

The formation of N₂O in NH₃-SCR deNO_x reaction with commercial V₂O₅-WO₃/TiO₂ catalysts for an oil-fired power plant

안태후, 김문현*, 함성원¹

대구대학교 환경공학과; ¹경일대학교 디스플레이화학공학과

(moonkim@daegu.ac.kr*)

The extent of N₂O formation during the selective reduction of NO_x by NH₃ over commercial 1.41% V₂O₅-7.98% WO₃/TiO₂ catalysts for an oil-fired power plant has been determined using an on-line IR-based system coupled with a modified White cell. A fresh sample of the commercial catalyst gave no N₂O formation in the NH₃-SCR deNO_x reaction up to 450°C but did 15 ppm N₂O formation at higher temperatures, such as 480°C. 10 - 160 ppm N₂O, depending significantly on SCR temperatures, was produced with a sample of the catalyst that had been used for 20,000 h at a domestic oil-fired power plant. This was primarily associated with an increase in V₂O₅ amounts after such on-site use, in addition to the presence of some alien metal oxides such as Fe, Ni, Nb and Mo which might also play a role for the N₂O production.