

# Supplementary Material

**Cu<sup>II</sup> and Co<sup>II</sup> based MOFs:  $\{[\text{La}_2\text{Cu}_3(\mu\text{-H}_2\text{O})(\text{ODA})_6(\text{H}_2\text{O})_3]\cdot 3\text{H}_2\text{O}\}_n$  and  $\{[\text{La}_2\text{Co}_3(\text{ODA})_6(\text{H}_2\text{O})_6]\cdot 12\text{H}_2\text{O}\}_n$ . The relevance of physicochemical properties in the catalytic aerobic oxidation of cyclohexene.**

L. Santibañez<sup>1,6</sup>, N. Escalona<sup>2,3,4</sup>, J. Torres<sup>5</sup>, C. Kremer<sup>5</sup>, P. Cancino<sup>1\*</sup>, E. Spodine<sup>1,6\*</sup>.

<sup>1</sup>Facultad de Ciencias Química y Farmacéuticas, Universidad de Chile, Santiago, Chile.

<sup>2</sup>Facultad de Química y de Farmacia, Pontificia Universidad Católica de Chile, Santiago, Chile.

<sup>3</sup>Departamento de Ingeniería Química y Bioprocessos, Escuela de Ingeniería, Pontificia Universidad Católica de Chile, Santiago, Chile.

<sup>4</sup>Millenium Nuclei on Catalytic Processes towards Sustainable Chemistry (CSC), Chile

<sup>5</sup>Departamento Estrella Campos, Facultad de Química, Universidad de la República, Montevideo, Uruguay

<sup>6</sup>Centro para el Desarrollo de la Nanociencia y la Nanotecnología, CEDENNA, Santiago, Chile

**Table S1:** Thermal dependence of aerobic cyclohexene oxidation catalyzed by LaCoODA

T (°C)	Conversion (%)	2-Cyclohexen-1-ol (%)	2-Cyclohexen-1-one (%)
30	22	28	72
50	51	25	75
85	87	26	74

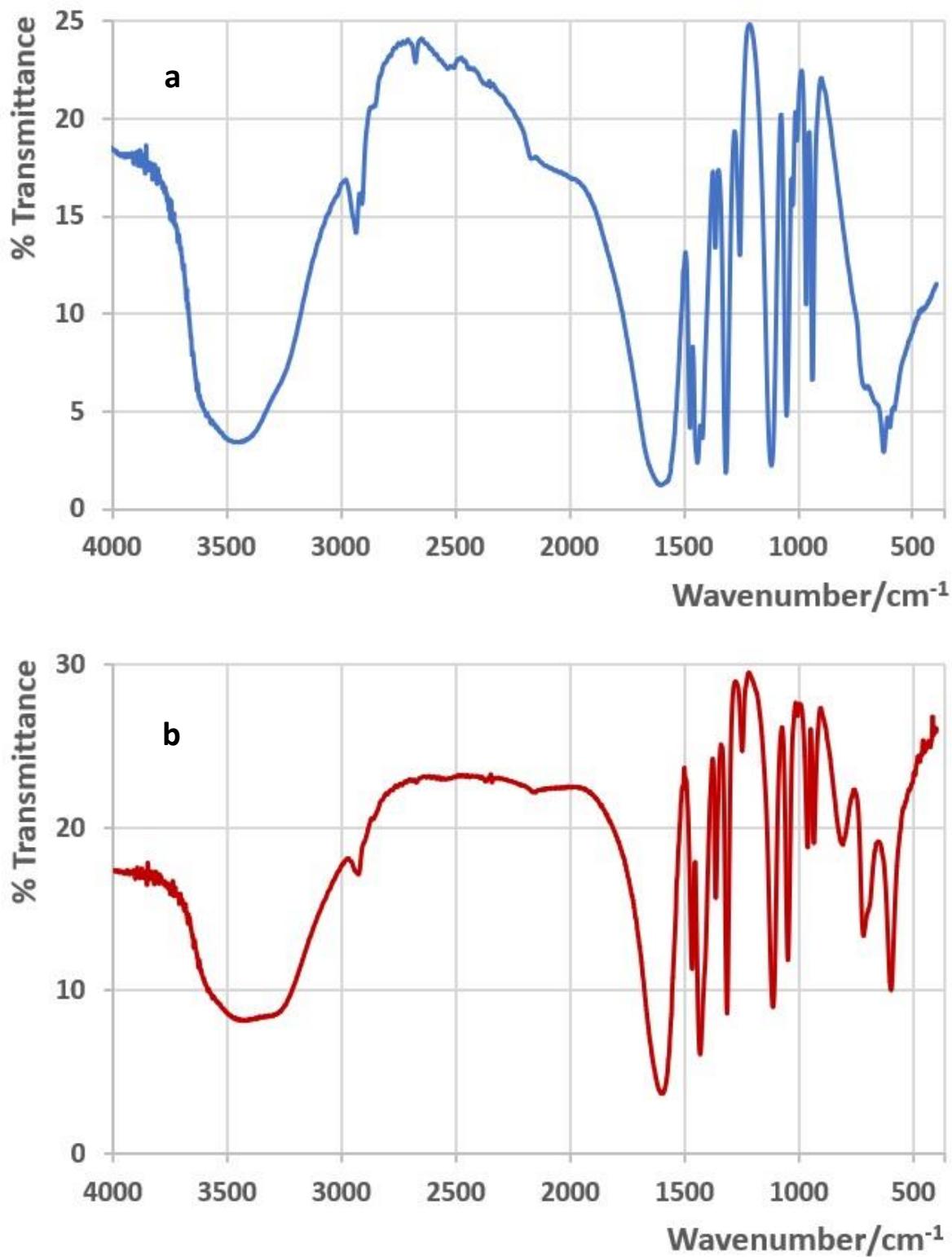
**Reaction conditions:** 50 mmol of cyclohexene and 0.01 mmol of LaCo(ODA), 1 bar of continuous oxygen flow. The mixture is stirred for 24 hours at 75°C.

**Table S2.** Conversions for the non-activated and thermally activated catalytic system. Selectivities for the activated catalyst are also presented.

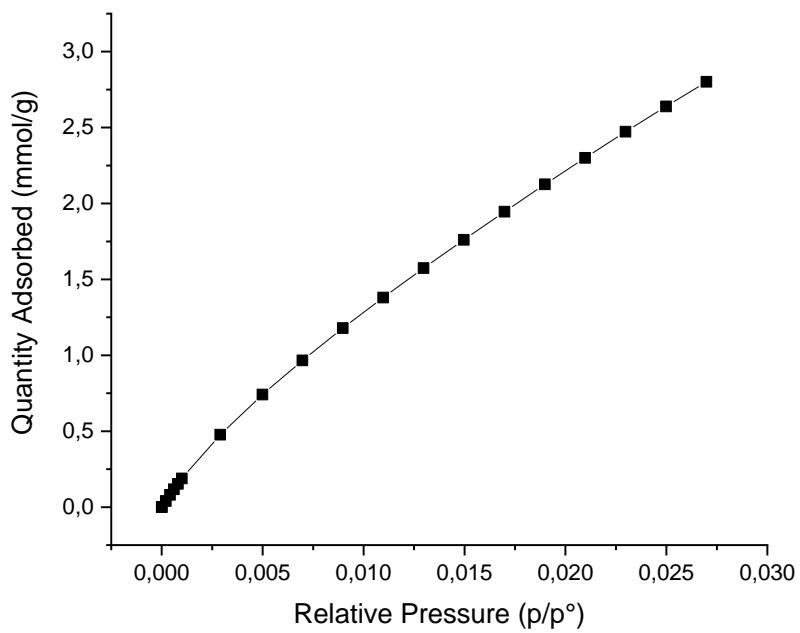
Time	Non-activated LaCoODA conversión (%)	Activated LaCoODA conversion (%)	Activated LaCoODA alcohol selectivity (%)	Activated LaCoODA ketone selectivity (%)
3h	21	24	30	70
6h	50	53	26	74
12h	73	76	27	73
24h	81	85	27	73

**Reaction conditions:** 50 mmol of cyclohexene and 0.01 mmol of LaCo(ODA), 1 bar of continuous oxygen flow. The mixture is stirred at 75°C.

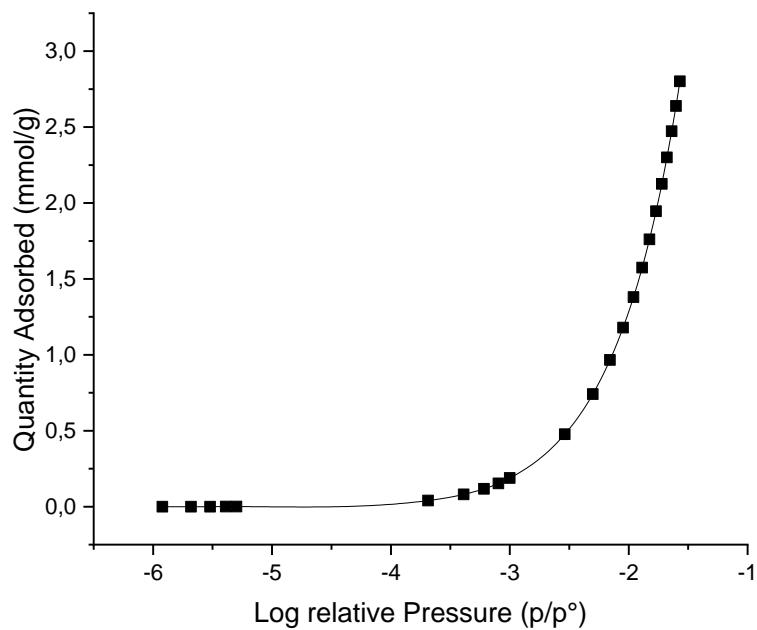
**Figure S1.** IR spectra of LaCuODA (a) and LaCoODA (b).



(a)

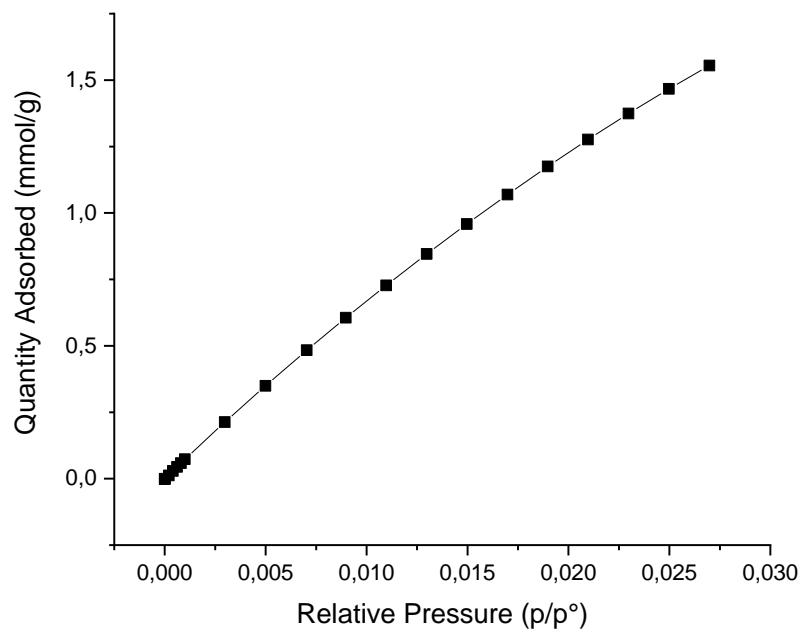


(b)

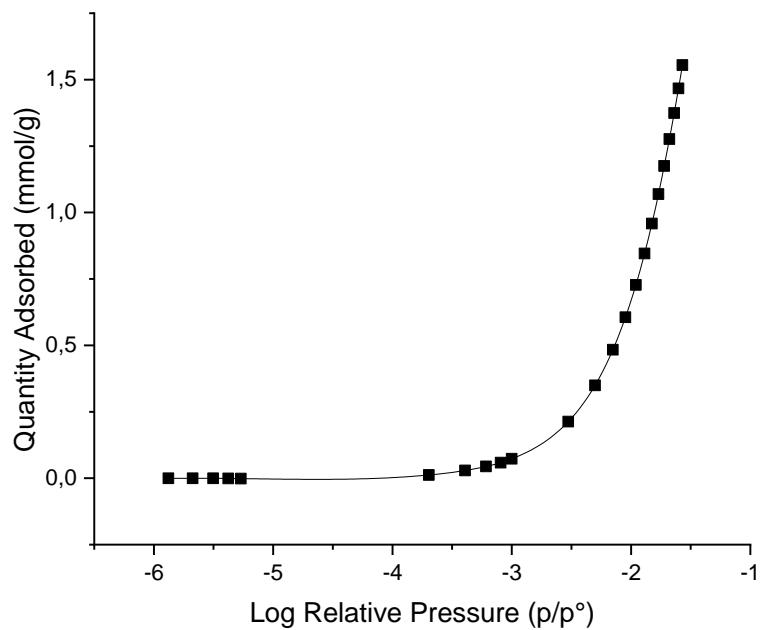


**Figure S2.** Linear (a) and logarithmic (b) adsorption isotherms for LaCoODA

(a)



(b)



**Figure S3** Linear (a) and logarithmic (b) adsorption isotherms for LaCuODA