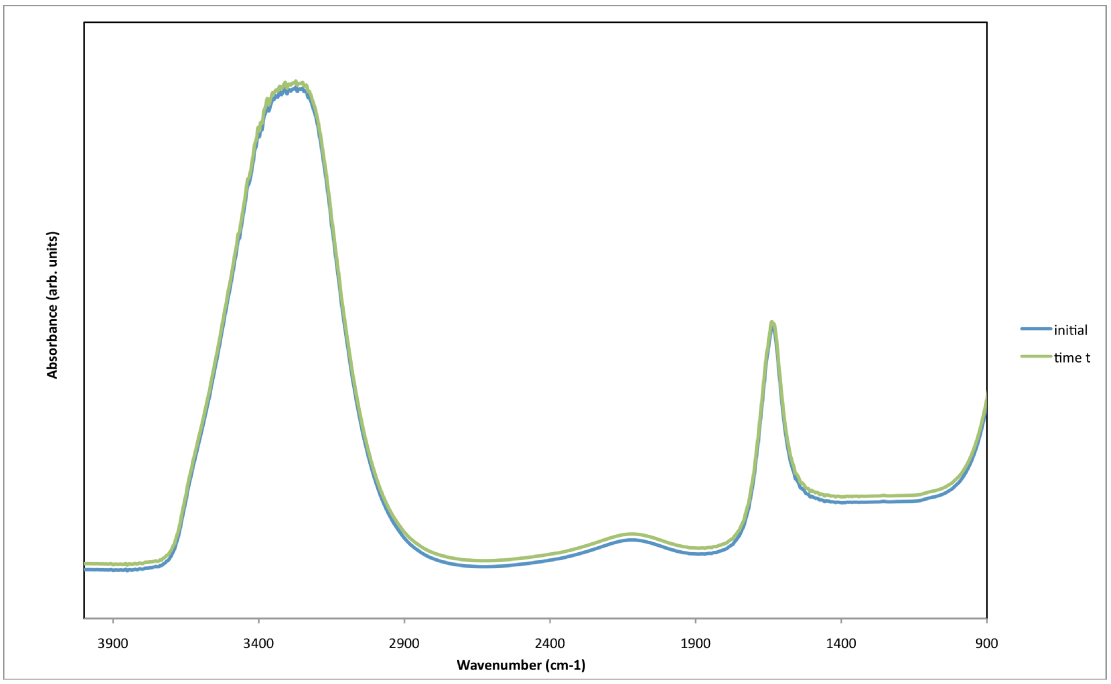
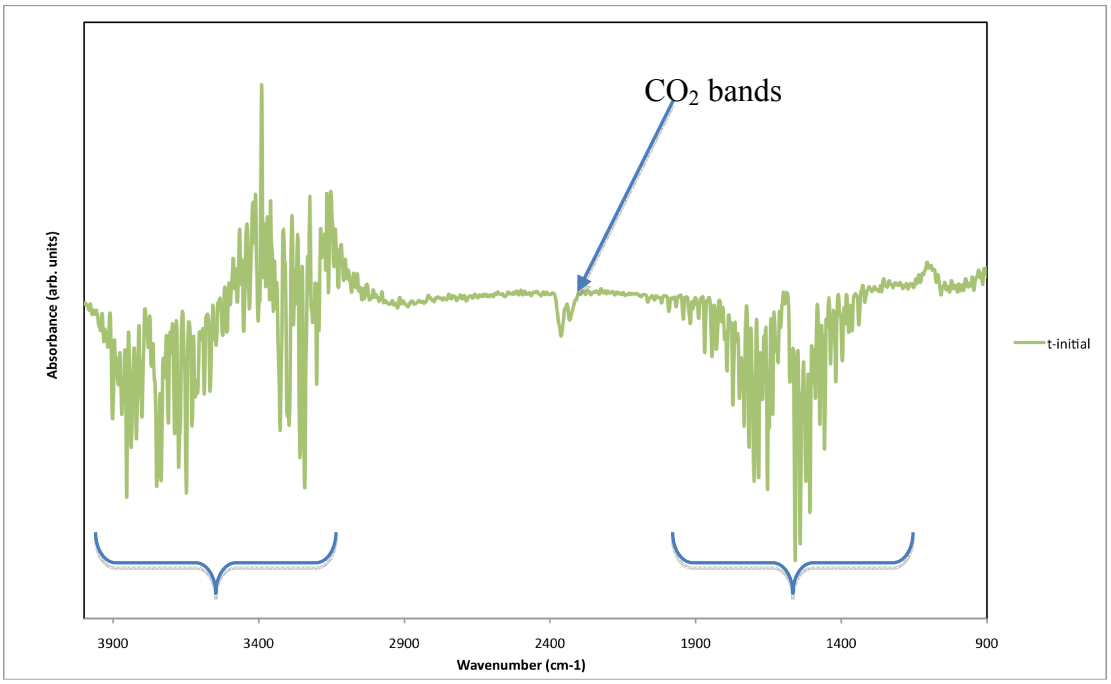
Method of Data Analysis

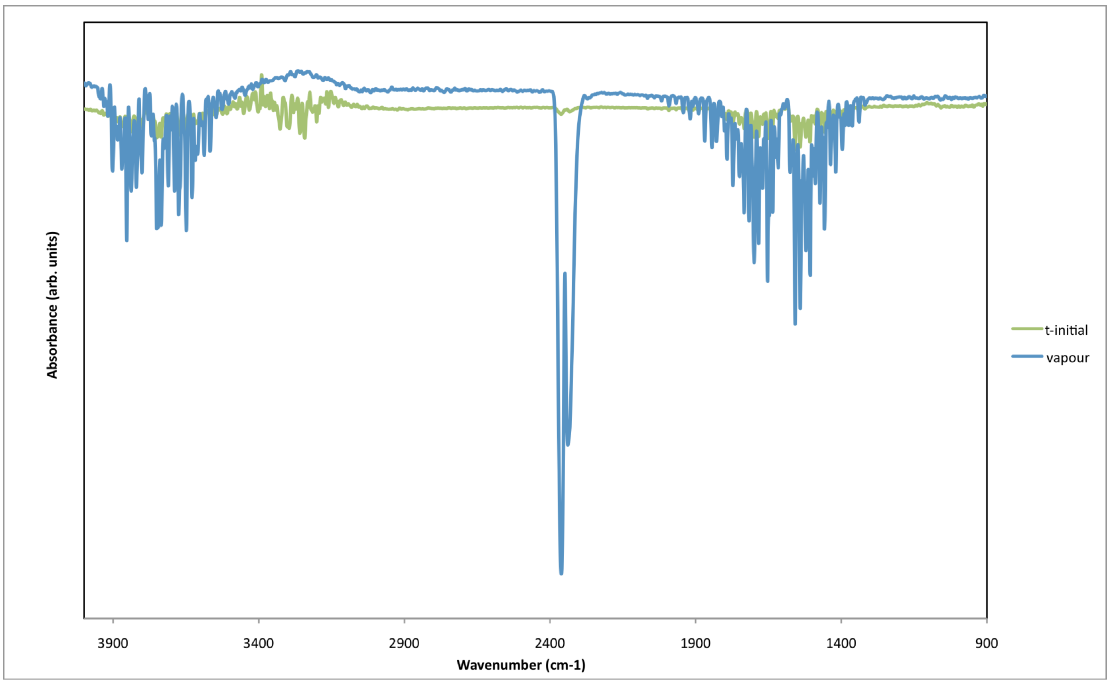
The spectrum taken at time, t, is subtracted from the initial spectrum (either the first spectrum or the spectrum of water + barium ions). Spectra were not converted to Kubelka Munk units since no quantitative data was being determined, only qualitative changes within a short wavenumber region were being assessed.



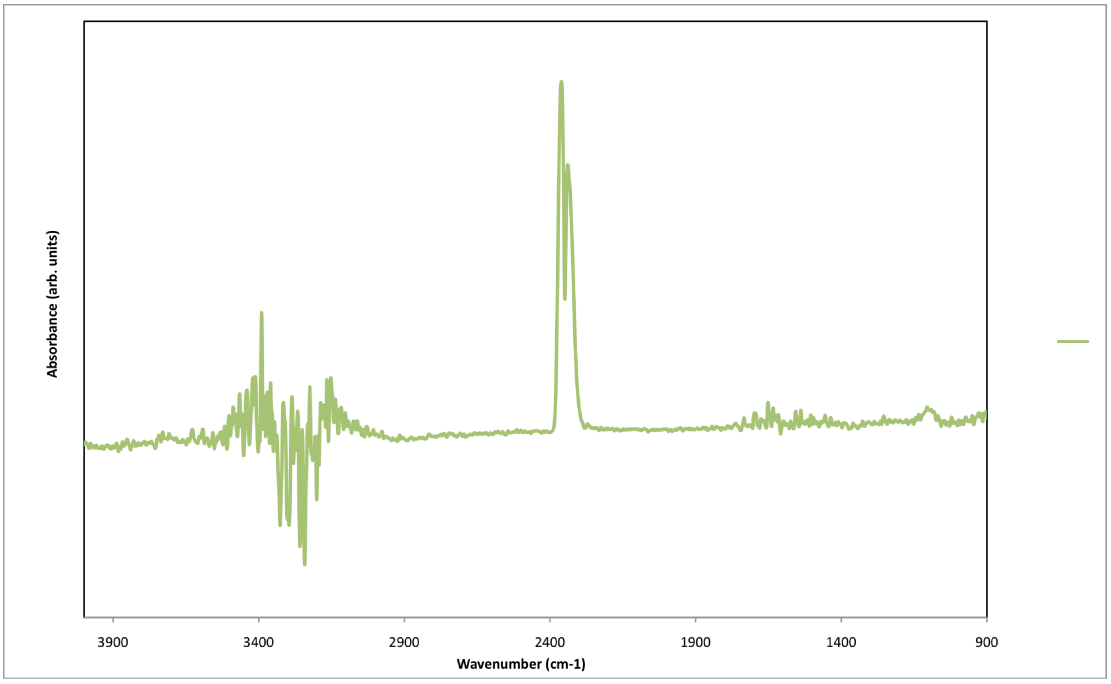
Spectra have been offset slightly (in y direction) to aid reader



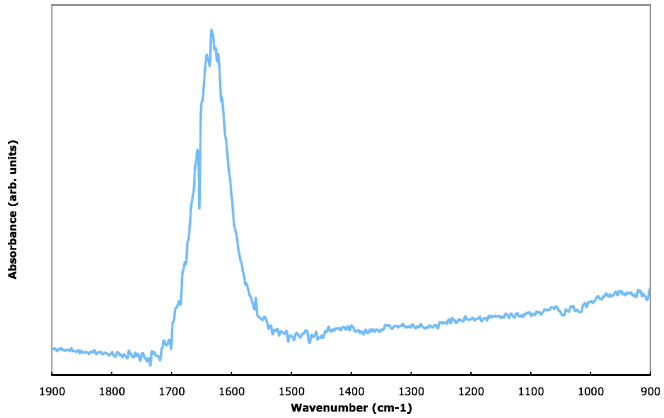
If this substracted spectrum contained a lot of water vapour (as this one does, shown by brackets), a suitable water vapour spectrum was found.



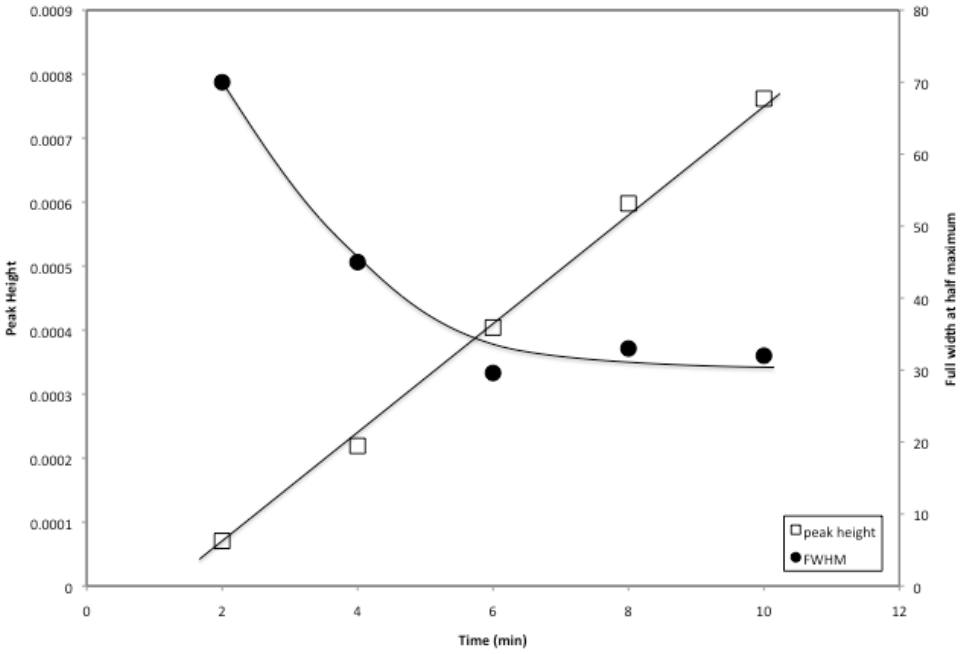
This water vapour spectrum was then subtracted from the (time t – initial spectrum) to obtain the final spectrum.



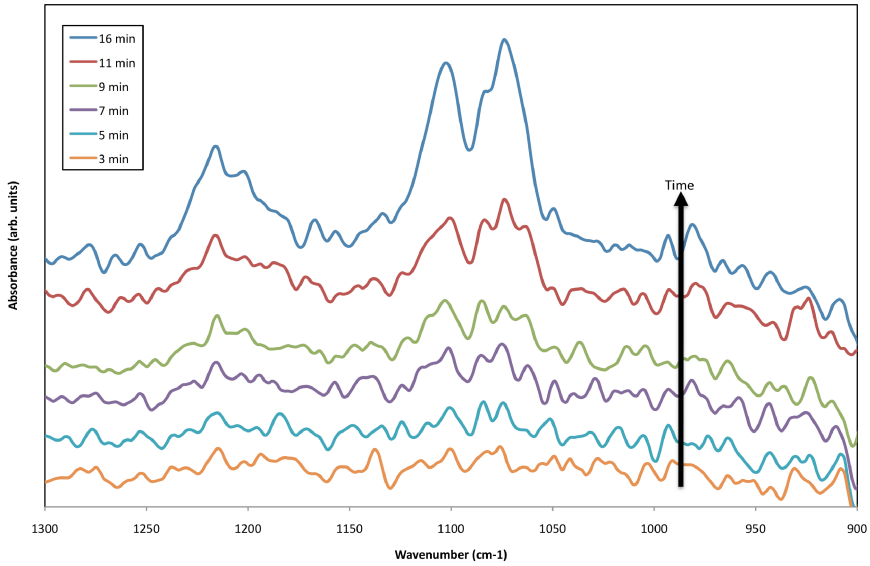
SFigure 1. Infrared spectrum data analysis



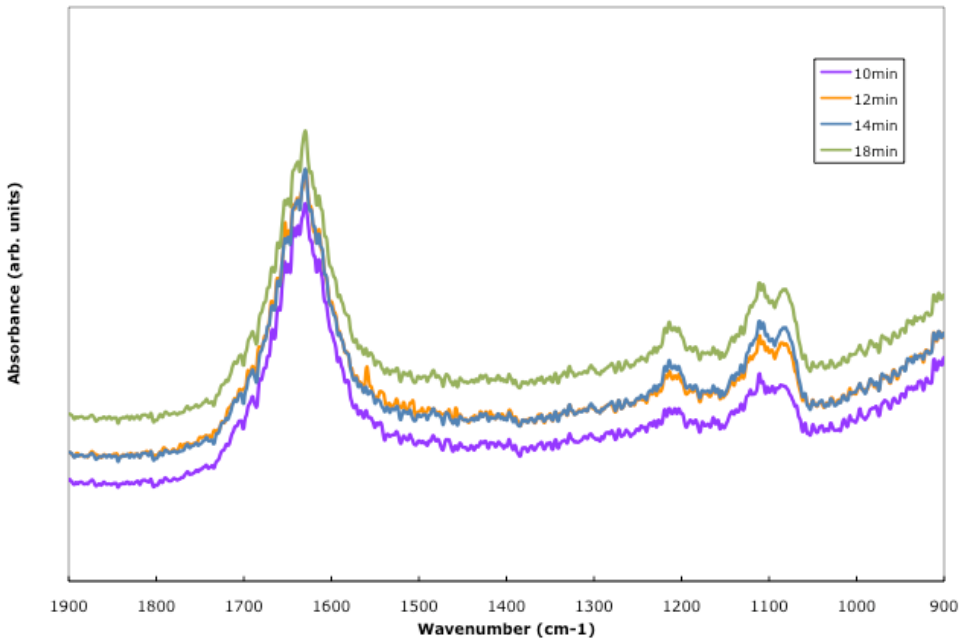
SFigure 2. Infrared spectrum of barium chloride at 0.25 mM



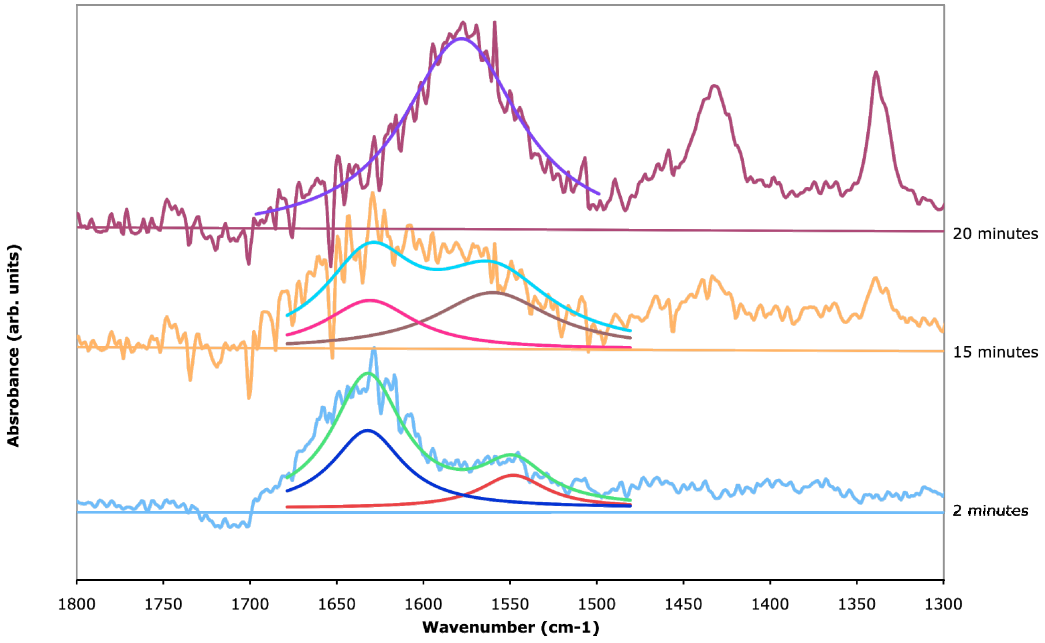
SFigure 3. Bandwidth and peak height versus time for the ~1200 cm^{-1} peak. These values were obtained from the experiment of barium sulfate crystallization at SI=9 from the "Method 2" data.



SFigure 4. Infrared spectra of barium sulfate crystallization at SI=100 with time



SFigure 5. Infrared spectrum of barium sulfate crystallization at SI=9 and longer times



SFigure 6. Infrared spectrum of barium sulfate crystallization at 0.25 mM in the presence of mellitic acid (0.03 mM) showing water bend decreases with time by the

guassian curve fitting in the water region. (Band at 1550-1560 cm^{-1} is due to mellitic acid)