

Palladium Supported on Mixed-Metal Organic Framework (Co-Mn-MOF-74) for Efficient catalytic oxidation of CO

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†Supplementary information

Table 1S†: effect of the weight catalyst on CO conversion over 2 wt. % Pd @ Co_{0.5}-Mn_{0.5}-MOF-74

Catalyst	CO Conversion	
	T ₅₀ (50%)	T ₁₀₀ (100%)
2 wt. % Pd @ Co _{0.5} -Mn _{0.5} -MOF-74 (0.03 gram)	206	228
2 wt. % Pd @ Co _{0.5} -Mn _{0.5} -MOF-74 (0.06 gram)	114	126
2 wt. % Pd @ Co _{0.5} -Mn _{0.5} -MOF-74 (0.1 gram)	57	68
2 wt. % Pd @ Co _{0.5} -Mn _{0.5} -MOF-74 (0.13 gram)	25	66

Table 2S†: Comparison of CO oxidation on Pd nanoparticles on various supports

Catalyst	T _{50%} (°C)	T _{100%} (°C)	Reference
1 wt.% Pd @ Cu ₃ (BTC) ₂	190	205	[29]
2.7 wt.% Pd @ MIL-53 (Al)	100	115	[31]
2 wt.% Pd @ SnO ₂	142	150	[60]
5 wt.% Pd @ Ce-MOF	77	96	[61]
5 wt.% Pd @ Fe ₃ O ₄	200	204	[62]
5 wt.% Pd @ Co ₃ O ₄	170	173	[62]
5 wt.% Pd @ Ce _{0.8} Hf _{0.2} O ₂	76	171	[56]
2 wt. % Pd @ Co _{0.5} -Mn _{0.5} -MOF-74	57	68	Recent Work
5 wt. % Pd @ Co _{0.5} -Mn _{0.5} -MOF-74	50	58	Recent Work

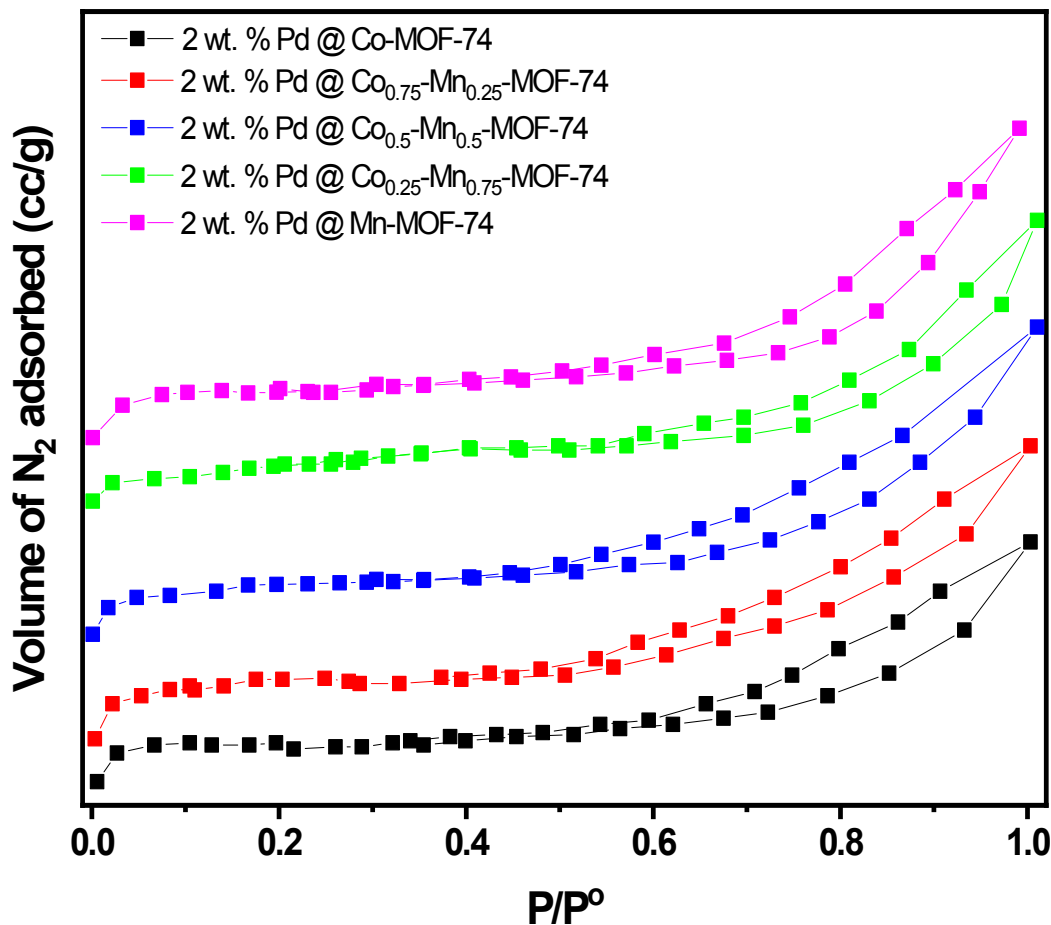
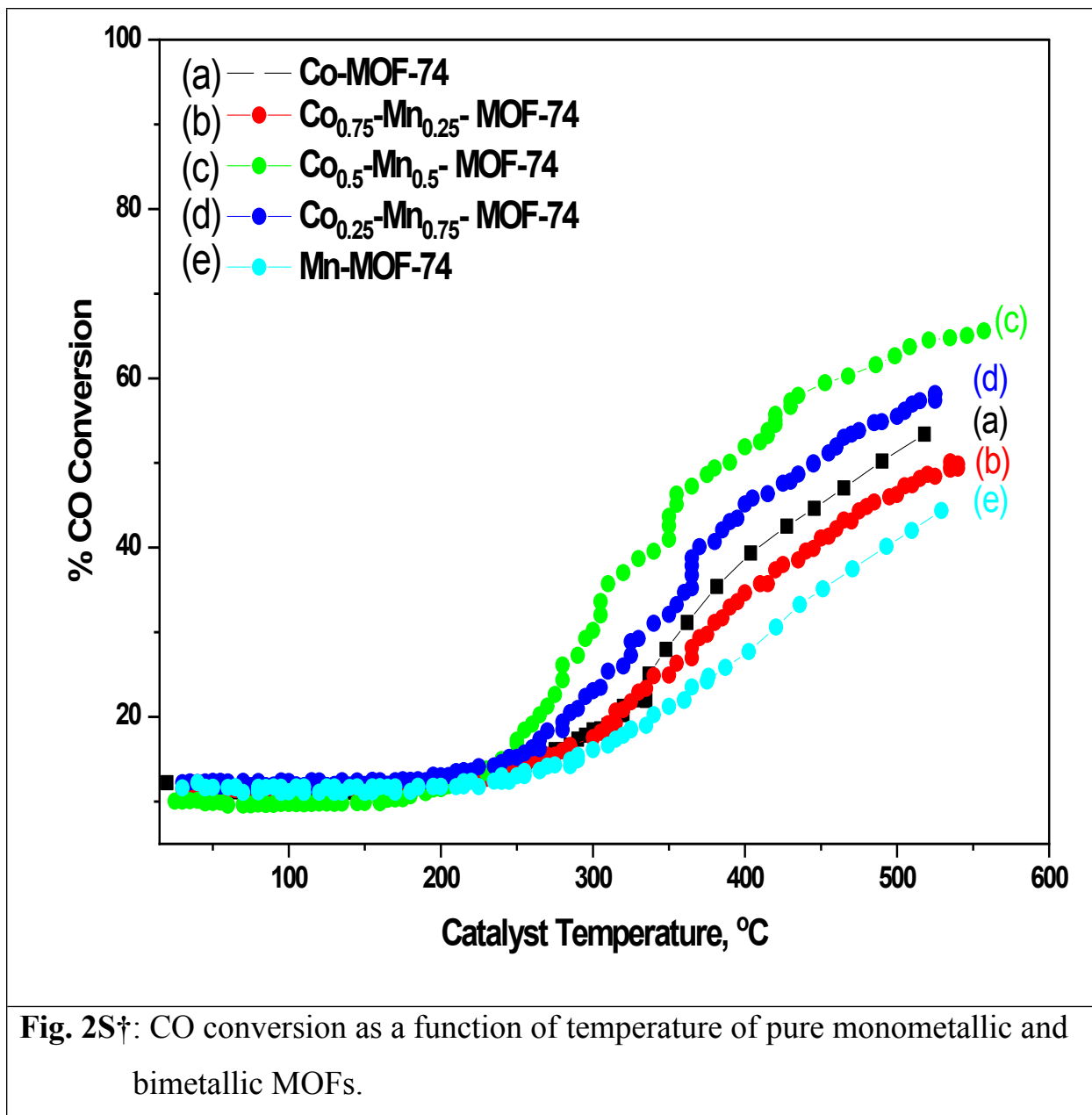


Fig. 1S†: Adsorption–desorption isotherms of nitrogen at 196 °C on 2 wt. % Pd loaded on monometallic and bimetallic MOFs.



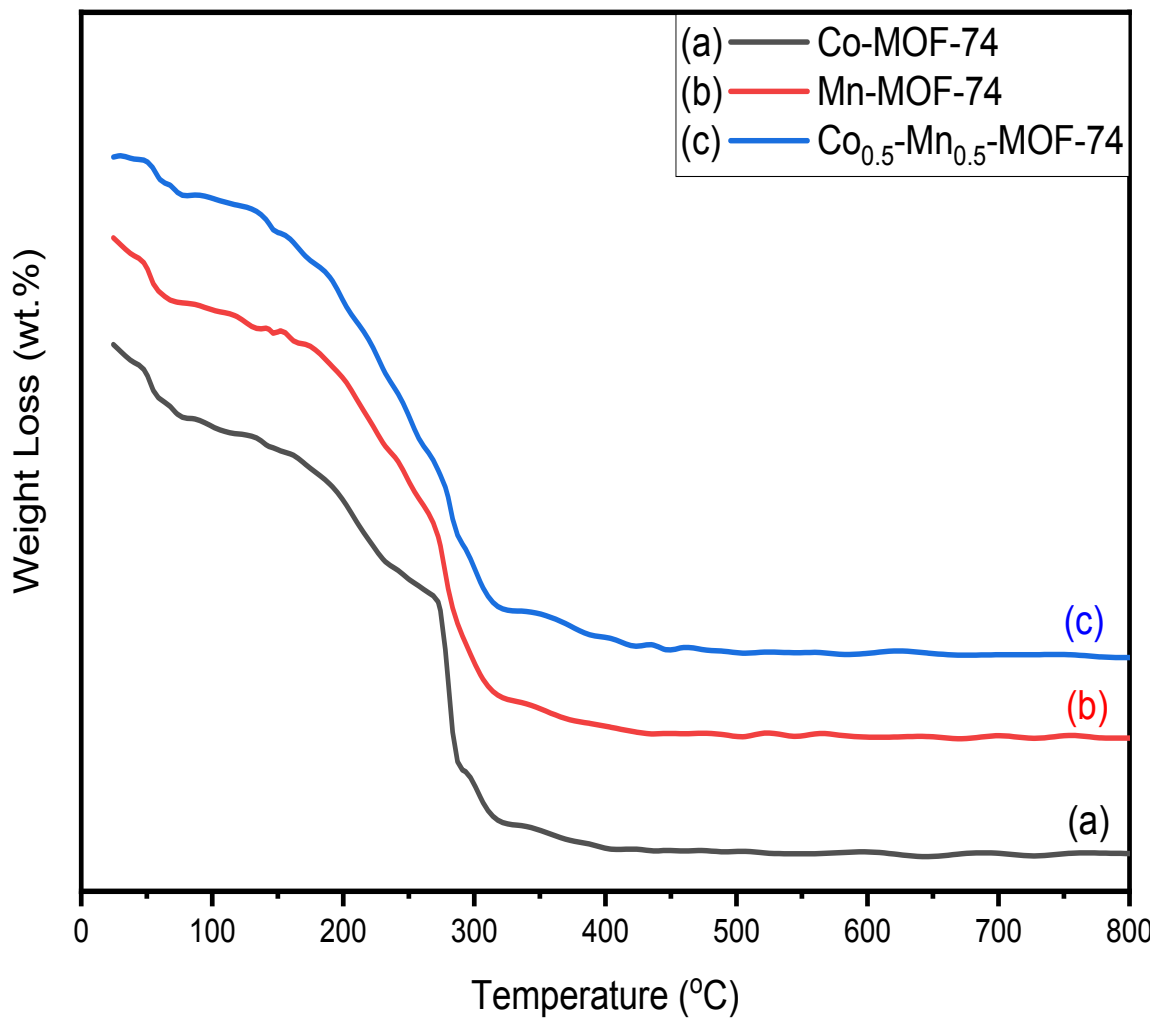


Fig. 3S†: TGA curves of (a) Co-MOF-74, (b) Mn-MOF-74 and (c) Co_{0.5}Mn_{0.5}-MOF-74

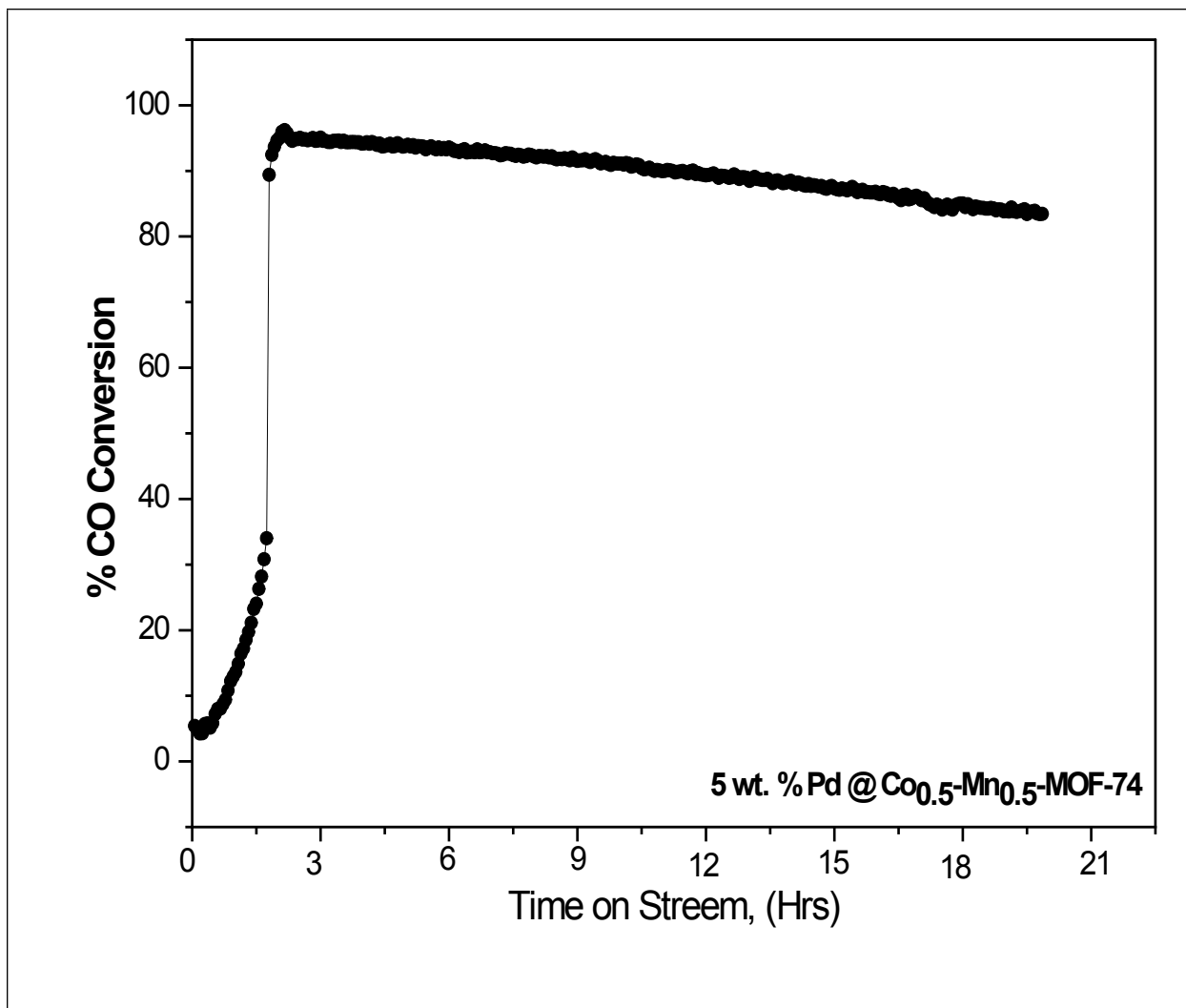


Fig. 4S†: Effect of time on stream on the CO catalytic oxidation for 21h 5 wt. % Pd @ Co_{0.5}-Mn_{0.5}-MOF-74.

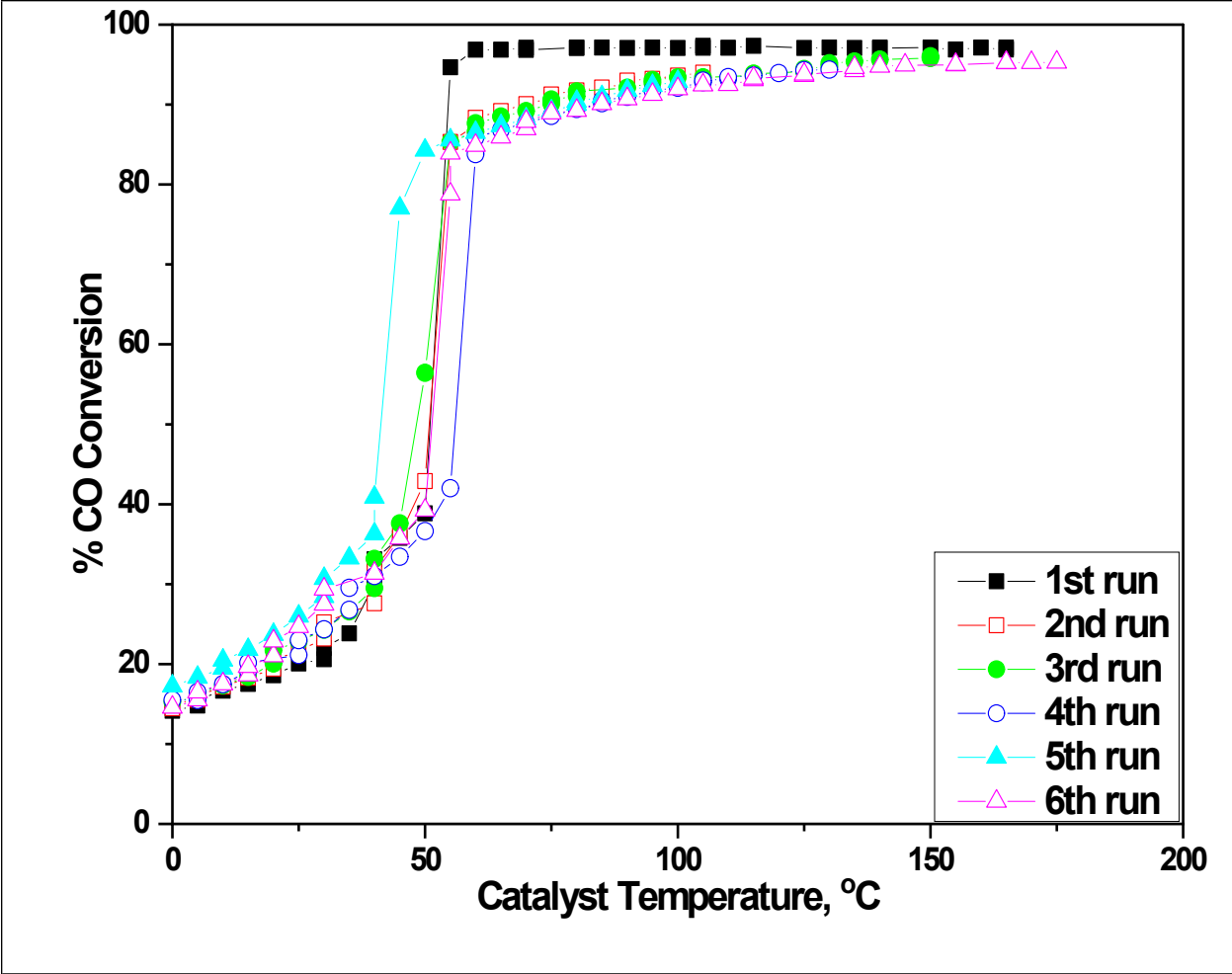


Fig. 5S†: Reusability test for 5 wt. % Pd @ Co_{0.5}-Mn_{0.5}-MOF-74.