Supplementary information

Unique mesoporous amorphous manganese iron oxide with excellent catalytic performance for benzene abatement under UV-Vis-IR and IR irradiation

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Table S1. The thermocatalytic activity of the catalysts in this work and the reported works.

Catalysts	VOC type	VOC conc. (ppm)	Space velocity ($mLg^{-1} h^{-1}$)	T_{50} (^{o}C)	T_{90} (^{o}C)	Reference
3D hierarchical Co_3O_4	toluene	1000	48000	240	248	[11]
MnO_x–CeO_2	toluene	600	50000	239	254	[14]
manganese oxides	toluene	4000*	16,000	245	258	[8]
rod-like α-MnO_2	toluene	1000	20000	210	225	[7]
mesoporous Co_3O_4	benzene	498	90000	215	245	[10]
$ZnCo_2O_4$	benzene	498	90000	212	236	[10]
CeO_2–MnO_x	benzene	1000	60000	263	325	[13]
amorphous Mn_xFeO_y	benzene	2000*	48000	192	244	this work

Note: * the concentration unit is mg m^{-3}.

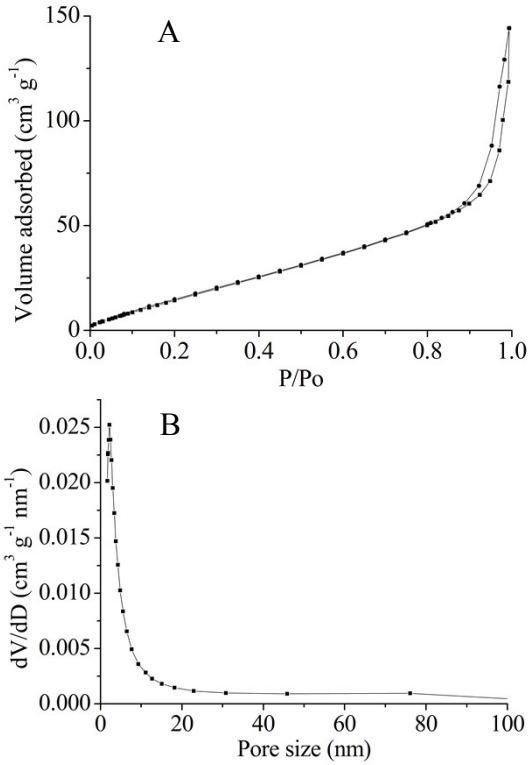

Figure S1. N_2 adsorption/desorption isotherms (A) and BJH adsorption pore size distribution (B) of MnO_x-Fe_2O_3-180.

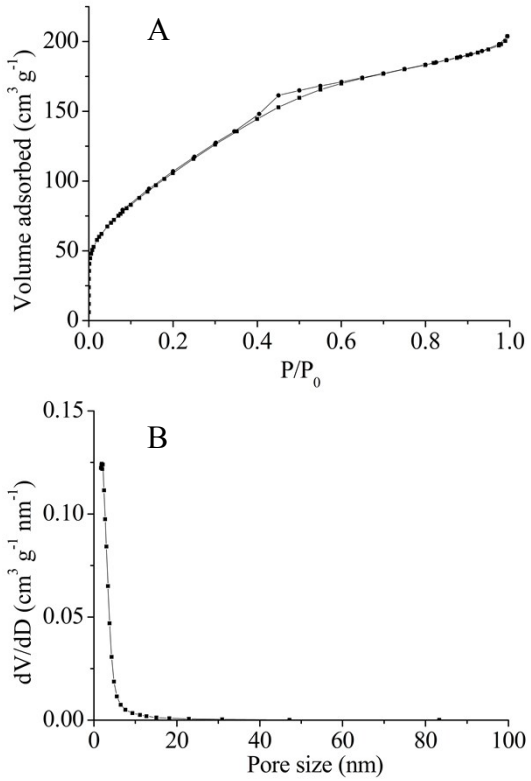

Figure S2. N_2 adsorption/desorption isotherms (A) and BJH adsorption pore size distribution (B) of Mn_xFeO_y-70.

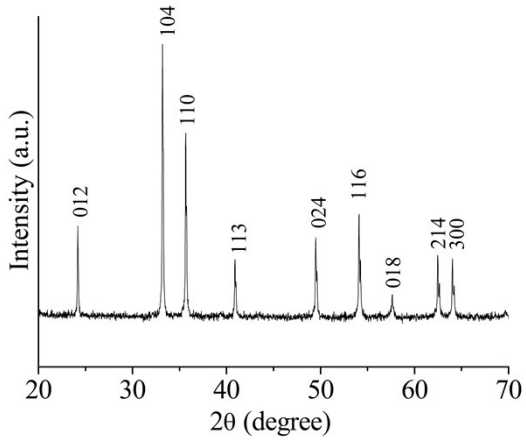

Figure S3. XRD patterns of the pure Fe_2O_3 sample.

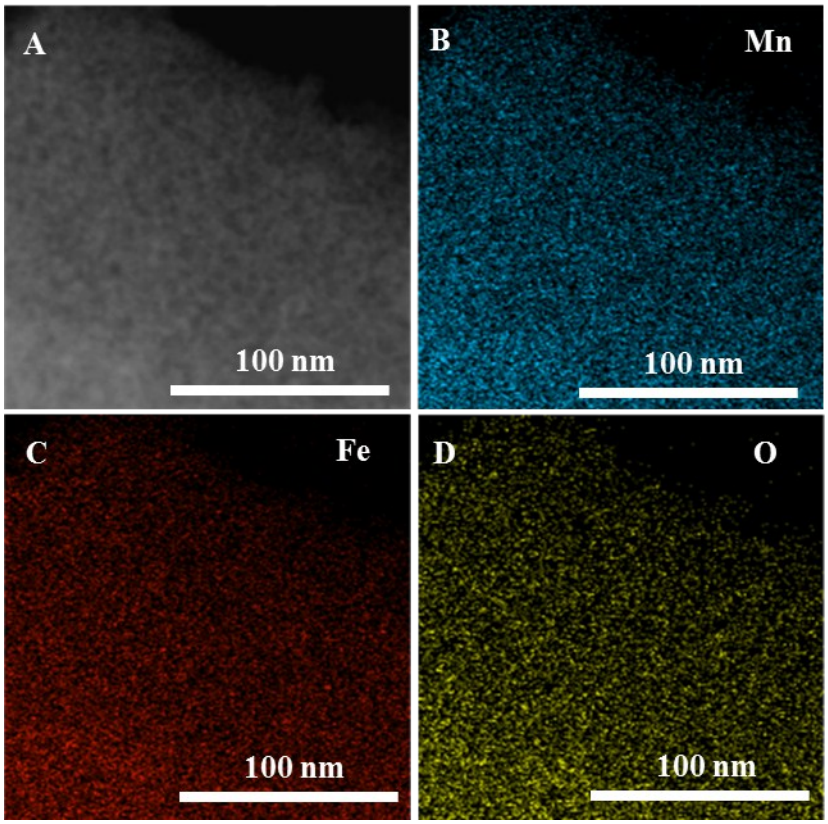

Figure S4. HAADF image (A) and EDX mappings of Mn, Fe, and O (B, C, D) for the used Mn_xFeO_y-70 sample after the 32 h photothermocatalytic durability tests.

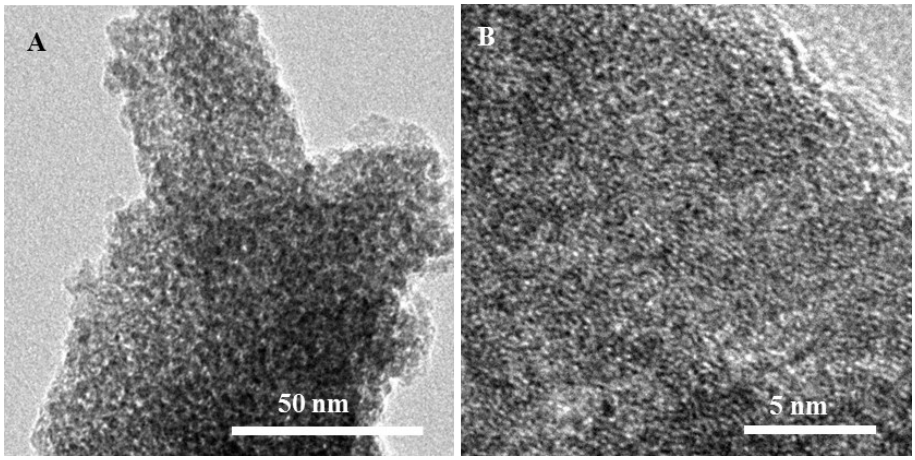

Figure S5. TEM (A) and HRTEM (B) images of the used Mn_xFeO_y-70 sample after the 32 h photothermocatalytic durability tests.

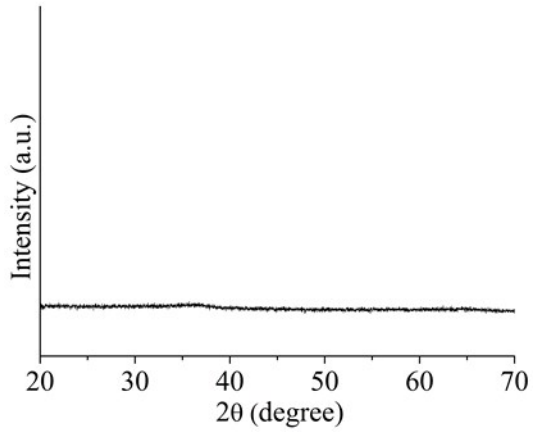

Figure S6. XRD patterns of the used Mn_xFeO_y-70 sample after the 32 h photothermocatalytic durability tests.