

Inter-particle migration of Cu ion between physically mixed Cu-SSZ-13 and H-SSZ-13 by hydrothermal treatment

이황호, 송인학, 전세원, 김도희[†]
서울대학교
(dohkim@snu.ac.kr[†])

As regulation on NO_x emission, NO_x removal system is getting more attention in industrial fields. For reducing NO_x emission, NH₃-SCR (Selective Catalytic Reduction) is regarded as the most efficient NO_x removal technology. Cu zeolite catalysts have been used commercially for NH₃-SCR catalysts because of their high NO_x conversion and stability. There are some researches about characteristics of Cu ion, and one of those is its mobility in the zeolite cage. For proving Cu ion mobility, in this research, we compare two catalysts, one is physically mixed Cu-SSZ-13 and H-SSZ-13 with close contact (PM-C-SSZ), the other is the mixture with loose contact (PM-L-SSZ). In the PM-C-SSZ, Cu ion can move from Cu-SSZ-13 to H-SSZ-13 because its particles had close contact. However, in the PM-L-SSZ sample, Cu ion cannot move to H-SSZ-13 because particles were separated. The catalysts have different reactivity and characteristics by the migration of Cu ions. These discrepancies indicate that inter-particle migration of Cu ions is possible through the particle-particle interface.