

The Utilization Case of Fly Ash Containing High Unburned Carbon

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KEYWORDS: unburned carbon, fired bricks

ABSTRACT

In Korea, most of fly ash is reused for a substitute of cement while only a small portion of fly ash is utilized for raw materials of cement clinker. Particularly to be utilized for a substitute of cement, the content of unburned carbon in fly ash must be maintained below 5%. The normal content of unburned carbon in bituminous coal ash ranges from 5% to 10% and fly ash is utilized for a substitute of cement after making the content of unburned carbon in raw fly ash below 5% by passing through a refinery facility like Cyclone Saparator. But in case of high unburned carbon fly ash containing more than 10% like Korean domestic coal, the refinement cost is too much high and the refined yield is too low that economic effects be ignored and the quality of the refined fly ash be deteriorated. Therefore fly ash containing high unburned carbon of more than 10% should should go to ash pond. Our company have two units of domestic coal fired power plants and most of the produced fly ash at the plants is not reused but buried in ash pond due to high unburned carbon. The increased disposal amount to ash pond made ash pond almost to be filled. So It comes to a pending subject to increase the amount of reuse of the fly ash to operate the plants. To increase the amount of reusing the fly ash, Our company has struggled to find and to develop a usage of fly ash containing high unburned carbon and finally we could find a usage. The usage of high unburned carbon fly ash is to be utilized for a raw materials of fired bricks, not for a substitute of cement. When high unburned carbon fly ash is utilized for making fired bricks, unburned carbons in fly ash function as an additional fuel in the process of firing bricks. So It could be obtained to reduce the fuel cost of making fired bricks. By developing the usage of high unburned carbon fly ash, the reuse rate of fly ash could be increased drastically to 95%.

Submitted for consideration in the 2007 World of Coal Ash Conference, May 7-10, 2007.