

## CFD simulation of a pilot-scale reactor for selective non-catalytic reduction (SNCR) by urea solution

임영일\*, 박호재, R. Retnamma, 김성준<sup>1</sup>, 유경선<sup>1</sup>  
환경대학교; <sup>1</sup>광운대학교  
(limyi@hknu.ac.kr\*)

Selective Non-Catalytic Reduction (SNCR) is a cost effective technology for NO<sub>x</sub> reductions from 25 to 60% and there is a significant industrial interest in this technology (Himes et al., 1995). For an efficient operation of SNCR, uniform mixing of the reagent throughout the entire flue gas in the appropriate temperature window is necessary. Under practical conditions, SNCR is affected by non-uniformities in velocity and temperature (Jones et al., 1995; Hunt et al., 1997) and these must be taken into account in the design and operation of an SNCR process.

In the present study, the effect of fluid dynamics on NO reduction with urea solution is determined in a flow reactor. A CFD (computational fluid dynamics)-based turbulent reacting model using FLUENT has been developed and successfully predicted the NO and NH<sub>3</sub> concentrations with urea solution under the studied experimental conditions in a pilot-scale reactor.