

Supplementary Materials

Green Solvents as an Alternative to DMF in ZIF-90 Synthesis

Aljaž Škrjanc^{1,2}, Ciara Byrne¹ and Nataša Zubukovec Logar^{1,2,*}

1 Department of Inorganic Chemistry and Technology, National Institute of Chemistry, Hajdrihova 19, SI-1001 Ljubljana, Slovenia; aljaz.skrjanc@ki.si

2 University of Nova Gorica, Vipavska 13, SI-5000 Nova Gorica, Slovenia

* Correspondence: natasa.zabukovec@ki.si

S1. Literature BET and particle size data for ZIF-90

Table S1: Literature BET and particle size values for some synthesis methods

Solvent	S _{BET} [m ² /g]	Particle size [nm]	Reference
DMF	1182	2000	[1]
DMF	1270	1430	[2]
H ₂ O	785	2130	[2]
H ₂ O/butanol	766	275	[2]
DMF	1106	55	[3]
DMF	1426	79	[4]
DMF	718	80 – 100	[5]
DMF	529	100*	[6]
DMF	394	70*	[6]
DMF	717	/	[7]

1. Liu, C.; Liu, Q.; Huang, A. A superhydrophobic zeolithic imidazolate framework (ZIF-90) with high steam stability for efficient recovery of bioalcohols. *Chem. Commun.* **2016**, *52*, 3400–3402, doi:10.1039/c5cc10171a.
2. Shieh, F.K.; Wang, S.C.; Leo, S.Y.; Wu, K.C.W. Water-based synthesis of zeolithic imidazolate framework-90 (ZIF-90) with a controllable particle size. *Chem. - A Eur. J.* **2013**, *19*, 11139–11142, doi:10.1002/chem.201301560.
3. Hua, D.; Ong, Y.K.; Wang, Y.; Yang, T.; Chung, T.S. ZIF-90/P84 mixed matrix membranes for pervaporation dehydration of isopropanol. *J. Memb. Sci.* **2014**, *453*, 155–167, doi:10.1016/j.memsci.2013.10.059.
4. Zhang, Q.; Luo, S.; Weidman, J.; Guo, R. Surface modification of ZIF-90 with triptycene for enhanced interfacial interaction in mixed-matrix membranes for gas separation. *J. Polym. Sci.* **2020**, *58*, 2675–2687, doi:10.1002/pol.20200123.

5. Ghahramaninezhad, M.; Mohajer, F.; Niknam Shahrak, M. Improved CO₂ capture performances of ZIF-90 through sequential reduction and lithiation reactions to form a hard/hard structure. *Front. Chem. Eng.* **2020**, *14*, 425–435, doi:10.1007/s11705-019-1873-5.
6. Zhang, H.; Duan, C.; Li, F.; Yan, X.; Xi, H. Green and rapid synthesis of hierarchical porous zeolitic imidazolate frameworks for enhanced CO₂ capture. *Inorganica Chim. Acta* **2018**, *482*, 358–363, doi:10.1016/j.ica.2018.06.034.
7. Akbari Beni, F.; Niknam Shahrak, M. Alkali metals-promoted capacity of ZIF-8 and ZIF-90 for carbon capturing: A molecular simulation study. *Polyhedron* **2020**, *178*, 114338, doi:10.1016/j.poly.2019.114338.

S2. TGA and XRD of synthesised ZIF-90

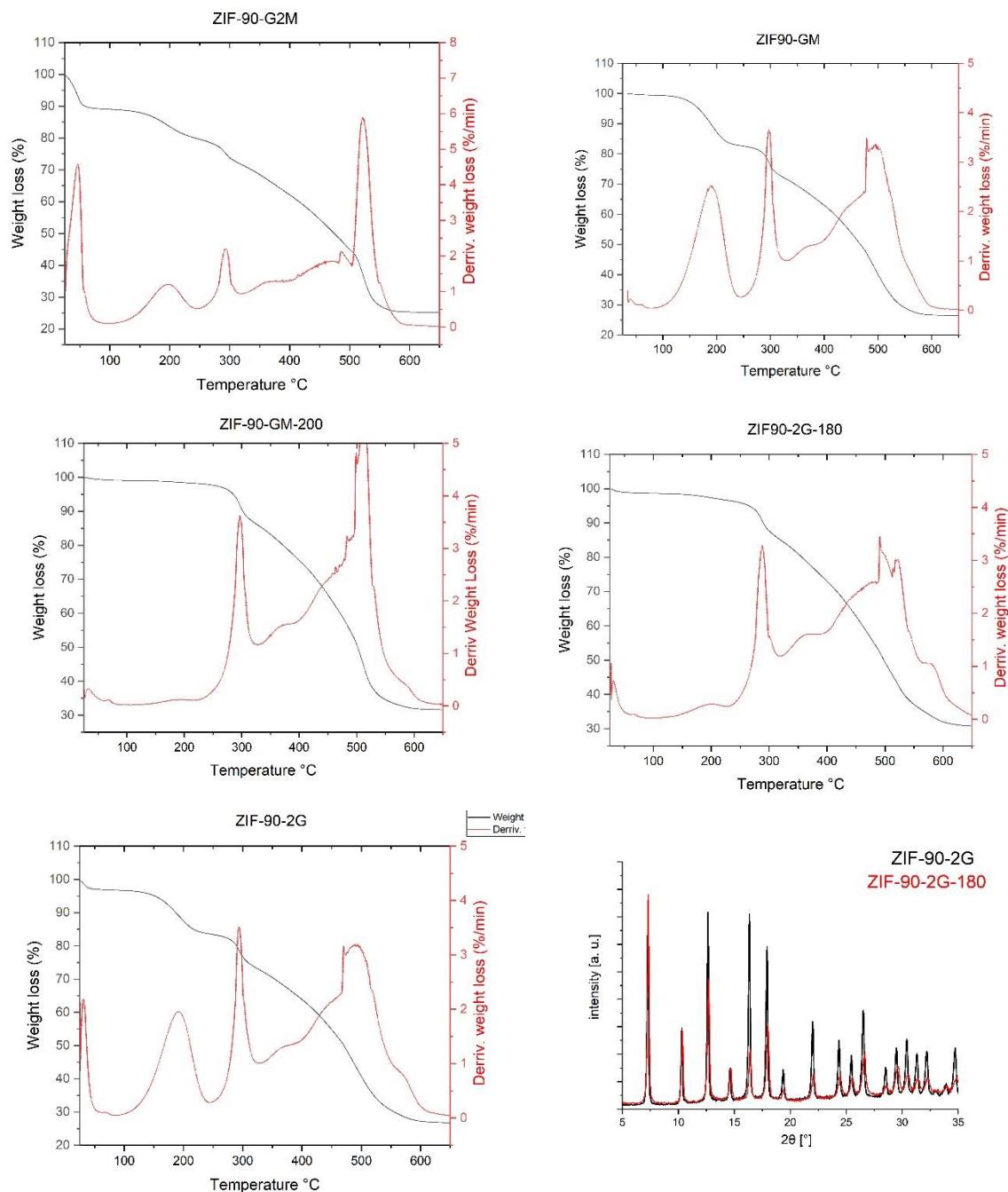


Figure S1 TGA of synthesised ZIFs before and after activation, XRD of ZIF-90-2G before and after activation