

## SUPPLEMENTARY INFORMATION

### Accessibility and location of acid sites in zeolites as probed by FTIR and MAS-NMR

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Re the data presented in Figure 4, this is an interesting example demonstrating the importance of quantitative data analysis. Although the spectra in Figure 4a appear to coincide around  $3600\text{ cm}^{-1}$ , there are important differences, which are shown in Figure 4b in the paper and Figure R1 below. Figure R1 presents the original experimental FTIR spectra of HZSM-5 zeolite, with the green line corresponding to the quantitative subtraction (equivalent to Figure 4b in the paper), which clearly demonstrates the presence of a negative peak attributed to the “removed” bridging OH-groups as they interact with the probe molecule.

The fact that the peak intensities of the red and the blue spectra in Figure R1 are almost the same is explained in Figure R2 presenting the deconvolution of the red spectrum (HZSM-5 after 1,3,5-triisopropylbenzene adsorption). This shows that the red-coloured band at  $\sim 3610\text{ cm}^{-1}$  is a composite of two peaks: one is due to the bridging OH in micropores not interacting with the probe (green-coloured,  $3611.7\text{ cm}^{-1}$ ), and the second is assigned to the H-bonded SiOH groups interacting with the benzene ring (brown-coloured,  $3595\text{ cm}^{-1}$ ). The same explanation applies to the spectra obtained for zeolite BEA. These data can be used to quantitatively determine the percentage of the OH-groups on the external surface.

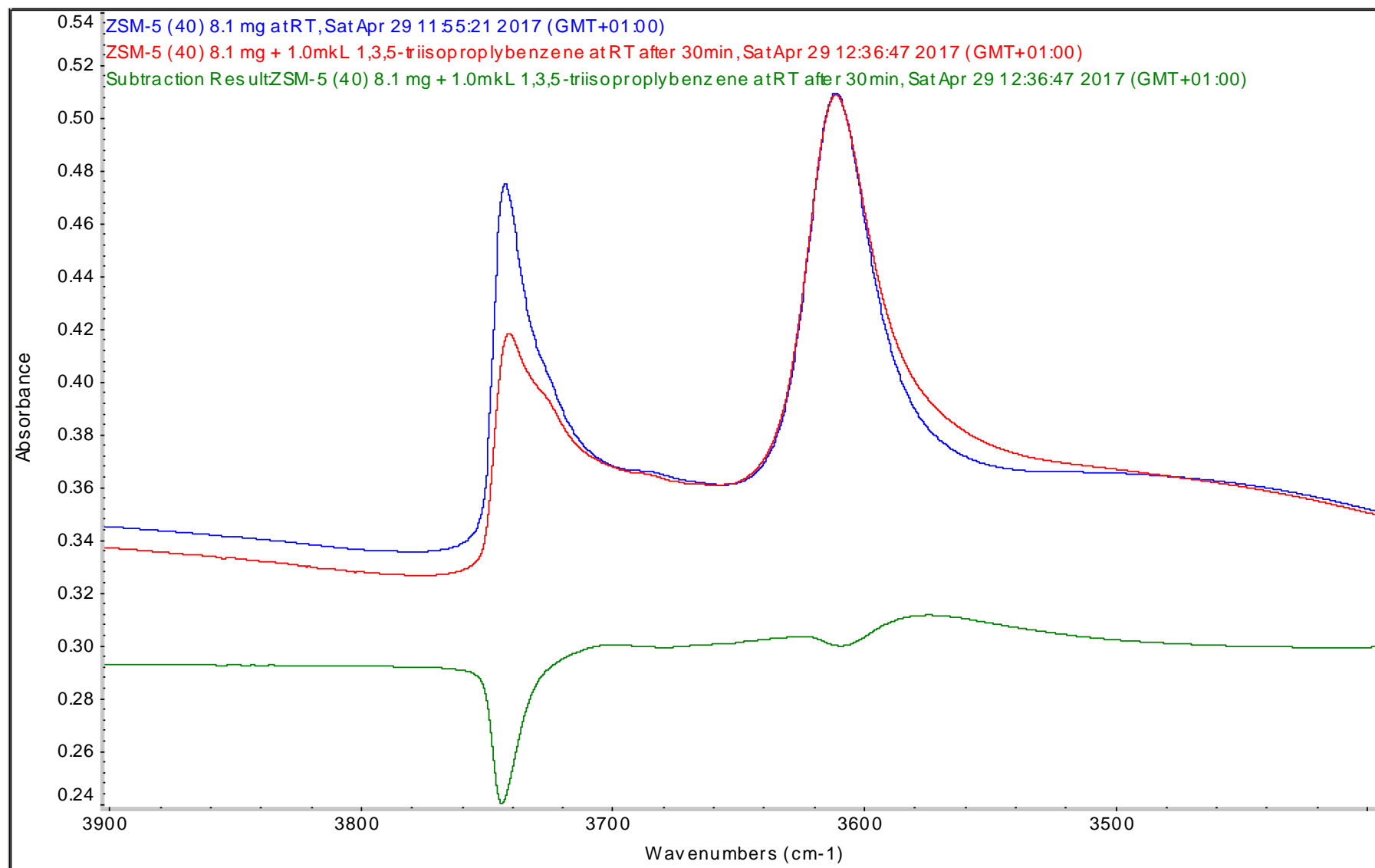


Figure R1. FTIR spectra of ZSM-5 before and after 1,3,5-triisopropylbenzene adsorption at 30°C and the difference spectrum.

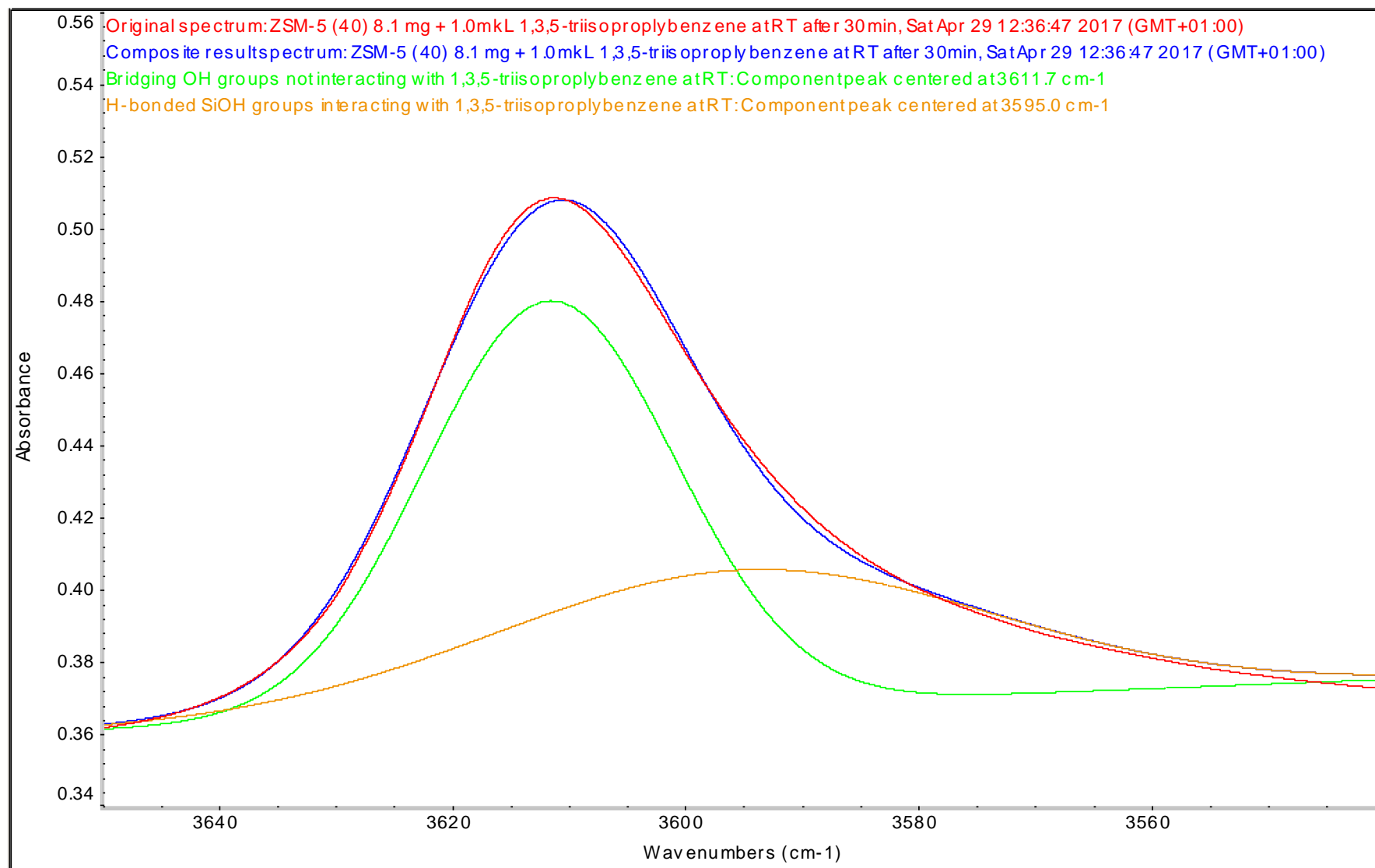


Figure R2. Deconvolution of the FTIR spectrum of ZSM-5 obtained after 1,3,5-triisopropylbenzene adsorption at 30°C.