Blended Combustion Technology of Sub-Bituminous Coal with High Moisture

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Abstract

In Japan, bituminous coal is the main fuel burned in coal-fired power plants. The consumption of bituminous coal has been increasing worldwide and the supply and demand have become stringent. In such a situation, the use of low-rank coal is important to expand the coal supply source. Now, sub-bituminous coal is expected to be a substitute fuel for bituminous coal. Sub-bituminous coal is the next most abundant reserve after bituminous coal and has a comparatively high calorific value. However, there are some problems in its use. Sub-bituminous coal does not easily ignite because of its high moisture content. Therefore, sub-bituminous coal is blended with bituminous coal in coal-fired power plants. A suitable blended combustion method was studied using our combustion test furnace (100 kg-coal/h). In this presentation, the emission characteristics of NOx and unburned carbon in the blended combustion of sub-bituminous coal are shown. Then, suitable line blended combustion methods and in-furnace blended combustion methods to reduce the emission of NOx and unburned carbon at the blended ratio of 30 wt% are explained.