutants reduction is expected to be applied to pulverized coal combustion. Experiments on pulverized bituminous coal combustion in high temperature air from a circulating fluidized bed were made in a down-fired coal combustor with the diameter of 220 mm and the height of 3000 mm. Test results showed that temperature profile along the axis of the down-fired coal combustor was uniform and the NOx emissions were about 252~294 mg/m3 (6% O2), 35%~44% lower than the regulation. The NOx concentration of the high temperature air from the circulating fluidized bed had little influence on the conversion ratio of coal-N to NOx in the down-fired coal combustor, and the conversion ratio of coal-N to NOx could be reduced to 25%.

Keywords: High temperature air combustion Circulating fluidized bed Pulverized coal Nitrogen dioxide

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