Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics

Dehydration and Dehydrogenation of Ethylene Glycol on Rutile TiO_2(110)

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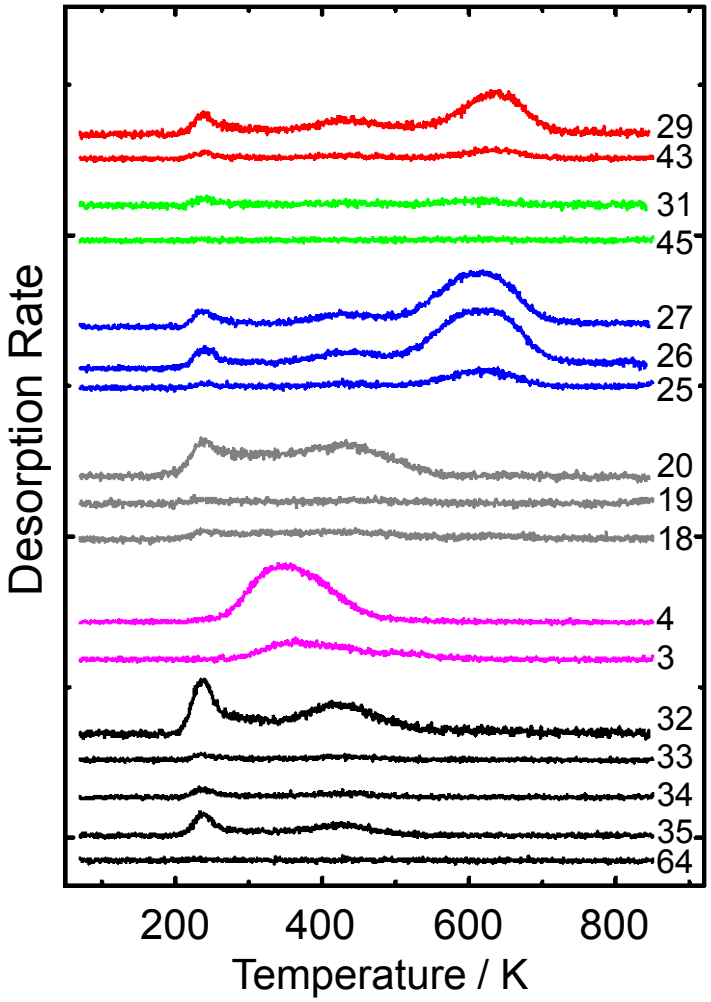

Figure S1. Set of TPD spectra with different mass fragments from the initial survey experiments obtained for a $DO(CH_2)_2OD$ ethylene glycol dose of 0.6 ML which exceeds the saturation coverage of 0.43 ML.

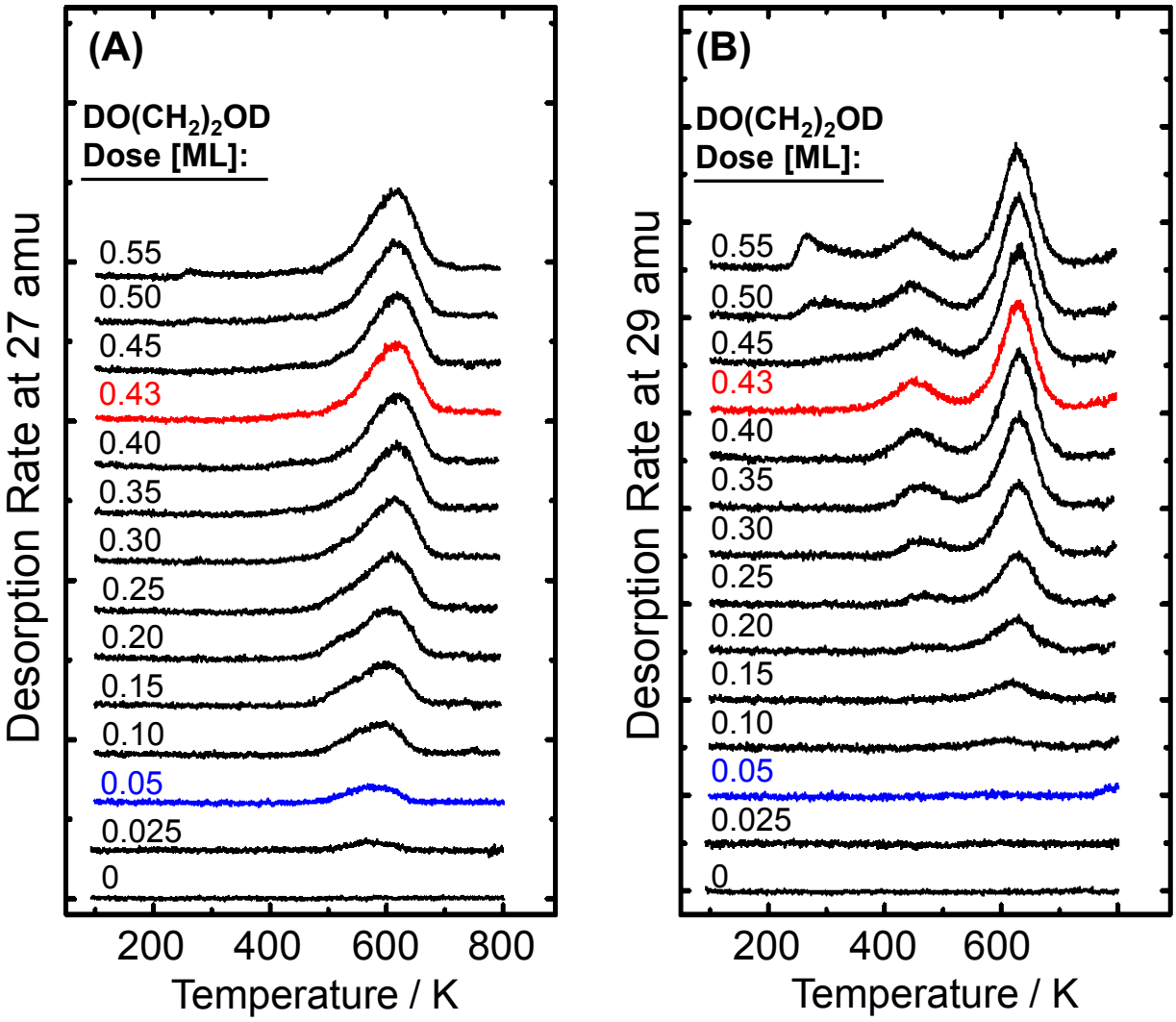

Figure S2. Coverage dependent TPD spectra obtained at m/z = 27 amu (A) and at m/z = 29 amu (B). The TPD spectra for the doses that correspond to the V_O concentration (0.05 ML) and saturation coverage of Ti_{5c} sites (0.43 ML) are highlighted with blue and red traces, respectively.

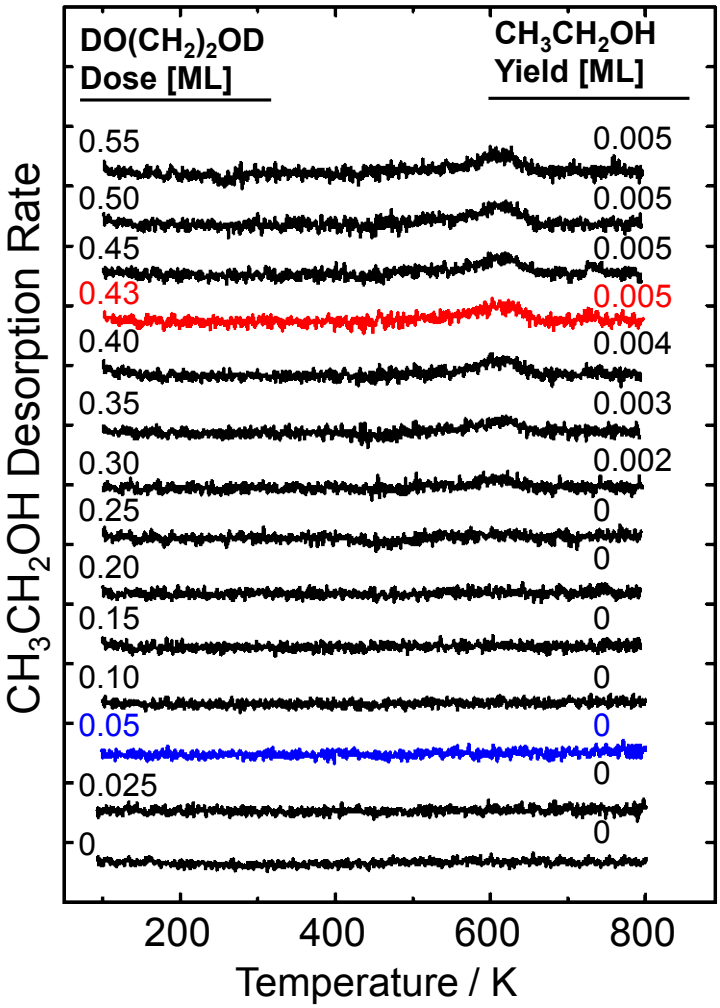

Figure S3. Coverage dependent TPD spectra of CH_3CH_2OH following the $DO(CH_2)_2OD$ doses listed in the figure. The CH_3CH_2OH spectra were obtained using the CH_3O^+ mass fragment at m/z = 31 amu. The contribution of ethylene glycol was subtracted based on the fragmentation pattern determined from ethylene glycol multilayer desorption (see text for more details). The TPD spectra for the doses that correspond to the V_O concentration (0.05 ML) and saturation coverage of Ti_{5c} sites (0.43 ML) are highlighted with blue and red traces, respectively. The integrated yields of desorbing ethanol product are listed on the right side of the figure.