

4 - 1 High temperature coal combustion gas dust collection technology - Development of dust collection filter performance evaluation -

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1 . Abstract

Coal has been positioned as the important energy source in Japan. However, the reduction demand of CO₂-emissions from the coal-based power generation has been required from the viewpoint of recent global warming, since the CO₂-emission from the coal is more abounding than the other fossil fuels.

For the reduction of CO₂-emissions, it is the most realistic to reduce the exhaust gas from the power generation by the efficiency upgrading. So the advanced high-efficiency coal based technology of coal gasification combined cycle (IGCC) and pressurized fluidized bed combined cycle (PFBC) have been developed in Japan and overseas.

Dust collection from High temperature coal combustion gas is one of the key technologies to increase the temperature and the pressure of the plant in order to achieve the efficiency improvement. However, many technical problems exist in the dust collection technology.

Though as a dust collection system, there are cyclones, ceramic filters, electric precipitator, etc., the filtration equipment for collecting dust using the filter is promising as the dust collection technology under the high temperature and the pressure conditions.

However, it is difficult to develop the promising filter materials for the high-temperature dust collection system because the methods for evaluating the performance of filters such as strength and dust removal have not been established. Therefore, this R&D program was carried out for the purpose of establishing the evaluation method for selecting and developing the filter which can be applied in PFBC and IGCC.

