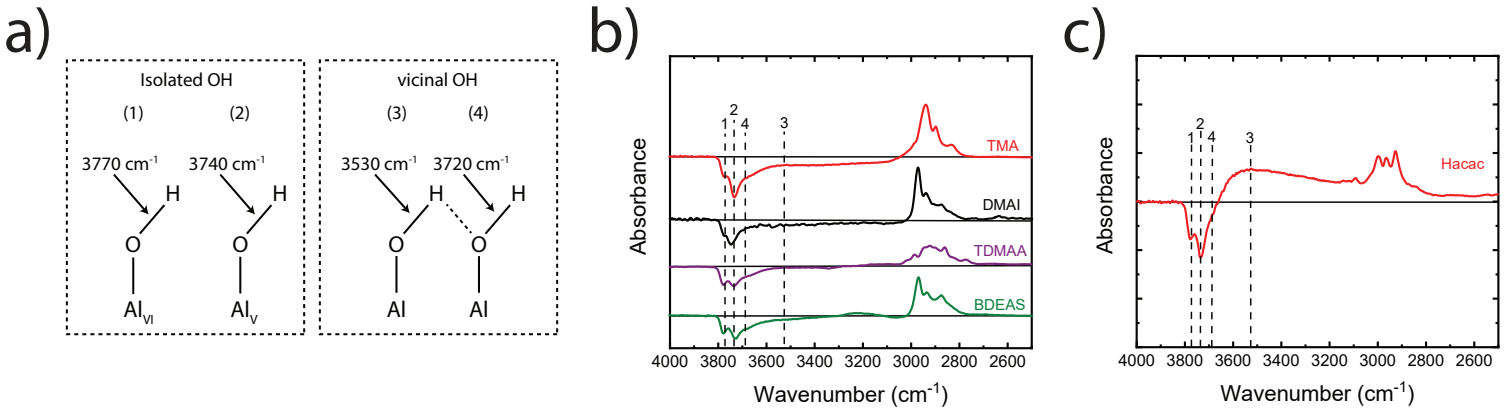

Figure 1: Schematic illustration of isolated and vicinal hydroxyl surface groups on an Al_2O_3 surface with their corresponding vibrational frequency. (b,c) IR difference spectra showing the consumption of hydroxyl groups after (b) TMA, DMAI, TDMAA, BDEAS precursor adsorption and after (c) Hacac inhibitor adsorption. The spectra show that the DMAI, TDMAA, and BDEAS precursor molecules and Hacac inhibitor molecules adsorb only on isolated OH groups whereas TMA adsorbs on vicinal and isolated OH groups.

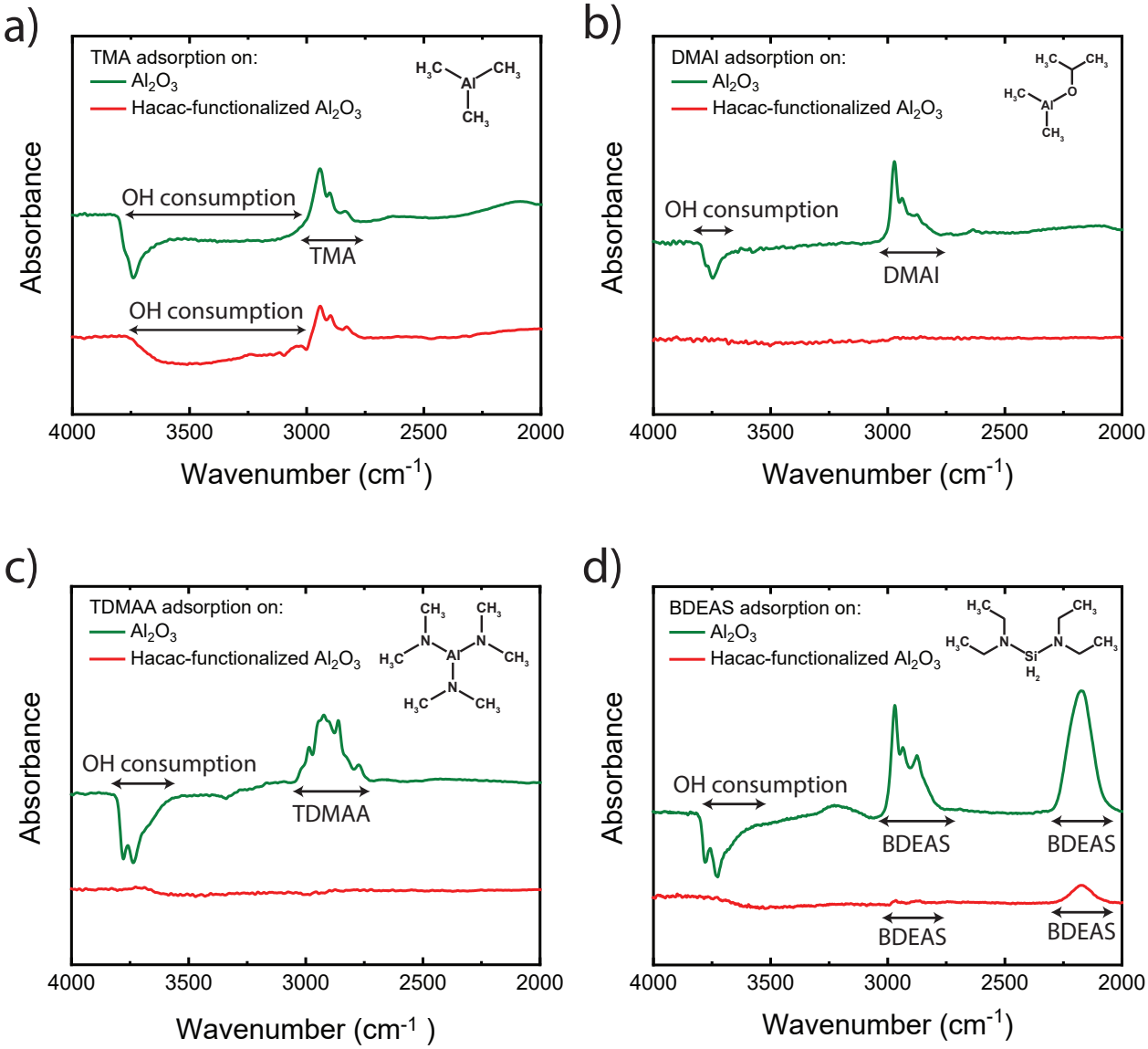

Figure 2: IR difference spectra showing precursor adsorption (or the lack thereof) on a clean Al_2O_3 surface and on an Al_2O_3 surface functionalized with Hacac inhibitor molecules for (a) TMA, (b) DMAI, (c) TDMAA, and (d) BDEAS.