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*Original*

PET waste as organic linker source for the sustainable preparation of MOF-derived methane dry reforming catalysts / Karam, L.; Miglio, A.; Specchia, S.; El Hassan, N.; Massiani, P.; Reboul, J.. - In: MATERIALS ADVANCES. - ISSN 2633-5409. - ELETTRONICO. - 2(2021), pp. 2750-2758. [10.1039/D0MA00984A]

*Availability:*

This version is available at: 11583/2877416 since: 2021-03-26T17:07:54Z

*Publisher:*

Royal Society of Chemistry

*Published*

DOI:10.1039/D0MA00984A

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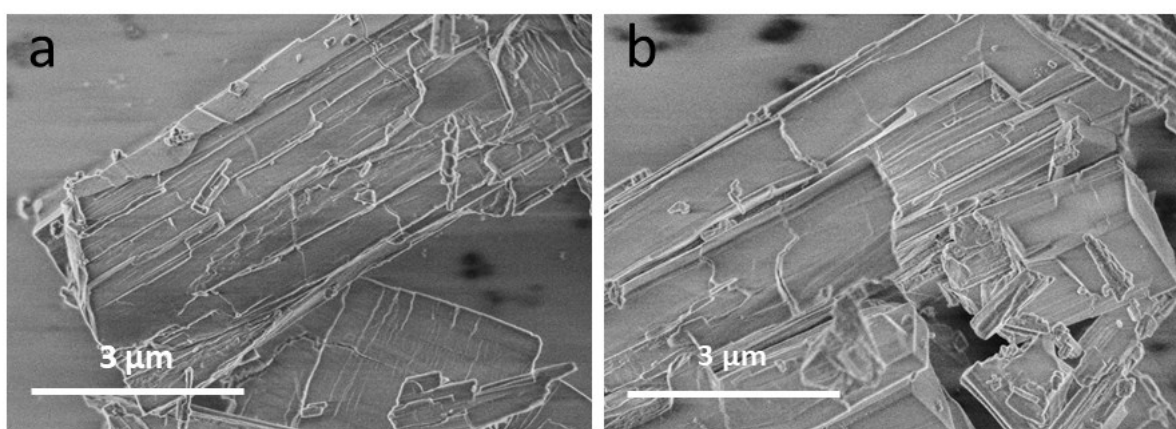
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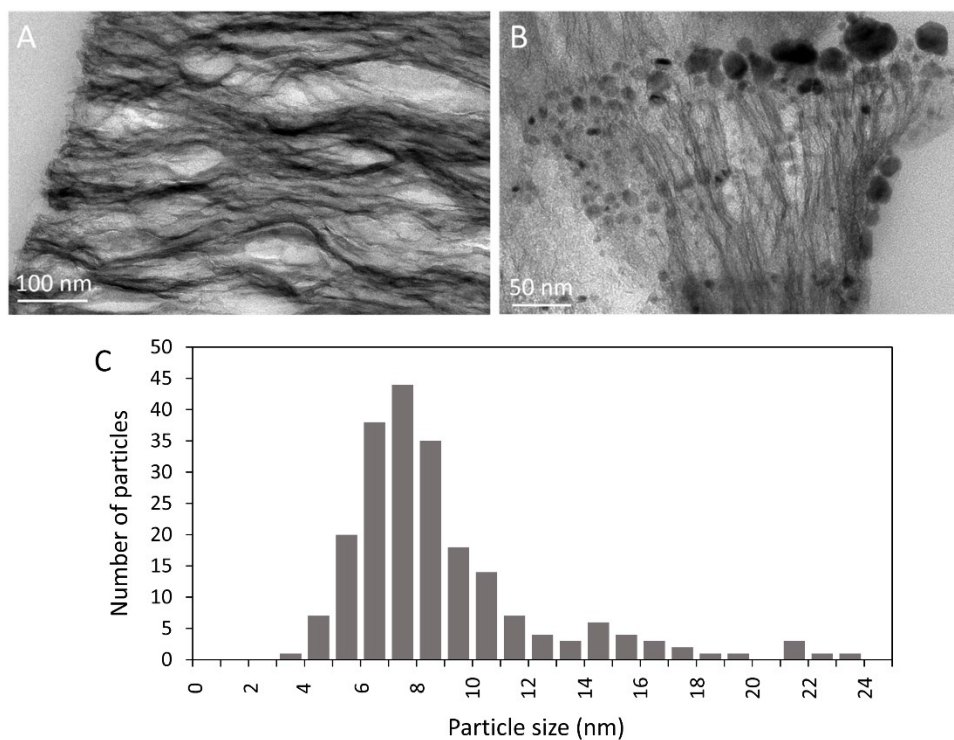
## PET waste as organic linker source for the sustainable preparation of MOF-derived methane dry reforming catalysts.

L. Karam, A. Miglio, S. Specchia, N. El Hassan, P. Massiani, J. Reboul

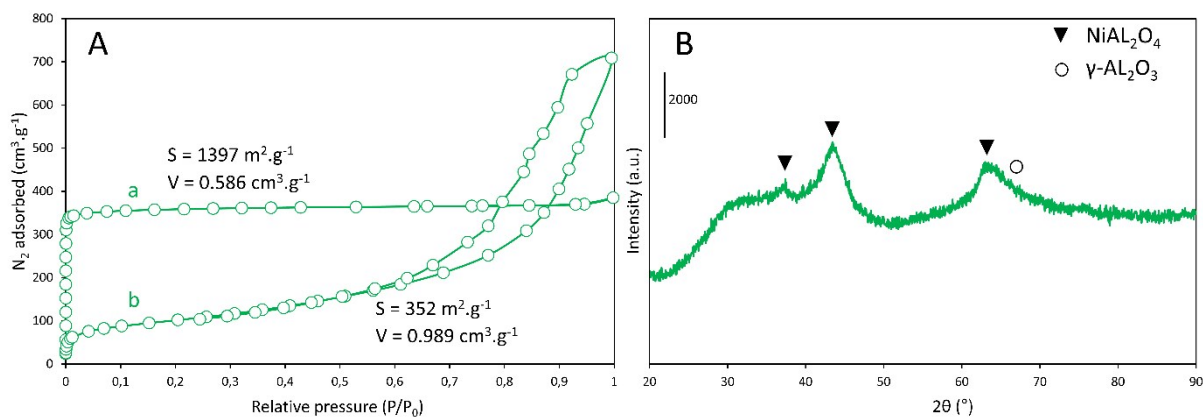
*Supplementary informations*



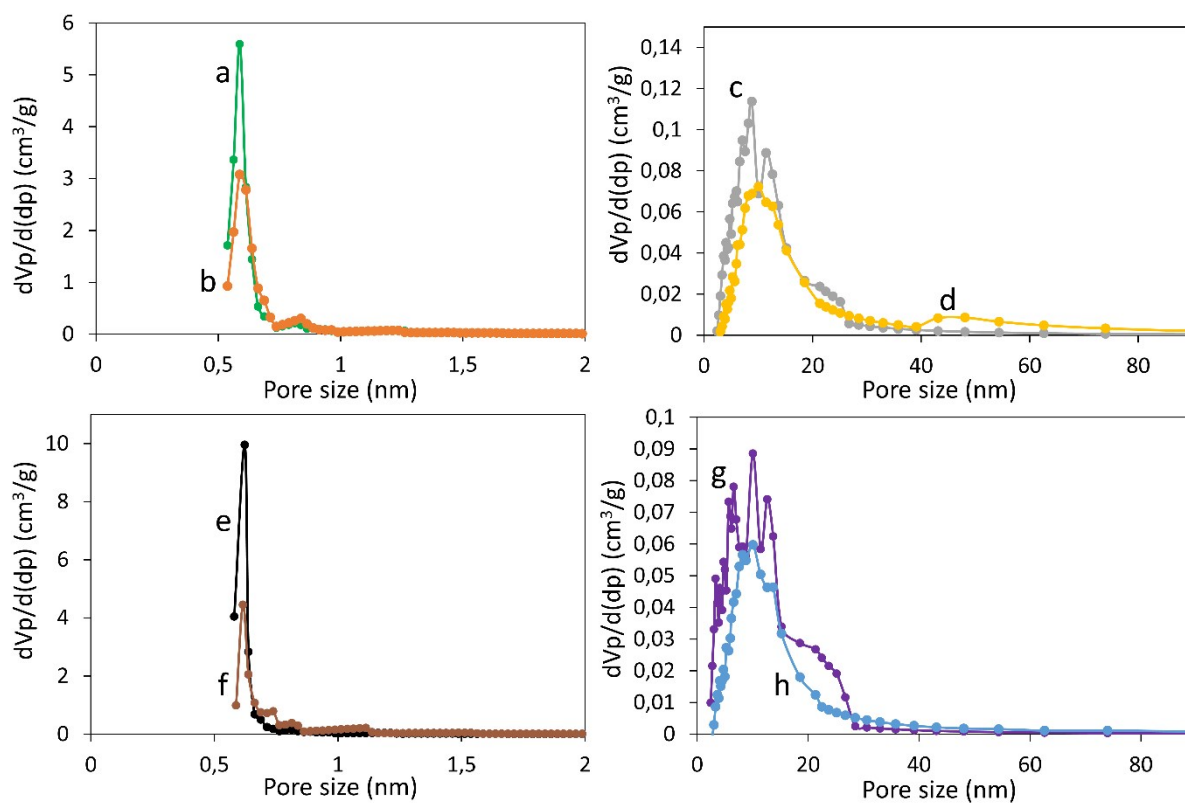
**Figure S1.** SEM images of (a) MIL-53-PET<sub>AC</sub> and (b) Ni-MIL-53-PET<sub>Imp</sub>



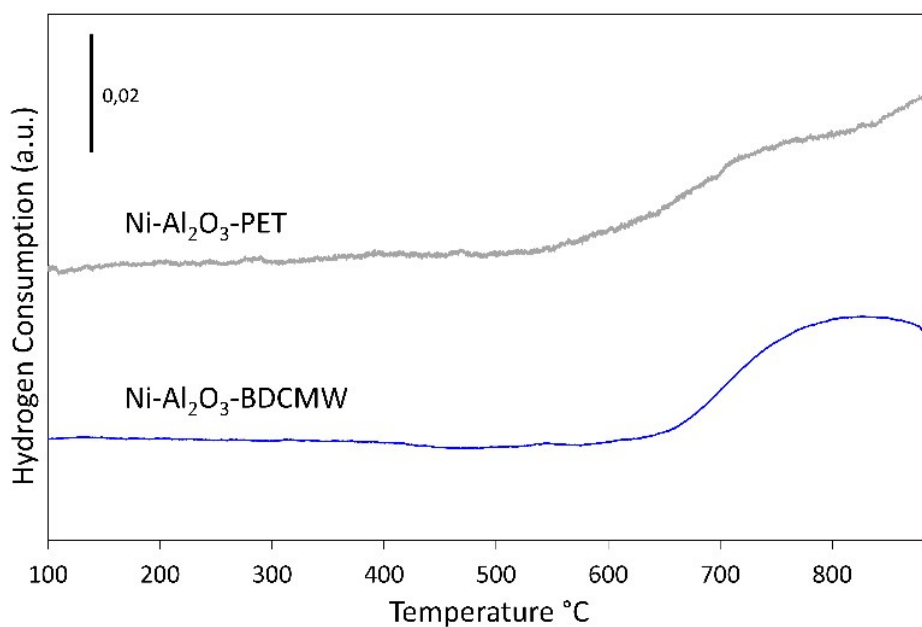
**Figure S2:** TEM image of (A) a microtome cut of calcined Ni-Al<sub>2</sub>O<sub>3</sub>-BDC and (B) of the same sample after reduction at 800°C under H<sub>2</sub> (Ni<sup>0</sup>-Al<sub>2</sub>O<sub>3</sub>-BDC). (C) Histogram established from 220 Ni<sup>0</sup> nanoparticles in typical TEM images of Ni<sup>0</sup>-Al<sub>2</sub>O<sub>3</sub>-BDC.



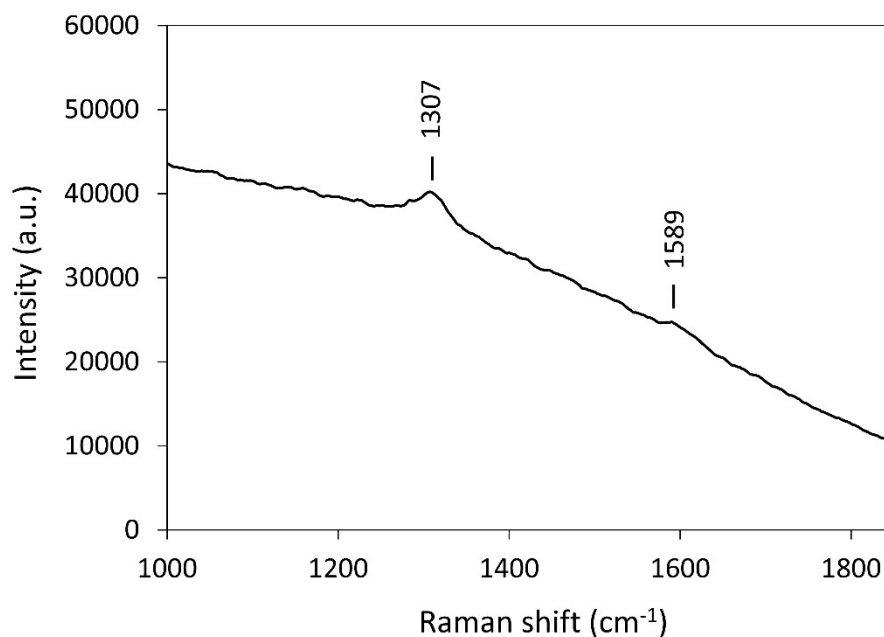
**Figure S3:** (A) N<sub>2</sub> sorption analyses and textural properties (BET Surface area and pore volume) of (a) MIL-53-BDC<sub>AC</sub> and (b) Ni-Al<sub>2</sub>O<sub>3</sub>-BDC; (B) X-ray diffraction pattern of Ni-Al<sub>2</sub>O<sub>3</sub>-BDC.



**Figure S4.** Pore size distributions assessed by applying the Horvath-Kawazoe model of (a) MIL-53-PET<sub>AC</sub>, (b) Ni-MIL-53-PET, (c) Ni-Al<sub>2</sub>O<sub>3</sub>-PET, (d) Ni<sup>0</sup>-Al<sub>2</sub>O<sub>3</sub>-PET, (e) MIL-53-BDC<sub>AC</sub>, (f) Ni-MIL-53-BDC, (g) Ni-Al<sub>2</sub>O<sub>3</sub>-BDC and (h) Ni<sup>0</sup>-Al<sub>2</sub>O<sub>3</sub>-BDC.



**Figure S5.** TPR profiles of the samples Ni-Al<sub>2</sub>O<sub>3</sub>-PET and Ni-Al<sub>2</sub>O<sub>3</sub>-BDC<sub>MW</sub>.



**Figure S6.** Raman spectroscopy profiles of the spent Ni-Al<sub>2</sub>O<sub>3</sub>-PET catalyst (the wavy baseline is supposedly due to fluorescence coming from the glass wool used in the test reactor). The two bands at 1307 cm<sup>-1</sup> and 1589 cm<sup>-1</sup> correspond to the D and G bands typical of the doubly degenerated phonon mode of carbon atoms on the sp<sup>2</sup> carbon network with high degree of symmetry and order (graphitic carbon, G-band, 1589 cm<sup>-1</sup>) and of a disordered structural mode of carbon species (D-band, 1307 cm<sup>-1</sup>).