

1 - 5 Catalytic N₂O reduction on the coal fluidized bed combustion.

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Low NO_x and SO_x emissions are the most superior features of fluidized bed coal combustors. However, it has been reported that the emission level of nitrous oxide (N₂O) from them is relatively higher than that of the another coal combustion processes. Since we have already known that the N₂O contribute to the greenhouse warming, it would be important to develop the N₂O removal processes or methods for the future spread of fluidized bed combustion processes. In this paper some results obtained from experimental studies of the N₂O reduction technology are presented. This work has been done based on the idea of in-situ N₂O catalytic removal by active Al₂O₃ for a bed material. The catalytic activity of γ -Al₂O₃ for N₂O destruction was investigated experimentally by use of the fixed bed reactor and the bench scale circulating fluidized bed combustor.

Fig.1 shows a result from the test in CFBC conditions. From this figure it was confirmed that the outlet concentration of N₂O for the case of using the γ -Al₂O₃ particles was about 0 ppm, that was lower than that of the case using the silica sand which was not indicated the effect of N₂O destruction in the previous test.

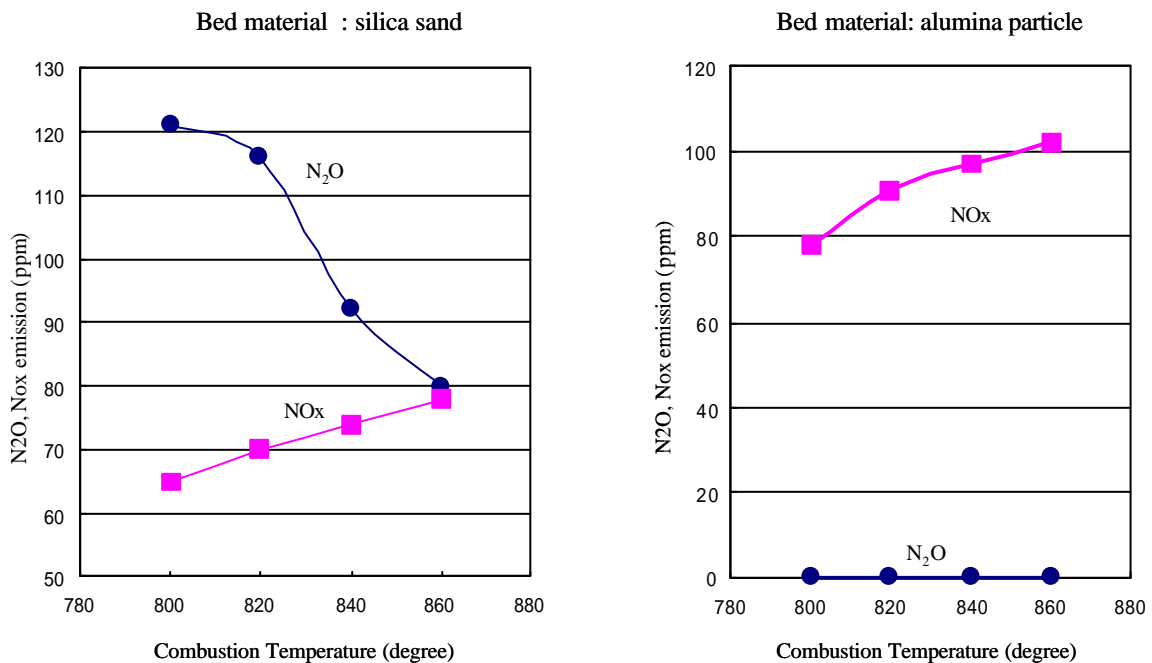


Figure 1. N₂O reduction by alumina particles on a bench scale circulating fluidized bed combustor.