

Article

Supplementary Material for "Tracking Amorphous Calcium Carbonate Crystallization Products with Far-Infrared Spectroscopy"

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To illustrate the time-dependent changes that occur in samples prepared without ethanol (no EtOH), we compare representative mid-infrared (MIR) attenuated total reflectance Fourier transform infrared (ATR-FTIR) spectra of fresh solids (Figure S1a) with ambient-aged solids (Figure S1b,c,d,e). The water-related peaks (OH-stretching near 3400 cm^{-1} and OH-bending near 1600 cm^{-1}) decrease after days to years under ambient conditions. These same water-related peaks decrease noticeably after heating (Figure S1f,g), but do not disappear completely. Furthermore, heating does not trigger aragonite formation.

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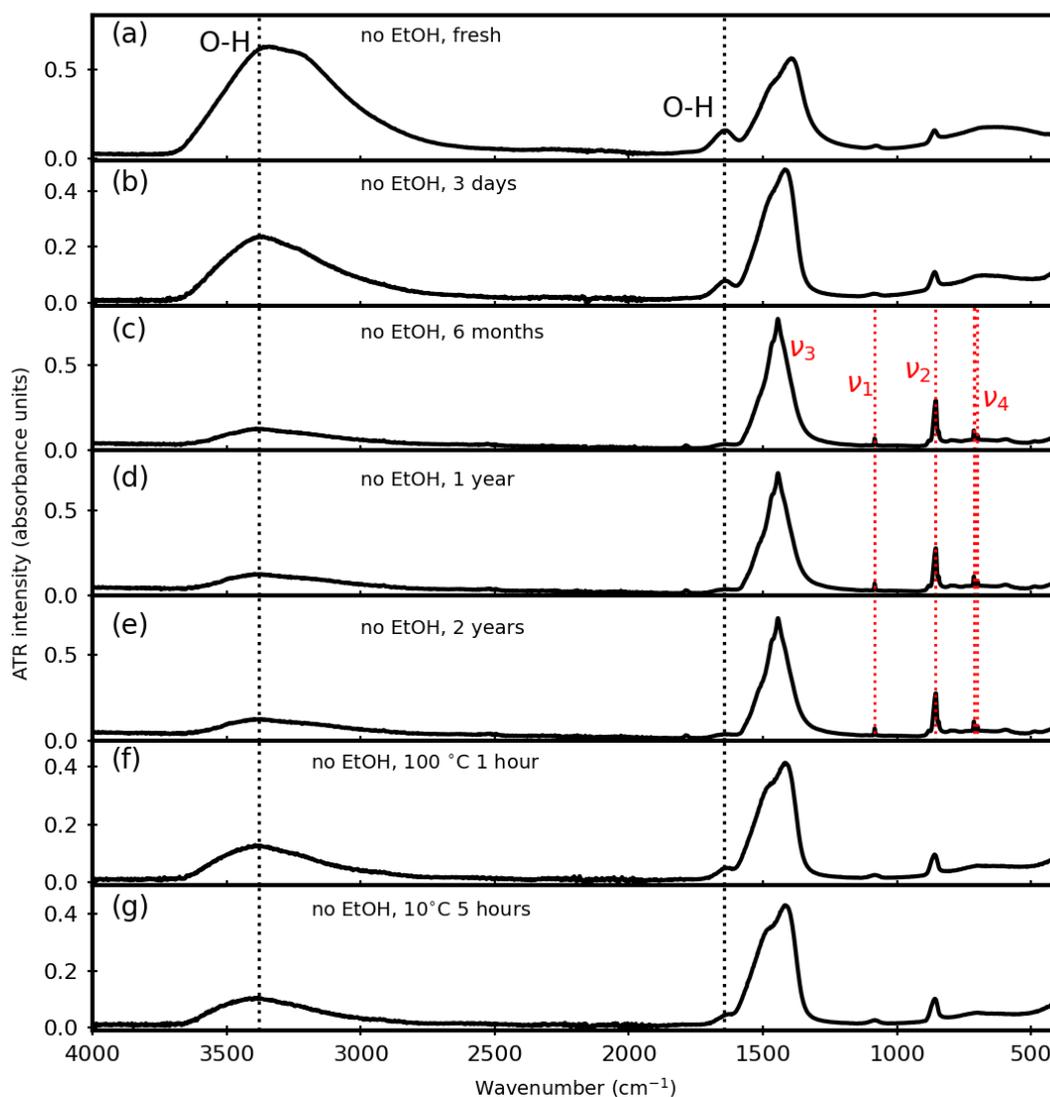


Figure S1. Representative ATR-FTIR spectra in the mid-IR range ($400\text{--}4000\text{ cm}^{-1}$) for samples synthesized without EtOH (a) fresh, and after different periods of drying in ambient: (b) 3 days, (c) 6 months, (d) 1 year, (e) 2 years. For comparison, fresh samples were also heated to $100\text{ }^{\circ}\text{C}$ for (f) 1 h, and (g) 5 h. The black dotted lines indicate water-related peaks (OH-stretching near 3400 cm^{-1} and OH-bending near 1600 cm^{-1}) while the red dotted lines correspond to the most diagnostic aragonite-specific peaks (ν_1 peak region (near 1080 cm^{-1}), ν_2 peak region ($800\text{--}920\text{ cm}^{-1}$) and ν_4 peak region ($650\text{--}800\text{ cm}^{-1}$)).