

# 1 - 3 R & D of the Super Coke Oven for Productivity and Environment enhancement toward the 21st century (6th Report)

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A serious problem is predicted to occur to the domestic cokemaking industry with the majority of existing coke ovens worn out of obsolete in the early years of this century.

The project called SCOPE21 (The Super Coke Oven for Productivity and Environment enhancement toward the 21st century) has been promoted to develop the innovative cokemaking process by the Center for Coal Utilization, Japan (CCUJ) and The Japan Iron and Steel Federation (JISF) during nine years since 1994.

After two years of preliminary feasible study, the program has advanced to basic research and a bench scale test with a series of combination of the basic research. It is in a stage of the construction of a pilot plant having the same width and height and half length of the aimed commercial coke oven. This report describes the outline of the program, the results obtained through the basic research and the bench scale test, and plan of the pilot plant;

- 1) The effects of the rapid heating of coal up to 380 on coke quality are examined by using a 0.6t/h bench scale plant which consists of a fluidized bed type dryer-separator, a pneumatic conveying type preheater and a hot briquetting machine ;
  - (1) The increase of coke strength is larger for poor coking coal than for coking coal.
  - (2) The engineering data needed for the construction of the pilot plant are obtained.
- 2) Combustion tests are carried out by using a heating chamber having the same height as that of the commercial plant, and it is confirmed that low NO<sub>x</sub> emission (<100ppm) and uniform heating (< ± 25 in the height direction) can be achievable.
- 3) The pilot plant has been constructing to be composed of a coal pretreatment facilities, a coke oven and some additional facilities since 1999.



Poto.1 The construction appearance of the pilot plant