Electronic supporting information

The effect of layer-interlayer Chemistry of LDHs on developing high temperature carbon capture materials

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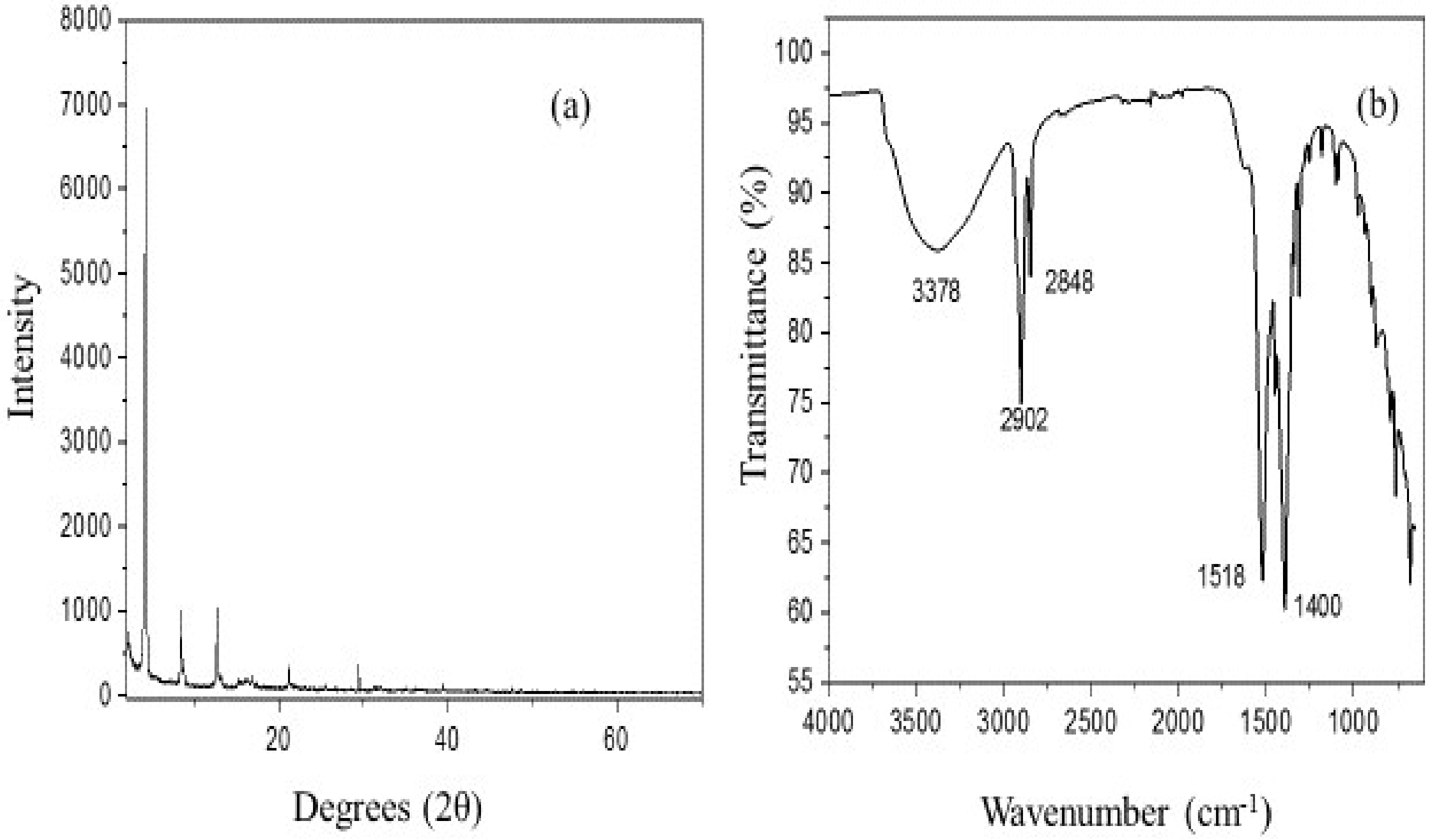
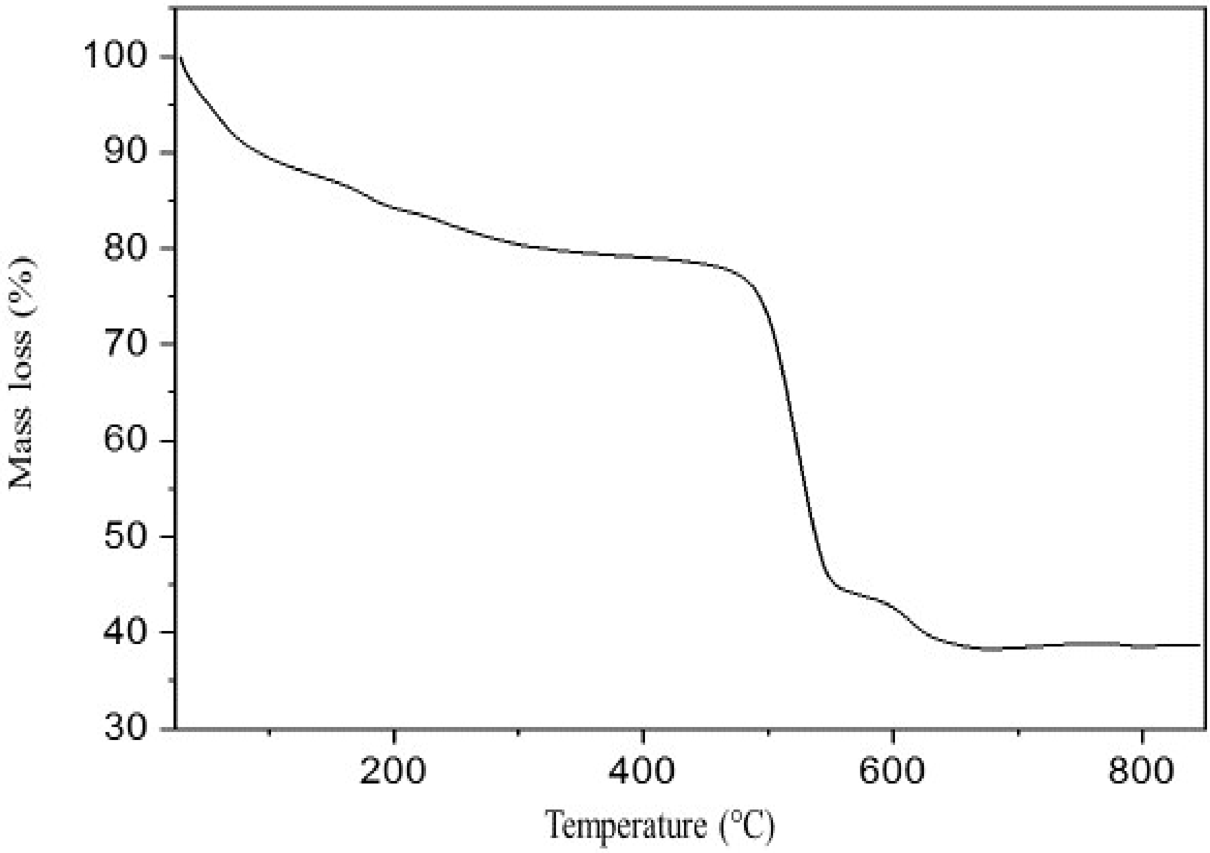
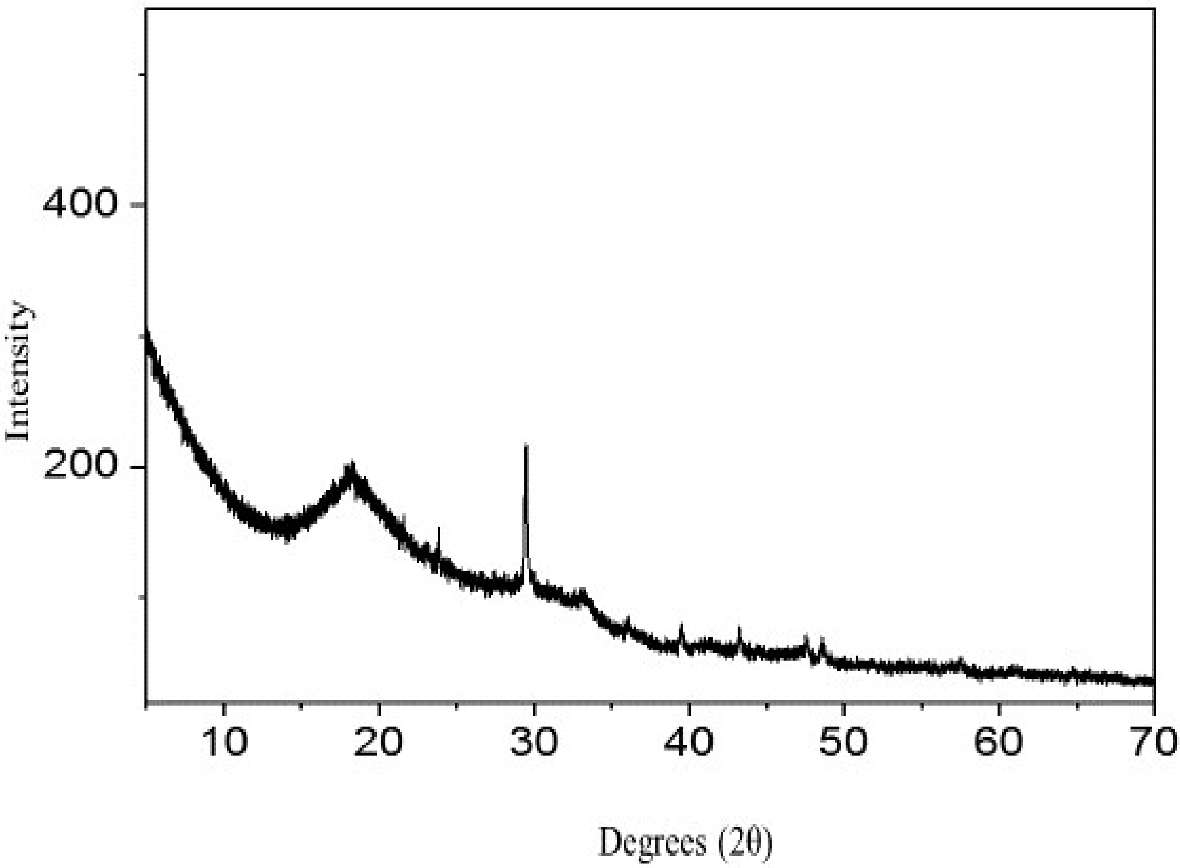


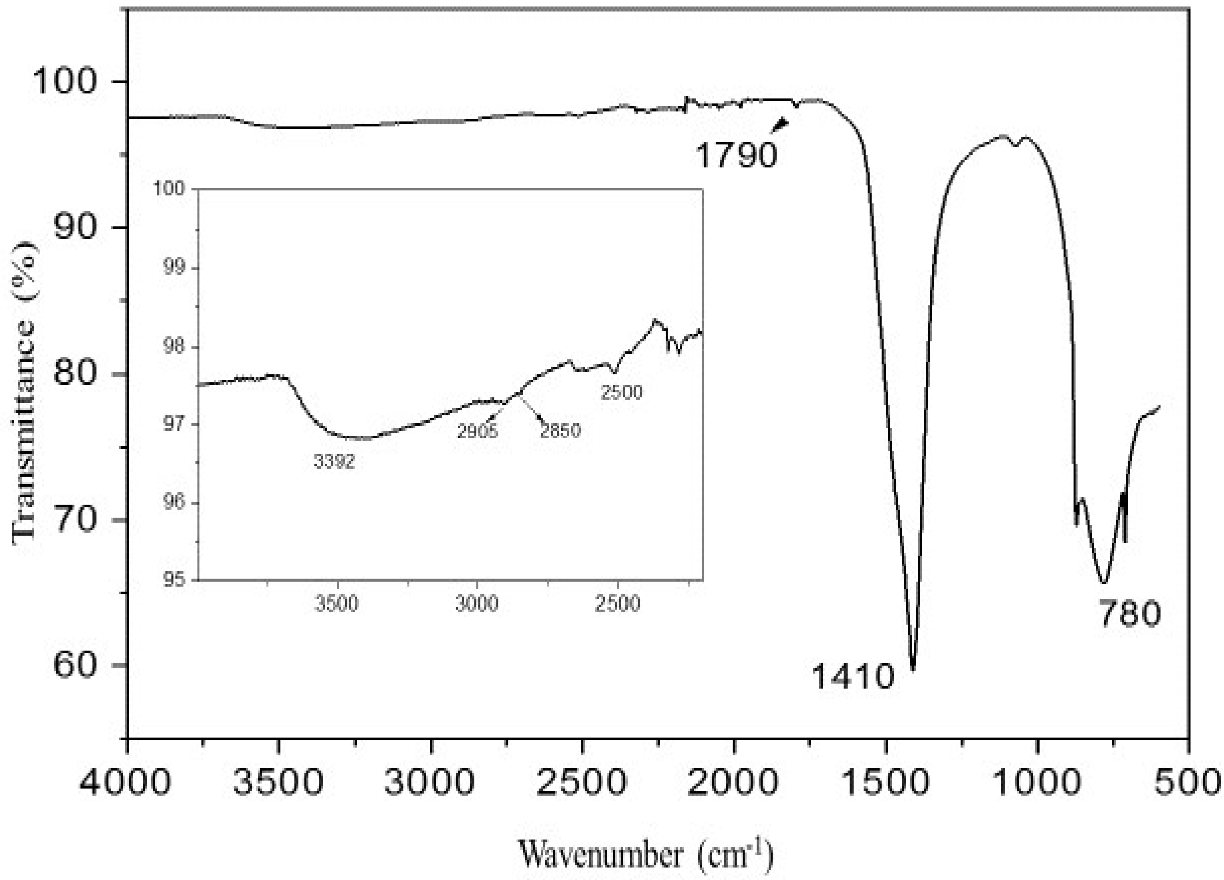
SI 1. (a) PXRD pattern and (b) FTIR spectrum of Ca/Al-adamantanecarboxylate LDH synthesized by co-hydration route.



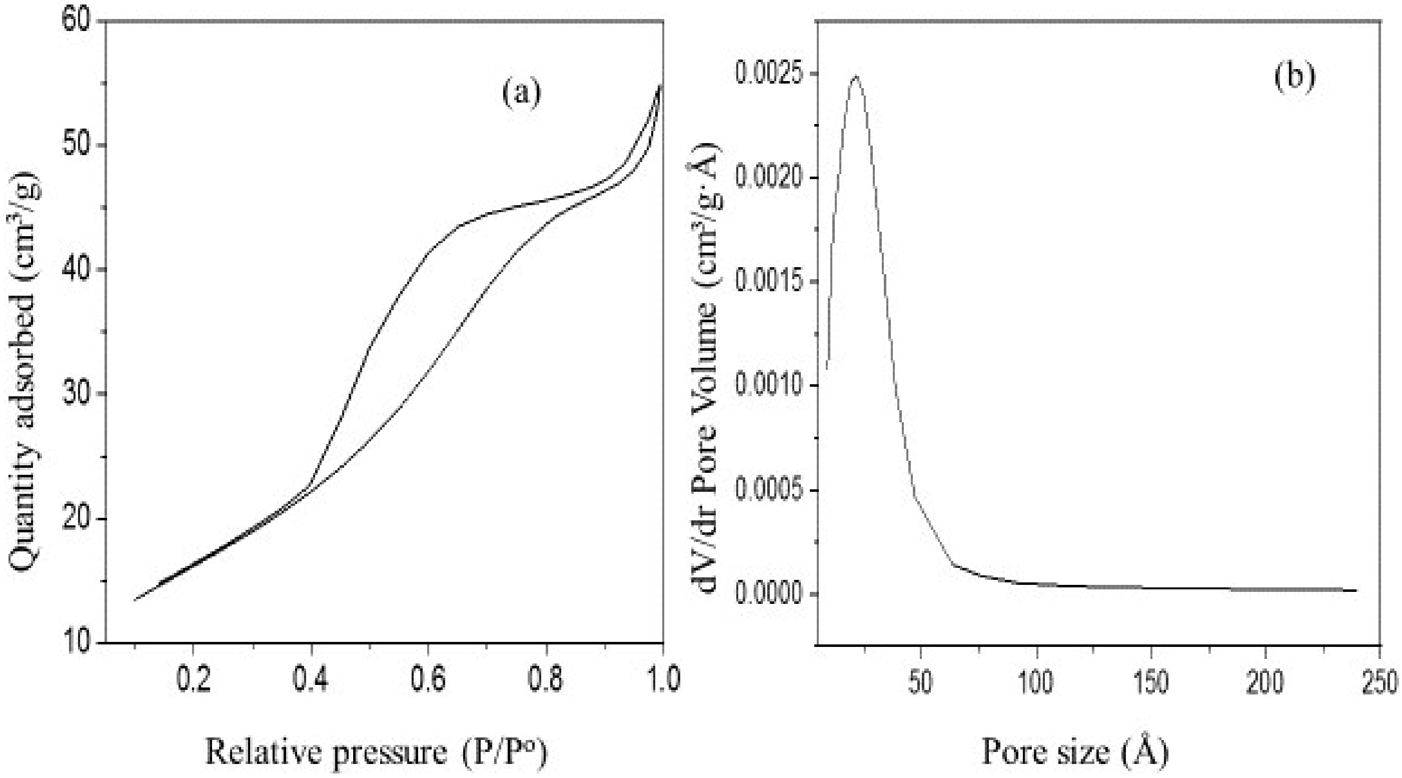
SI 2. TGA profile of Ca/Al-adamantanecarboxylate LDH synthesized by co-hydration route under N_2 atmosphere.



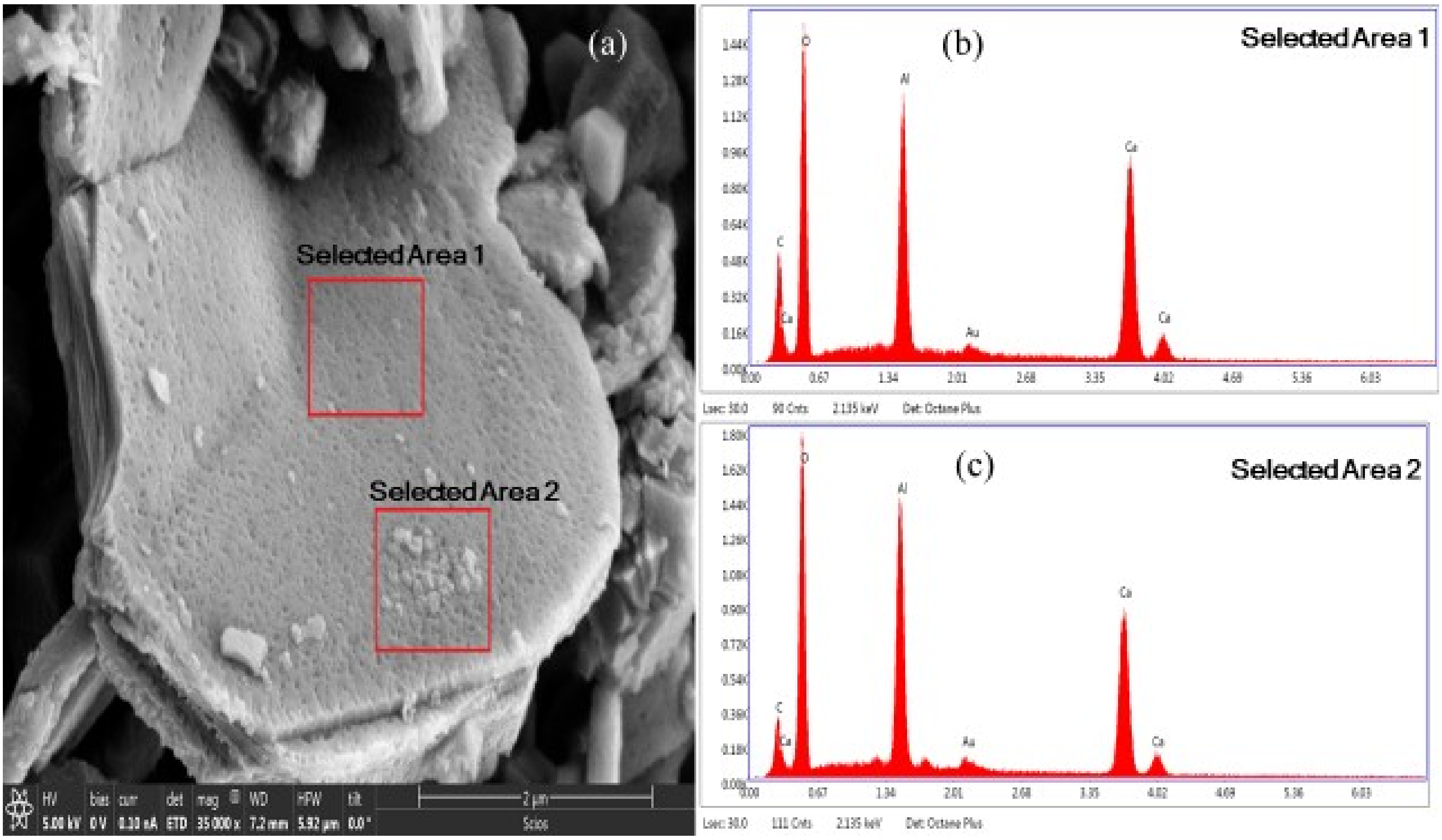
SI 3. PXRD pattern of Organic-Inorganic hybrid MMOs obtained from decomposition of Ca/Al-adamantanecarboxylate LDH.



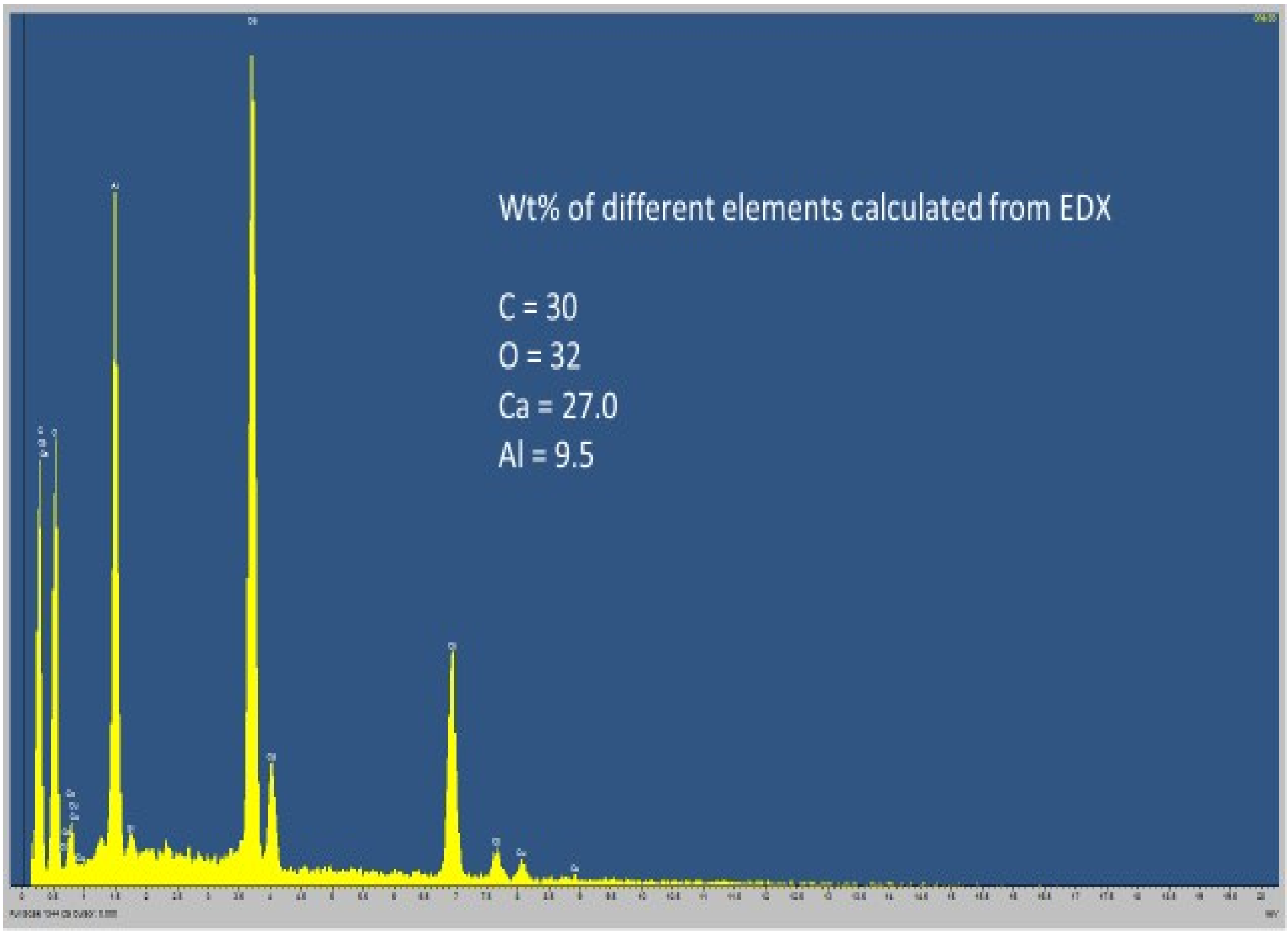
SI 4. FTIR spectrum of Organic-Inorganic hybrid MMOs obtained from decomposition of Ca/Al-adamantanecarboxylate LDH. Inset shows the extended spectra between 4000 and 2000 cm^{-1}.



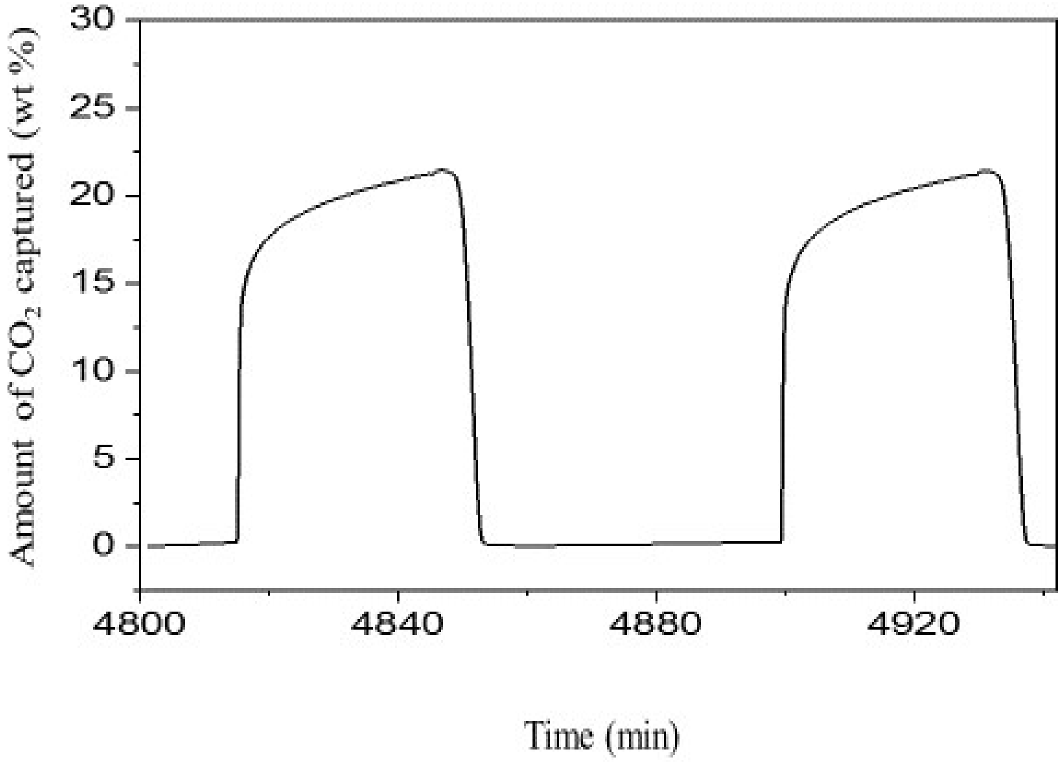
SI 5. (a)Adsorption isotherm (N_2, 77 K) and (b) Pore size distribution of Organic-Inorganic hybrid MMOs obtained from decomposition of Ca/Al-adamantanecarboxylate LDH.



SI 6. Organic-Inorganic hybrid MMOs obtained from decomposition of Ca/Al-adamantanecarboxylate LDH. (a) SEM image used for EDX analysis (b) EDX spectrum corresponds to selected area 1 in (a) and (c) EDX spectrum corresponds to selected area 2 in (a).



SI 7. EDX spectrum of Organic-Inorganic hybrid MMOs obtained from decomposition of Ca/Al-adamantanecarboxylate LDH.



SI 8. Kinetic data of carbonation/regeneration cycle (cycle number 55-56) of Organic-Inorganic hybrid MMOs obtained from decomposition of Ca/Al-adamantanecarboxylate LDH.