

SUPPORTING INFORMATION

Hydrogenation of Carbon dioxide to formate using a Cadmium based Metal-organic Framework impregnated with Nanoparticles

Nyasha Makuve^a, James Darkwa^a, Gift Mehlana^{b*} and Banothile C.E. Makhubela^a

^a Department of Chemical Sciences, University of Johannesburg, Kingsway Campus, P.O Box 524, Auckland Park, 2006, Johannesburg, South Africa.

^b Department of Chemical Technology, Midlands State University, Private Bag 9055 Senga Road, Gweru, Zimbabwe.

Supporting Information

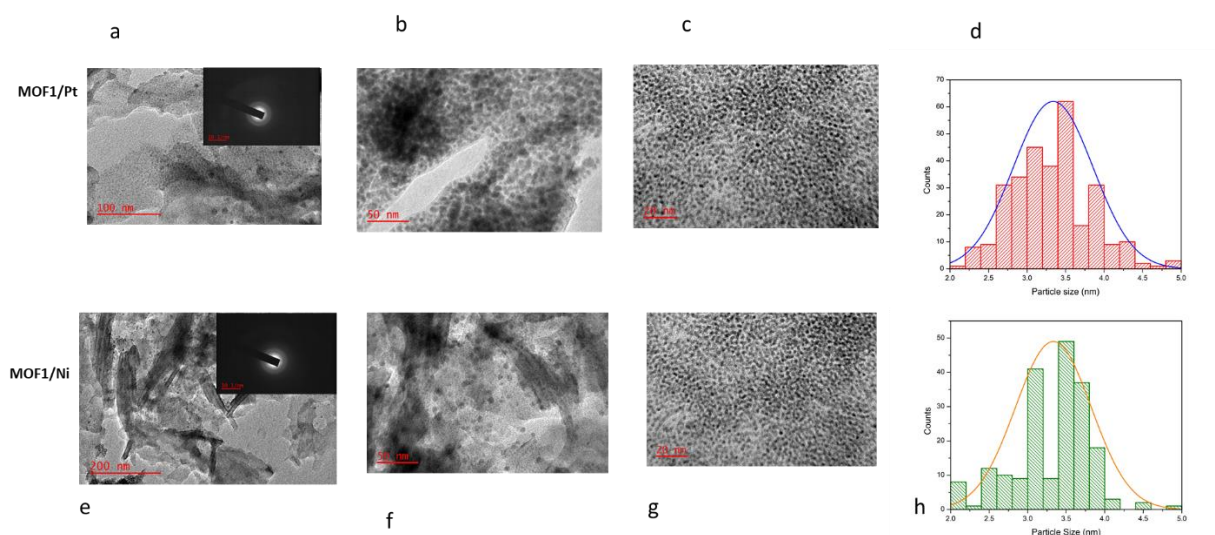


Figure S1: HR-TEM images for MOF1@Pt and MOF1@Ni at ((a) and (e)) 100 nm, ((b) and (f)) 50 nm, ((c) and (g)) 20 nm scale and ((d) and (h)) histogram of particle size distribution.

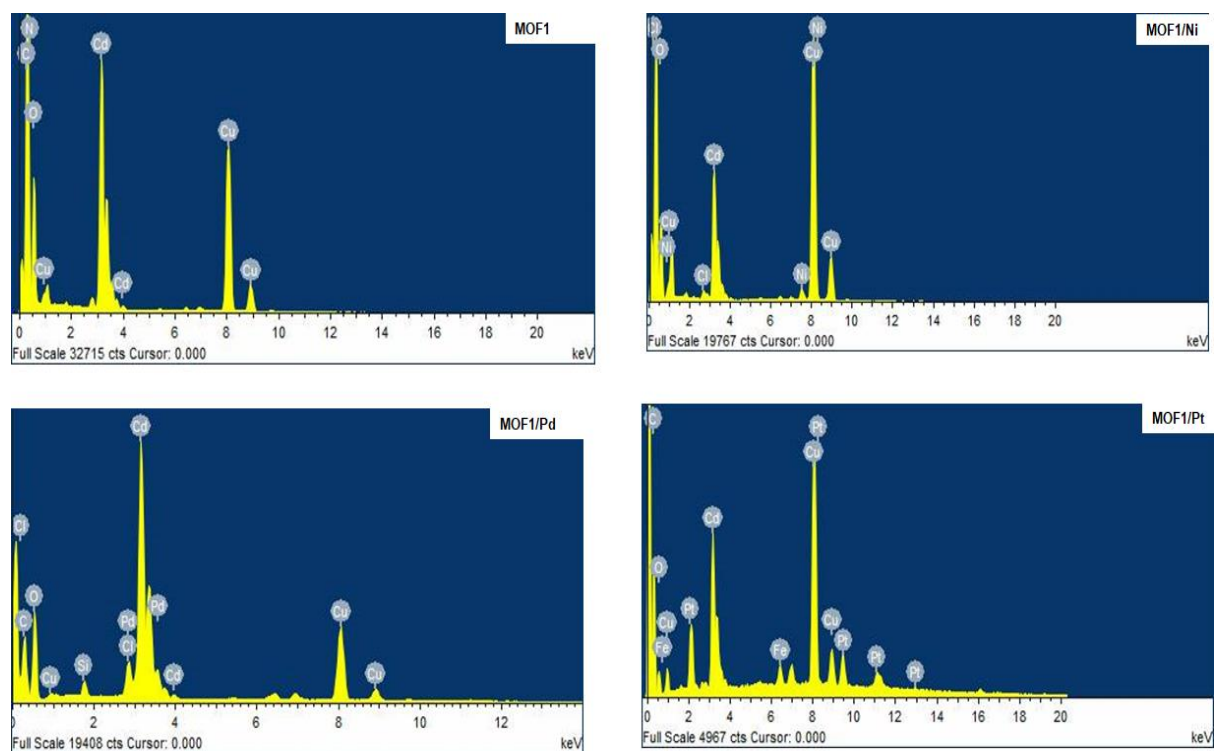


Figure S2: EDX analysis of MOF1, MOF1/Ni, MOF1/Pd and MOF1/Pt.

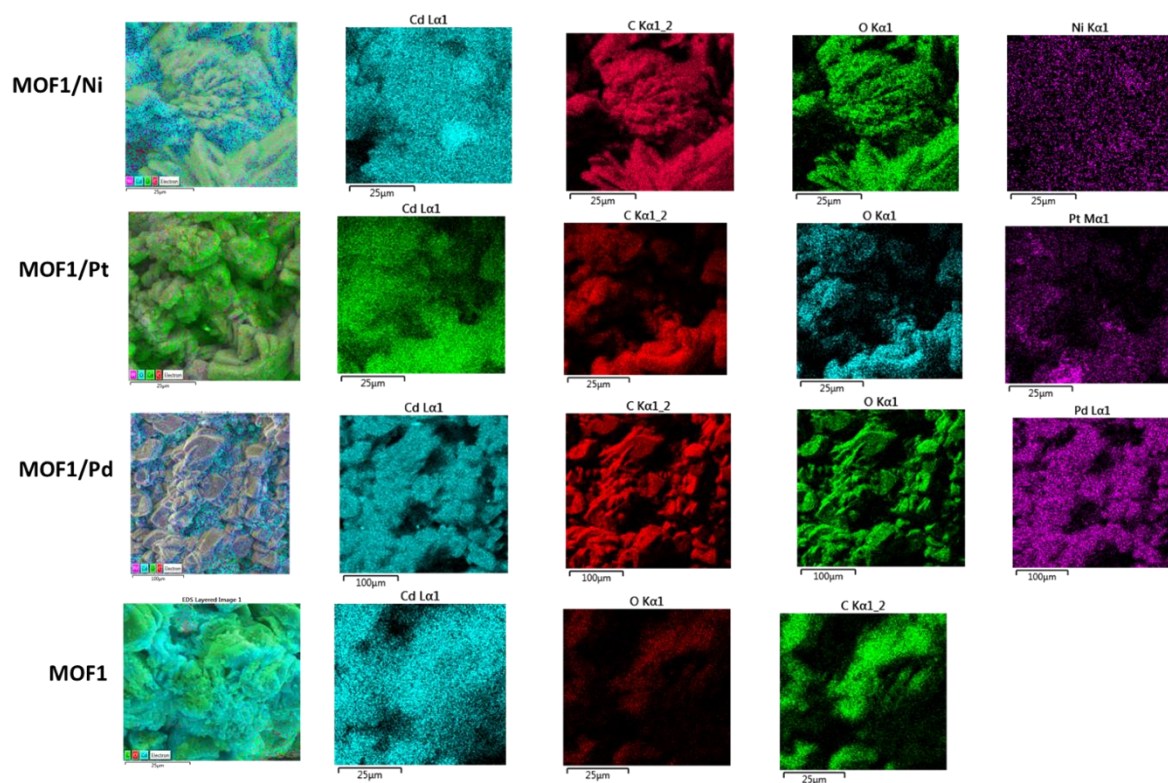


Figure S3: Elemental mapping of MOF1/Ni, MOF1/Pd and MOF1/Pt.

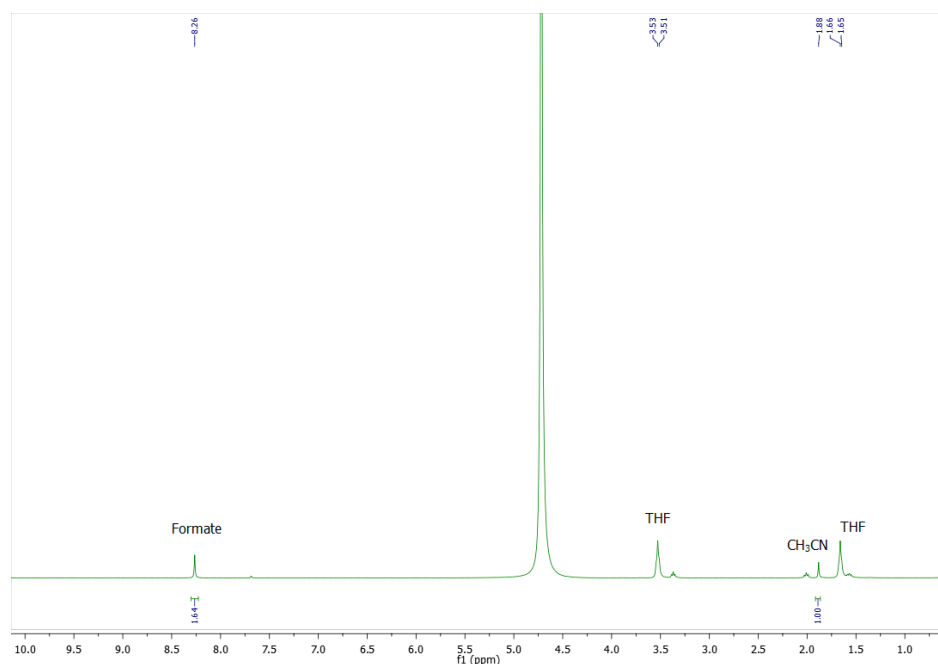


Figure S4: Example of ^1H NMR spectrum after hydrogenation of CO_2 using THF and KOH base and pre-catalyst MOF1@Pd at 160 °C for 24 h recorded in D_2O at 25 °C in the presence of CH_3CN internal standard.

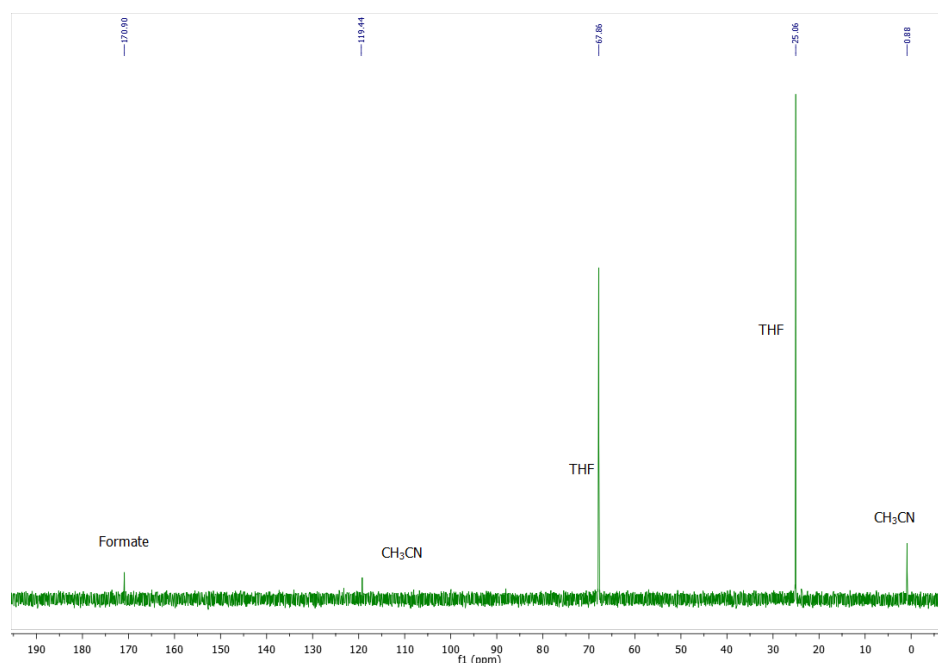


Figure S5: Example of $^1\text{H}\{^{13}\text{C}\}$ NMR spectrum after hydrogenation of CO_2 using THF and KOH with pre-catalyst MOF1@Pd at 160 °C for 24 h recorded in D_2O at 25 °C.