

Supporting Information

Doping effect of Sm on the TiO₂/CeSmO_x catalyst in the NH₃-SCR reaction: Structure-Activity Relationship, Reaction Mechanism and SO₂ Tolerance

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Preparation of Ti/Ce nanorod Catalyst

CeO₂ nanorod support was prepared by a hydrothermal method. Ce(NO₃)₃·6H₂O and NaOH were mixed together in deionized water under magnetic stirring. After that, the obtained suspension was put in a Teflon-lined stainless steel autoclave to react at different temperatures for 24 h. The hydrothermal reaction temperature and NaOH concentration were fixed at 100 °C and 6 M. Subsequently, the precipitate was centrifuged and washed until pH 7, and dried at 60 °C overnight in a vacuum oven. Finally, all of these supports were put in a muffle furnace and calcined at 450 °C for 3 h.

TiO₂/CeO₂ nanorod catalyst was prepared by incipient wetness impregnation, according to *2.1. Catalyst preparation*.

Fig. S1 TEM image of CeO₂.

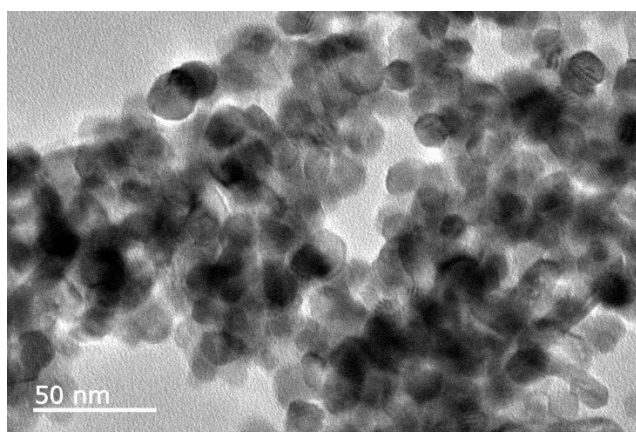


Fig. S2. The NH₃-SCR activities of Ti/Ce catalysts with various mass ratio of Ti/Ce.

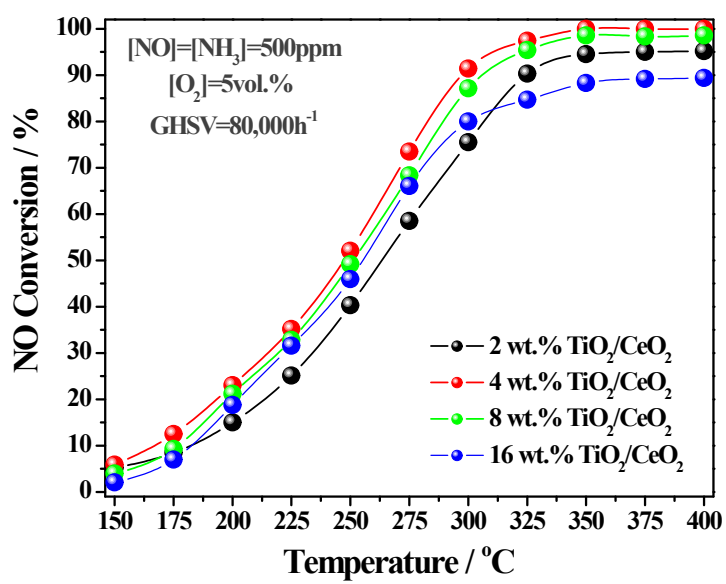


Fig. S3. NO conversion as a function of the reaction temperature in the NH₃-SCR reaction over the Ti/Ce, Ti/CeSm and Ti/Ce-nanorod catalysts.

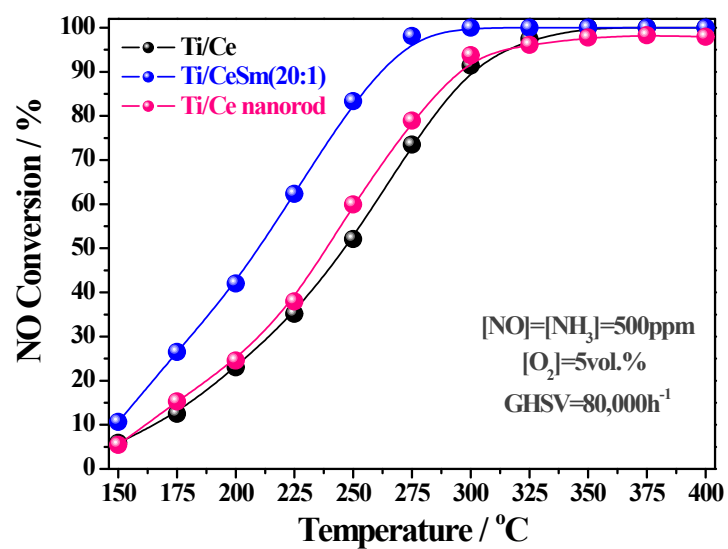


Fig. S4. FTIR results of Ti/Ce and Ti/CeSm(20:1) catalysts after enduring H₂O and SO₂ test at 300°C.

