

## Supporting information

### for Heterogeneous Reaction of Acetic Acid on MgO, $\alpha$ -Al<sub>2</sub>O<sub>3</sub>, and CaCO<sub>3</sub> and the Effect on the Hygroscopic Behaviour of these Particles

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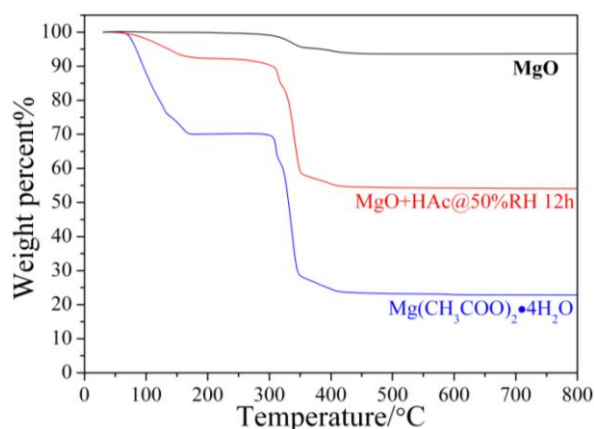


Fig. S1 TGA curves of MgO (black), MgO reacted with HAc at 50%RH for 12h (red), and Mg(CH<sub>3</sub>COO)<sub>2</sub>·4H<sub>2</sub>O particles (blue). The thermogravimetric analysis (TGA) thermograms were obtained from a METTLER-TOLDO (TGA/DSC 1/1600) thermal gravimetry with an accuracy of  $\pm 1\mu\text{g}$ . The balance and sample compartments were purged with nitrogen. The temperature program was from 30 to 800 °C, with an increasing rate of 10 °C min<sup>-1</sup> in a flow of 50 mL/min N<sub>2</sub>.

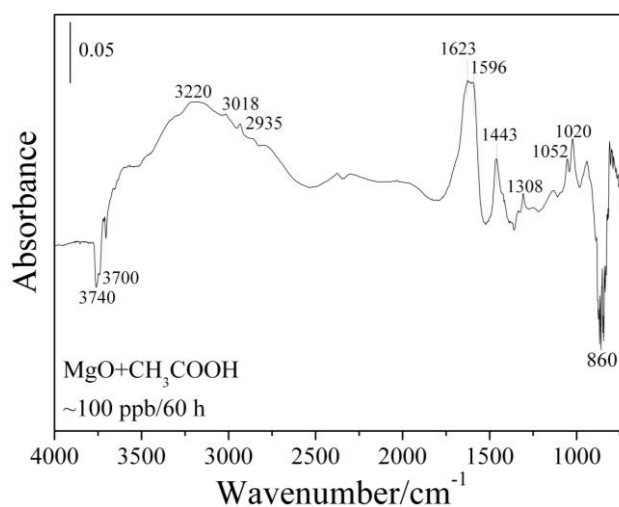


Fig. S2 IR spectrum of MgO exposed to CH<sub>3</sub>COOH with concentration of ~100 ppb at 50%RH for 60 h at 300 K.