

Supporting Information

Highly improved acetone oxidation activity over mesoporous hollow nanospherical $\text{Mn}_x\text{Co}_{3-x}\text{O}_4$ solid solution

Jinguo Wang*, Chi Zhang, Shuaifeng Yang, Hao Liang and Yong Men

*College of Chemistry and Chemical Engineering, Shanghai University of Engineering
Science, Shanghai 201620, P. R. China*

*Author to whom correspondence should be addressed. E-mail address:

Jinguowang1982@sues.edu.cn, Tel: +86-21 6787 4046

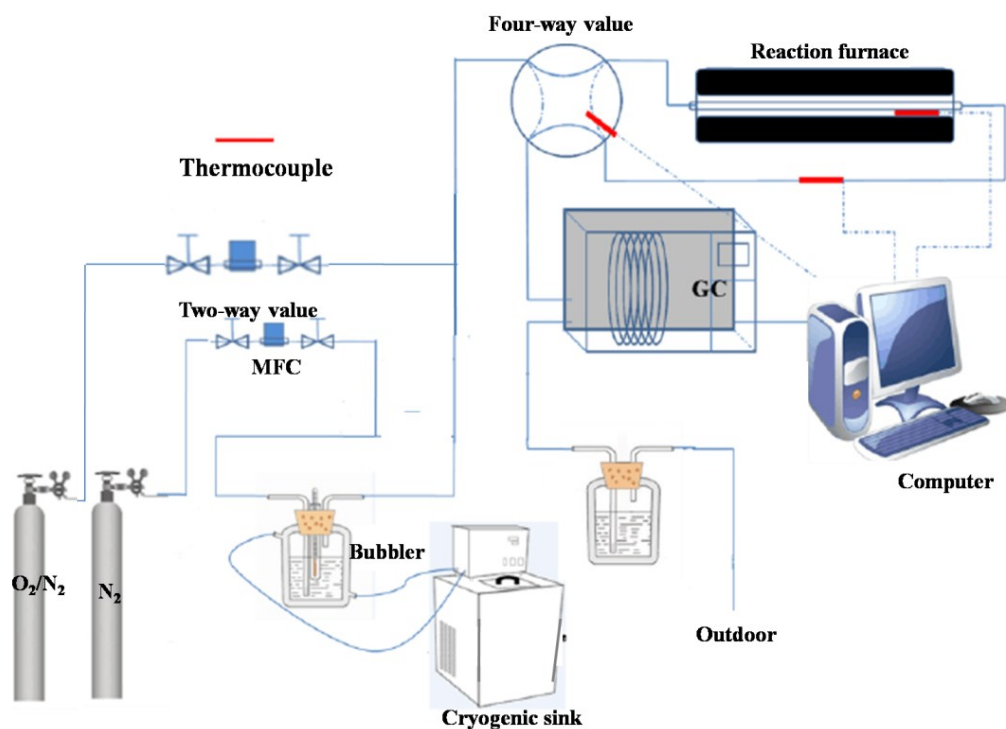


Fig. S1 Schematic flowing chart of the reaction system for acetone oxidation.

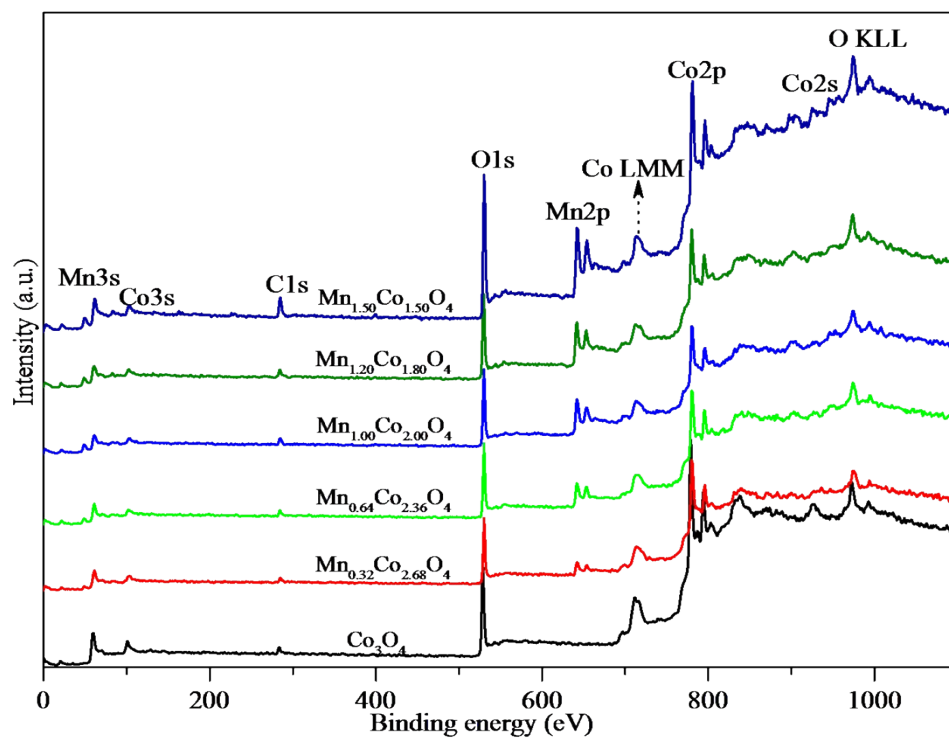


Fig. S2 XPS surveys of different catalysts.

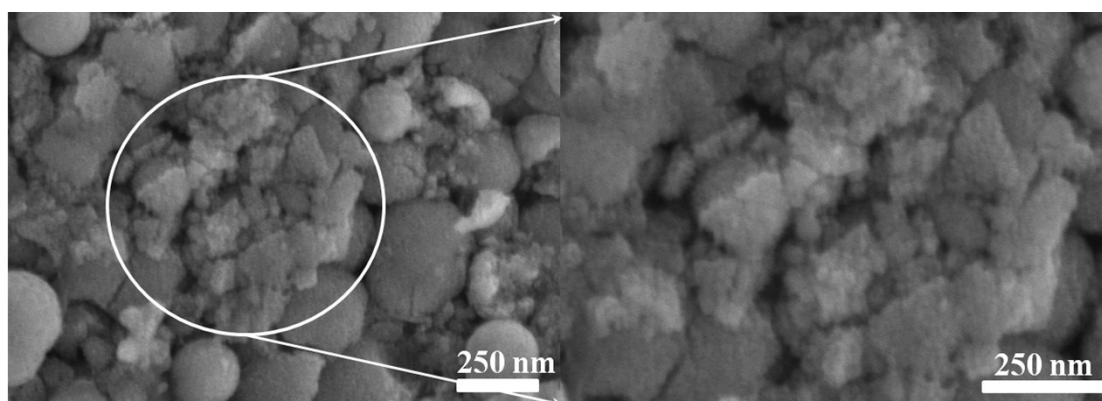


Fig. S3 FESEM images of the crushed $\text{Mn}_{1.20}\text{Co}_{1.80}\text{O}_4$.

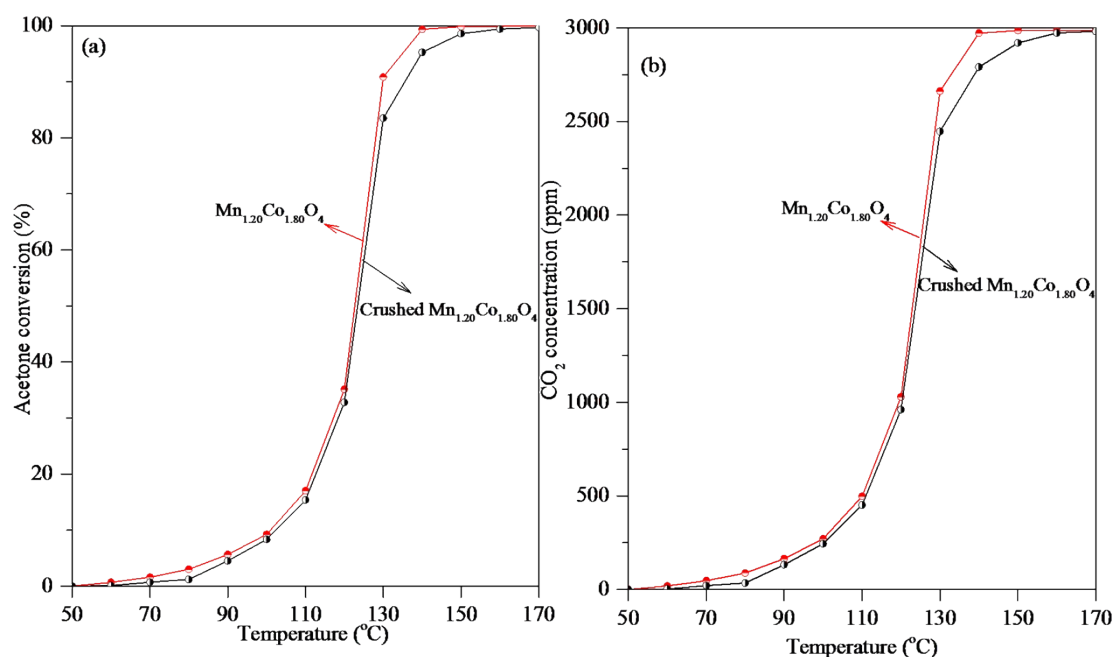


Fig. S4 Acetone conversion curves (a) and the produced CO_2 concentration curves (b) over $\text{Mn}_{1.20}\text{Co}_{1.80}\text{O}_4$ and crushed $\text{Mn}_{1.20}\text{Co}_{1.80}\text{O}_4$.

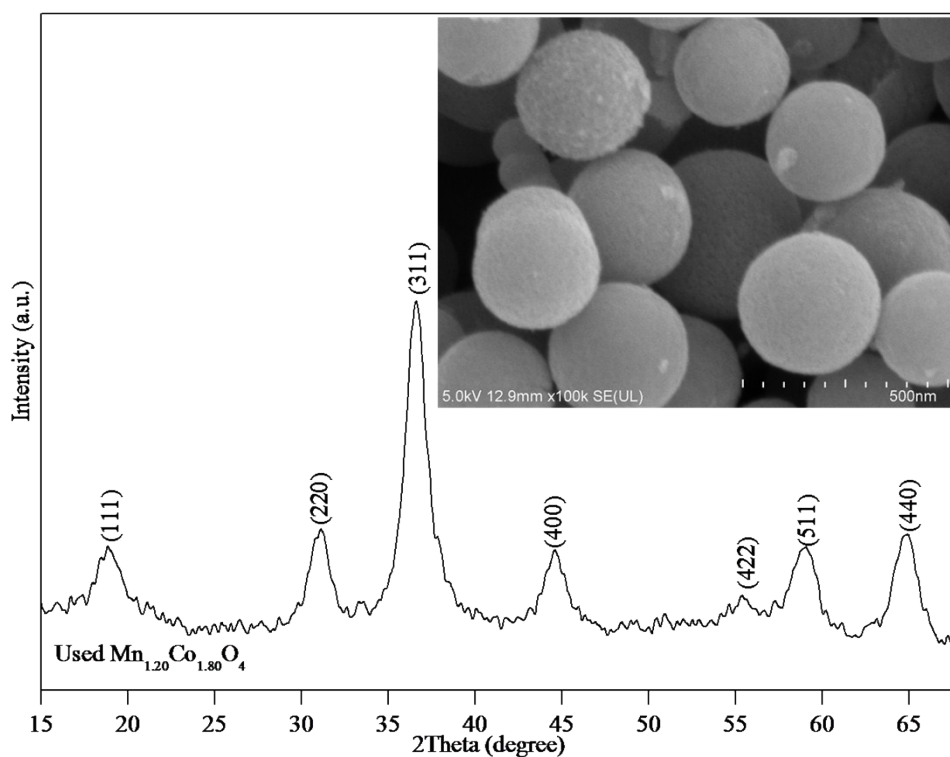


Fig. S5 XRD pattern and FESEM image (inset) of $\text{Mn}_{1.20}\text{Co}_{1.80}\text{O}_4$ after reacting 60 h at 140 $^{\circ}\text{C}$ with the effect of H_2O vapor.

Table S1 Activity data of different catalysts for acetone oxidation as previous studies.

Catalyst	Acetone (ppm)	O ₂ (vol%)	T ₅₀ (°C)	T ₉₀ (°C)	Reference
Mn _{1.20} Co _{1.80} O ₄	1000	20	122	130	This work
CuCo ₂ O ₄ hollow spheres	1000	20	157	183	1
NiCo ₂ O ₄ hollow spheres	1000	20	167	193	1
CoCo ₂ O ₄ hollow spheres	1000	20	174	202	1
Ordered mesoporous Fe ₂ O ₃	1000	20	136	186	2
CoAl mixed oxides	1000	20	189	222	3
Cu _{0.13} Ce _{0.87} O _y foam	1000	20	200	223	4
MnO _x /TiO ₂ nanofibers	500	5.0	275	360	5
CuCeO _x nanofibers	500	20	190	225	6
V-TiO ₂ -carbon composite	500	5.0	230	292	7
V ₂ O ₅ /TiO ₂ nanofibers	500	5.0	270	300	8
Au/Fe ₂ O ₃ nanoparticles	700	10	≈235	≈268	9
Au/CeO ₂ nanoparticles	700	10	218	240	10
Ag/CeO ₂ nanoparticles	700	10	220	245	10
Cu/CeO ₂ nanoparticles	700	10	240	260	10

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