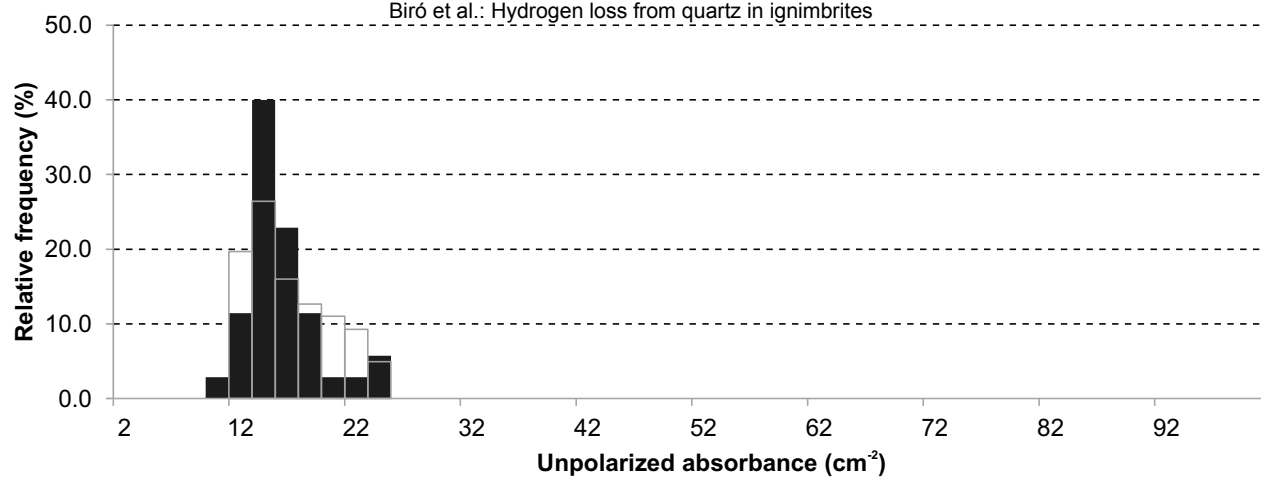


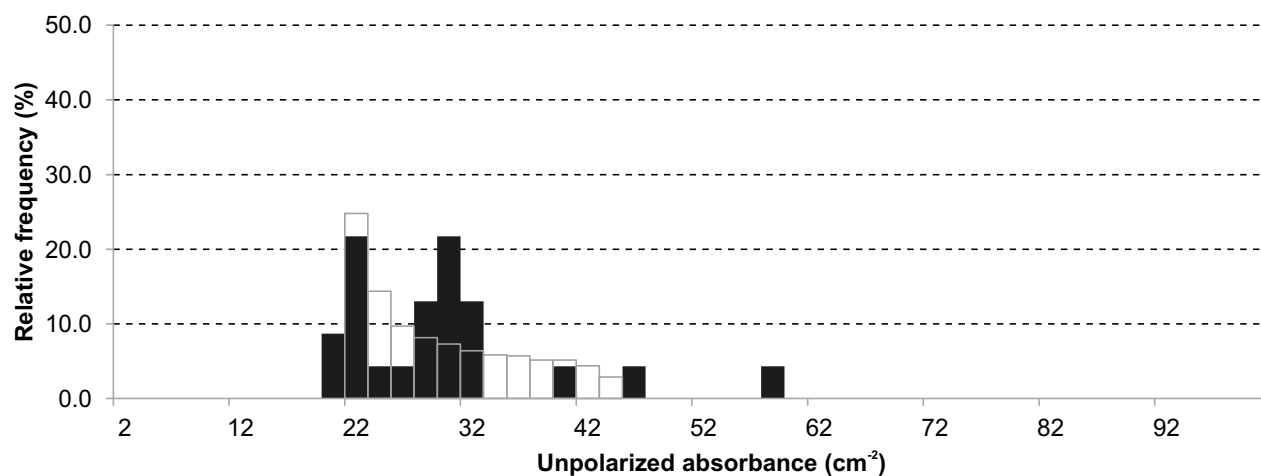
## **Supplementary Material 4 - Distributions of measured and modelled unpolarized absorbances**

Histograms showing the measured (closed bars) and theoretical distributions (open bars) of unpolarized absorbances of the Al-OH triplet at  $3378\text{ cm}^{-1}$ , with minor peaks at  $3480$  and  $3315\text{ cm}^{-1}$ . Theoretical distributions were calculated on the basis of the anisotropy of quartz absorbance indicatrix. Principal polarized absorbances were calculated by using the measured maximum, minimum and average unpolarized absorbances (normalized to cm) according to Equation 2 (see also Equations 70 in Sambridge et al. 2008). For theoretical distributions 10 000 random incident directions are considered for each sample suite.

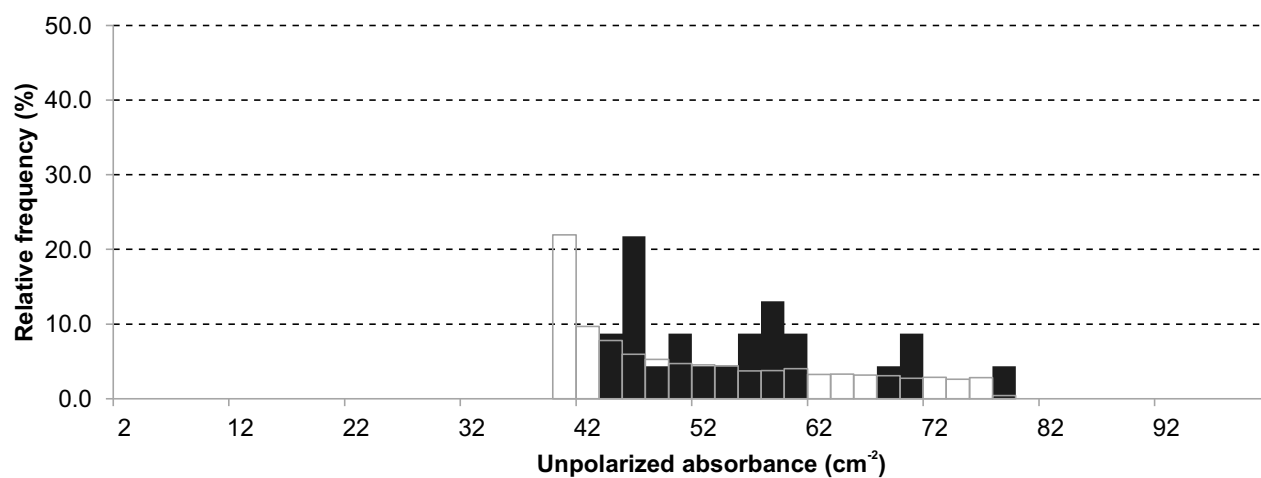
E-4



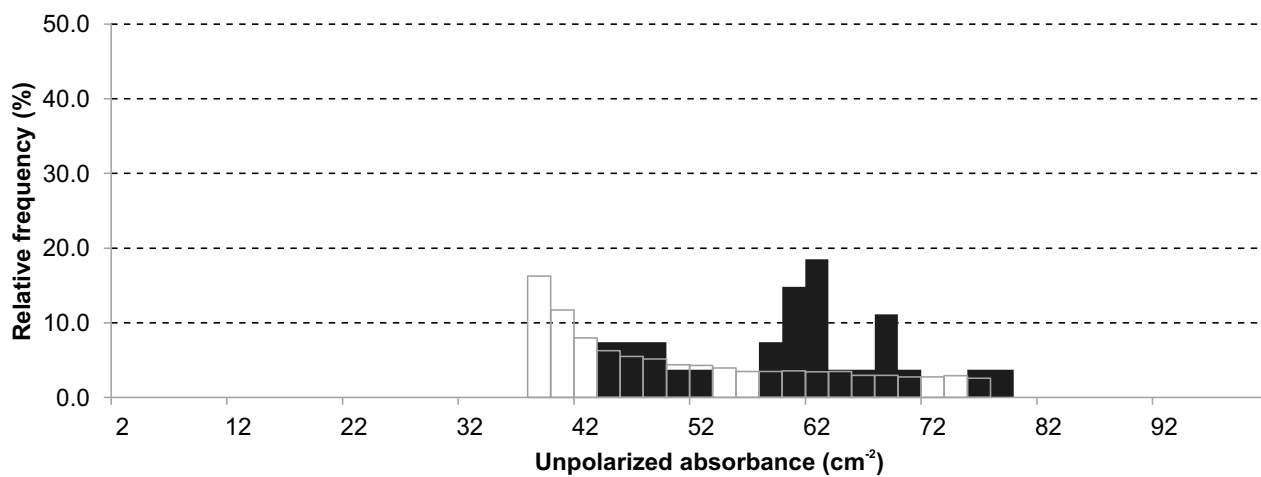
E-3



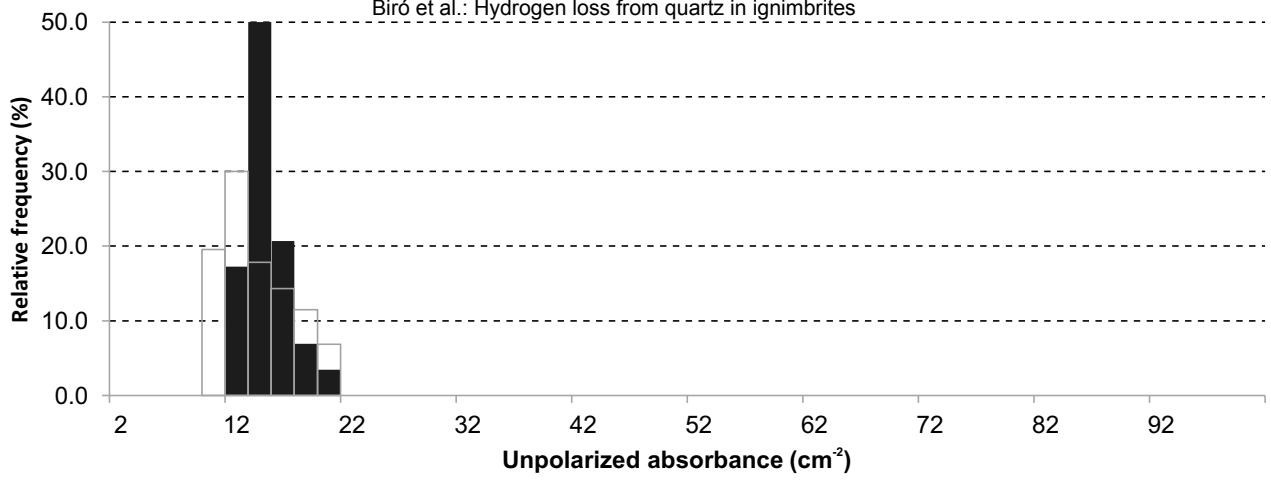
E-2



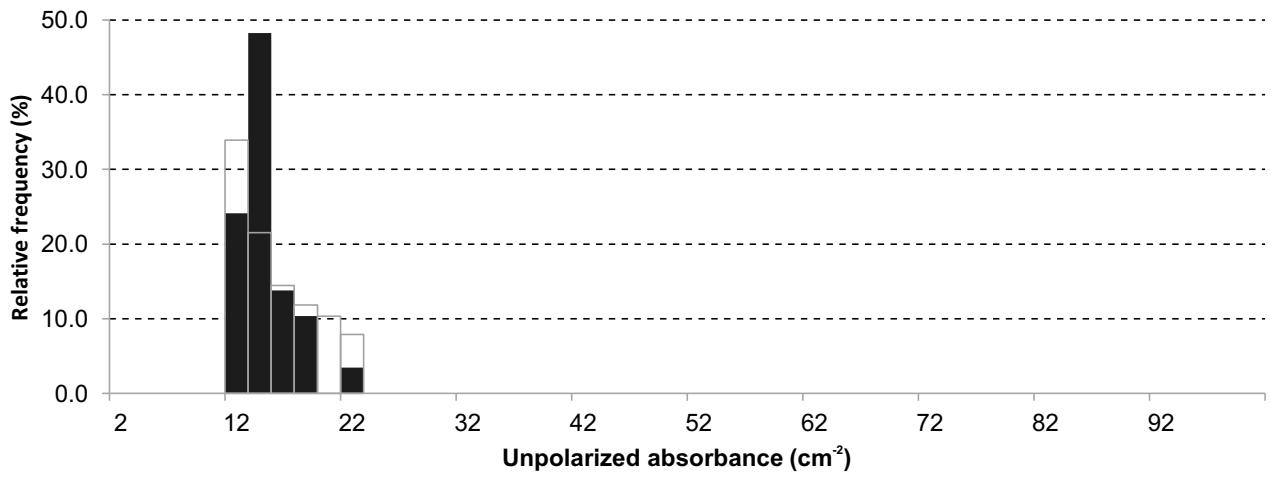
E-1



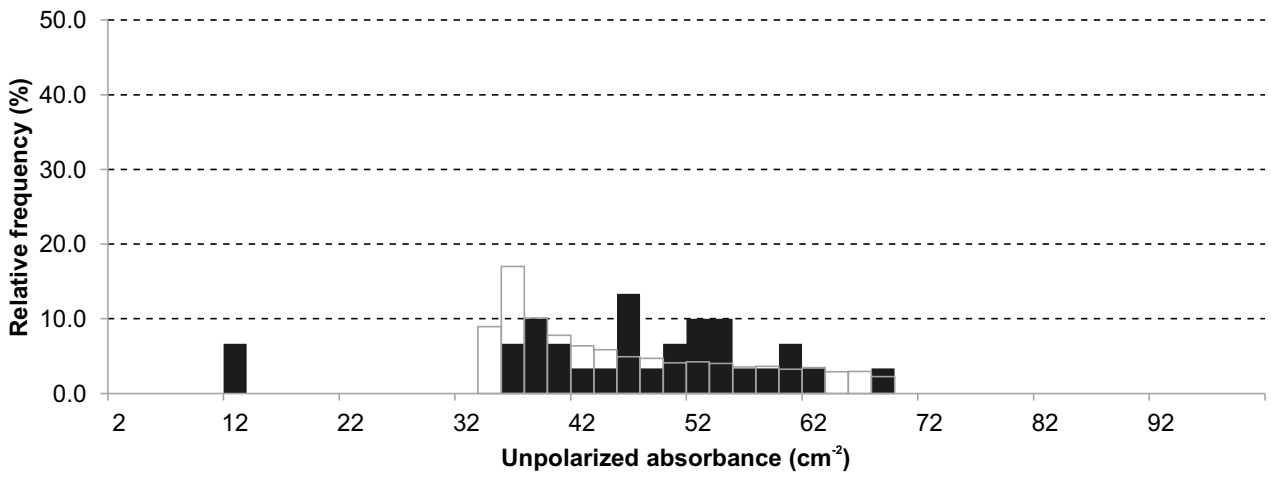
BG-4



BG-3



BG-2



BG-1

