Electronic Supplementary Information

Sulfur Dioxide Adsorption and Photooxidation on Isotopically-Labeled Titanium Dioxide Nanoparticle Surfaces: Roles of Surface Hydroxyl Groups and Adsorbed Water in the Formation and Stability of Adsorbed Sulfite and Sulfate

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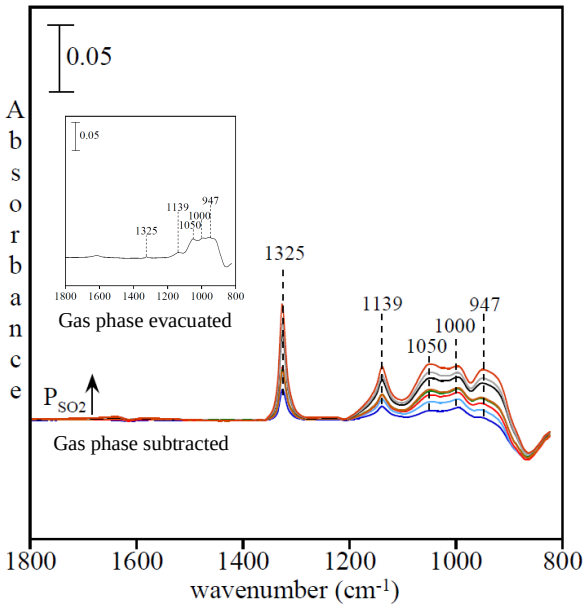

Figure S1. Transmission FTIR spectra of the spectral region of 1800 – 800 cm^{-1}overnight evacuated (at 400 ^{0}C) TiO_2 surface as a function of increasing pressure of SO_2. Spectra labeled "gas phase subtracted" were recorded in the presence of the gas phase at initial pressures of 10, 20, 30, 40, 50, 70, 100, and 200 mTorr. The spectrum labeled "gas phase evacuated" was collected after evacuation of SO_2 at the highest pressure.

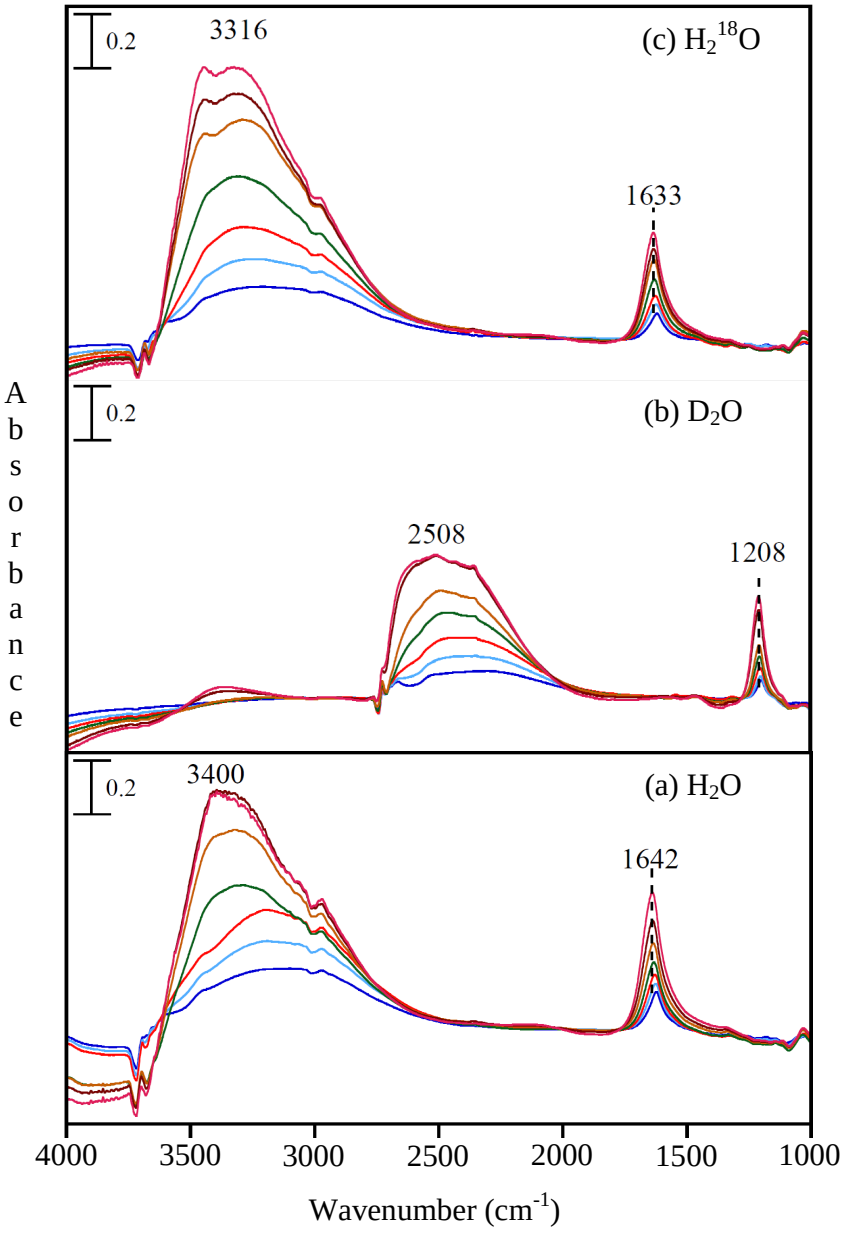

Figure S2. Transmission FT-IR spectra for (a) H_2O (b) D_2O (c) $H_2{}^{18}O$ adsorption on TiO_2 surface as a function of increasing relative humidity (0.6, 1.2, 3.1, 10, 26, 56 and 76 %). Spectra were recorded in the presence of gas phase and gas phase was subtracted out.