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Supporting information

Effect of Catalyst Crystallinity on V-Based Selective Catalytic Reduction with Ammonia

Min Seong Lee [1,2,†], Sun-I Kim [1,†], Myeung-jin Lee [1], Bora Ye [1], Taehyo Kim [1], Hong-Dae Kim [1], Jung Woo Lee [2,*] and Duck Hyun Lee [1,*]

1 Green Materials and Processes R&D Group, Korea Institute of Industrial Technology, Ulsan 44413, Republic of Korea; qneh5@kitech.re.kr (M.S.L.); sunikim@kitech.re.kr (S.-I.K.); leemj@kitech.re.kr (M.-j.L.); yebora@kitech.re.kr (B.Y.); thkim0215@kitech.re.kr (T.K.); hdkim@kitech.re.kr (H.-D.K.)
2 Department of Materials Science & Engineering, Pusan National University, Busan 46241, Republic of Korea
* Correspondence: jungwoolee@pusan.ac.kr (J.W.L.); Tel.: +82-51-510-2898 (J.W.L.); dulee@kitech.re.kr (D.H.L.); Tel.: +82-52-980-6709 (D.H.L.); Fax: +82-52-980-6669 (D.H.L.)
† These authors contributed equally to this study and should be considered as co-first authors.

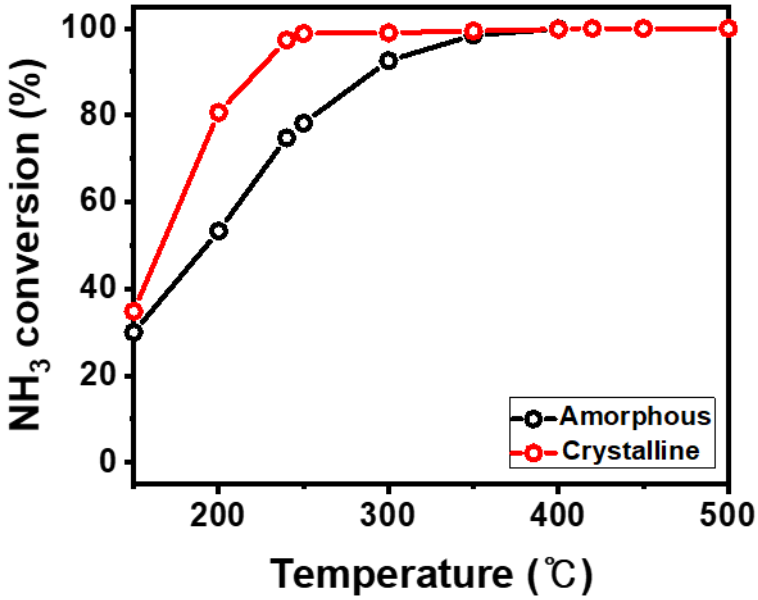

Figure S1. NH3 conversion of amorphous and crystalline V2O5-WO3/TiO2 catalyst, which was calculated with equation 3.

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$$\mathrm{NH_3\ conversion\ (\%)} = \frac{\mathrm{NH_{3\ inlet}} - \mathrm{NH_{3\ outlet}}}{\mathrm{NH_{3\ inlet}}} \times 100 \quad (3)$$

NH_3 conversion of crystalline V_2O_5-WO_3/TiO_2 catalyst is higher than amorphous V_2O_5-WO_3/TiO_2 catalyst at temperature range 150–350 °C, and both catalysts maintain NH_3 conversion rate of 100 above 350 °C. Also, NH_3 conversion value is very similar to the NO_X conversion rate.

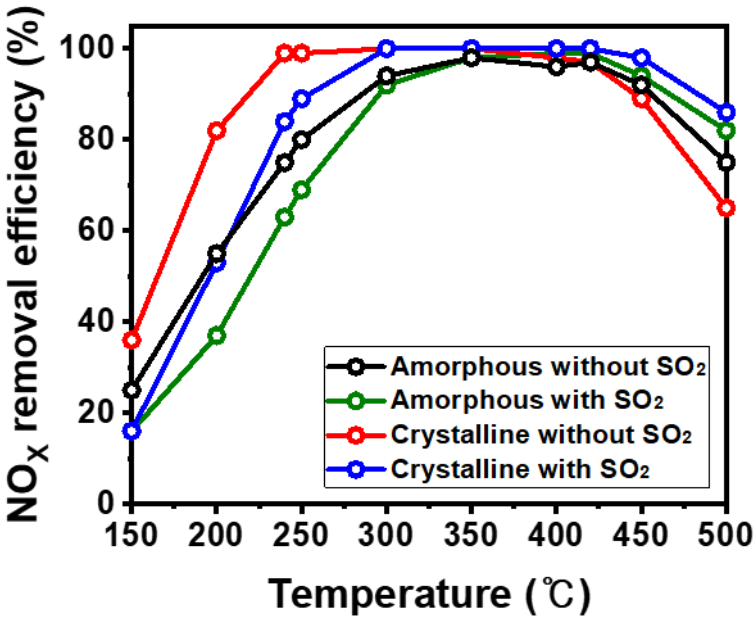

Figure S2. NO_X removal efficiency of Amorphous and Crystalline V_2O_5-WO_3/TiO_2 catalyst. Reaction conditions: [NO] & [NH_3] = 300 ppm, [SO_2] = 0 or 300 ppm, [O_2] = 5 vol.%, [GHSV] = 60,000 h^{-1}.

We compared the NO_X removal efficiency of amorphous and crystalline V_2O_5-WO_3/TiO_2 catalyst in the gas condition containing SO_2. From the result, NO_X removal efficiency of crystalline V_2O_5-WO_3/TiO_2 catalyst is higher than amorphous V_2O_5-WO_3/TiO_2 catalyst, which means that crystalline V_2O_5-WO_3/TiO_2 catalyst is good to SCR reaction regardless of SO_2.