

Supporting Information

Highly improved acetone oxidation performance over mesostructured $\text{Cu}_x\text{Ce}_{1-x}\text{O}_2$ hollow nanospheres

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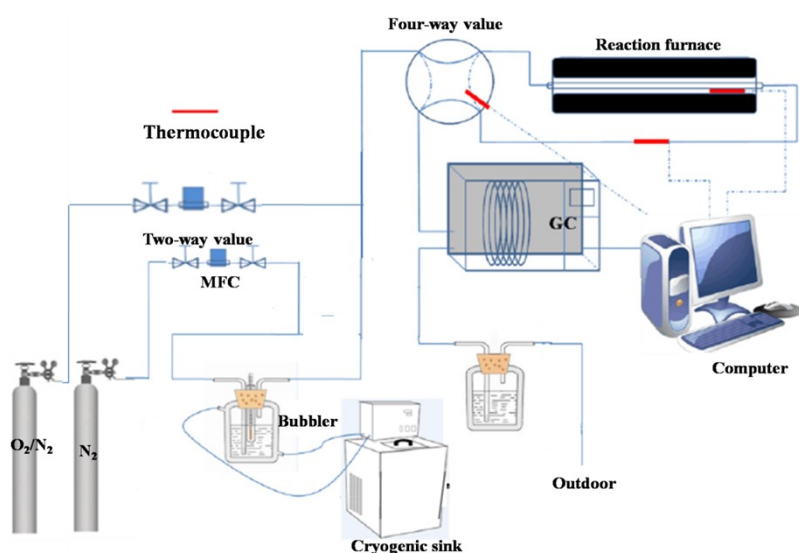


Fig. S1 Schematic flowing chart of the reaction system for acetone oxidation.

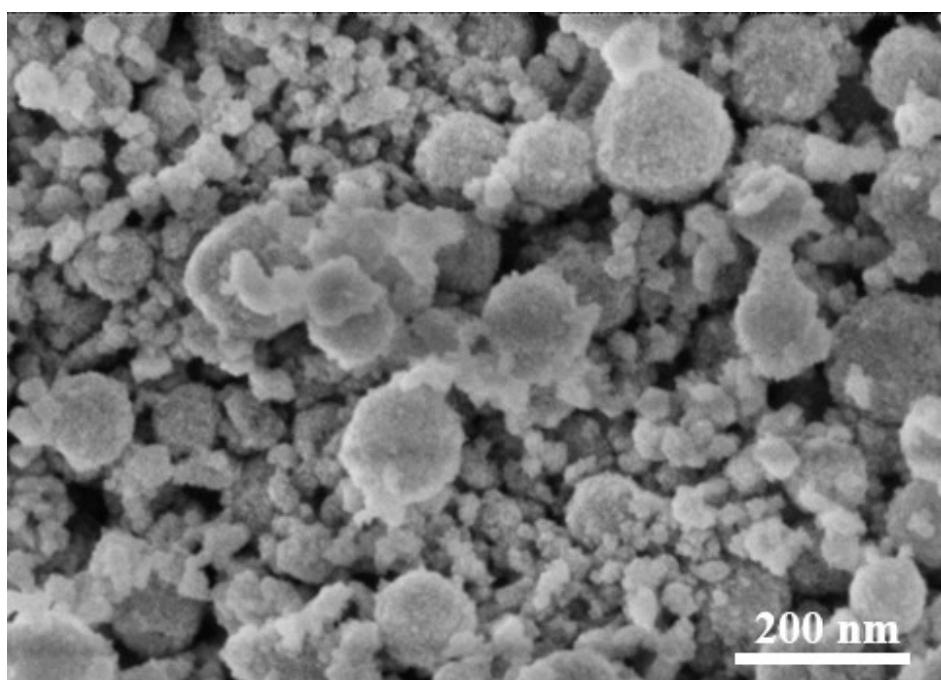


Fig. S2 FESEM images of the crushed $\text{Cu}_{0.015}\text{Ce}_{0.985}\text{O}_2$.

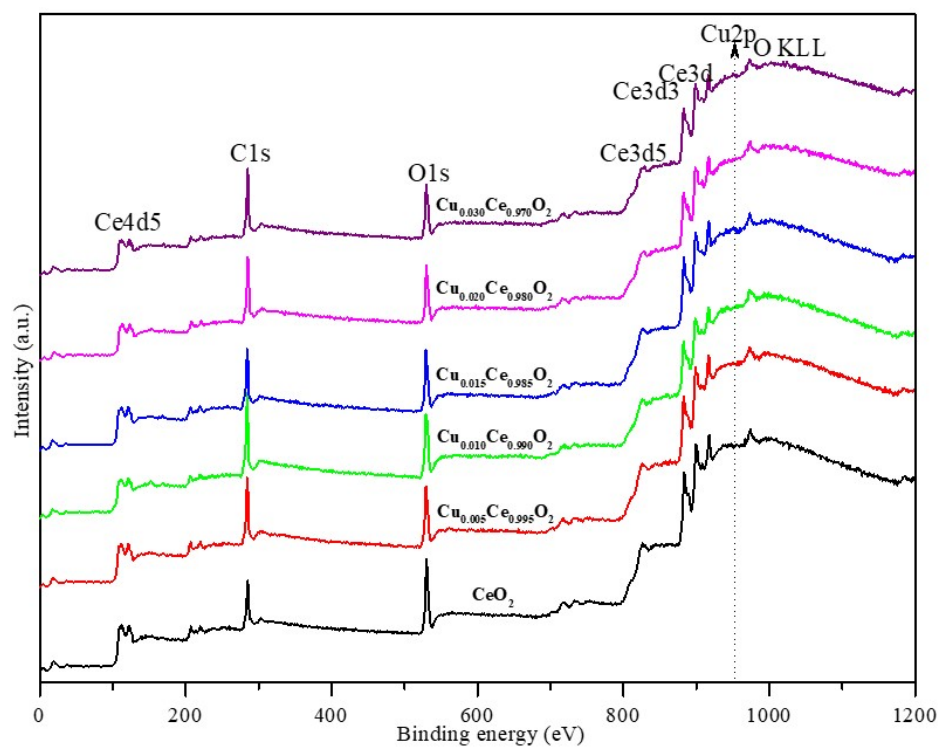


Fig. S3 XPS surveys of various catalysts.

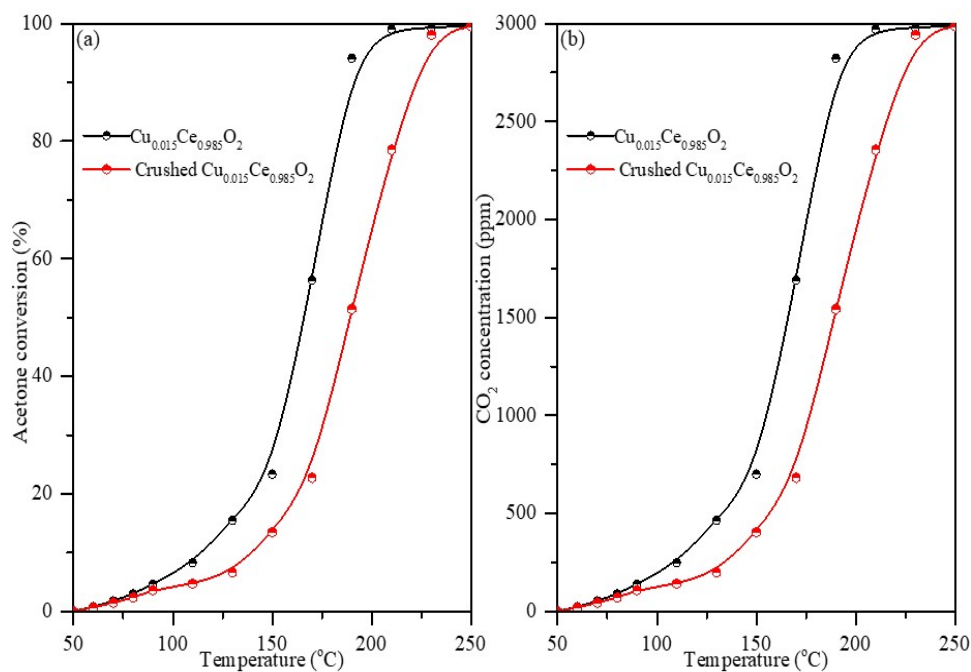


Fig. S4 Acetone conversion curves (a) and the produced CO_2 concentration curves (b)

over intact $\text{Cu}_{0.015}\text{Ce}_{0.985}\text{O}_2$ and crushed $\text{Cu}_{0.015}\text{Ce}_{0.985}\text{O}_2$.

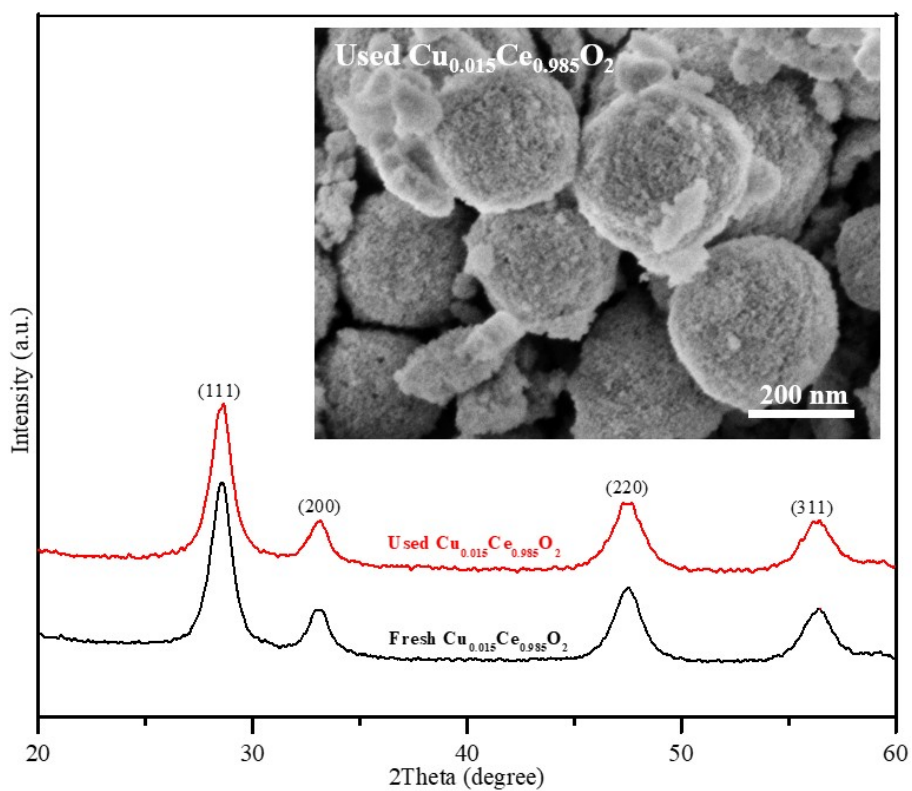


Fig. S5 XRD pattern and FESEM image (inset) of $\text{Cu}_{0.015}\text{Ce}_{0.985}\text{O}_2$ after reacting 60 h at 210°C with the addition of H_2O vapor.

Table S1 Activity data of various catalysts for acetone oxidation as reported by previous studies.

Catalyst	Acetone (ppm)	O ₂ (vol%)	<i>T</i> ₅₀ (°C)	<i>T</i> ₉₀ (°C)	Reference
Cu _{0.015} Ce _{0.985} O ₂	1000	20	165	190	This work
CoCo ₂ O ₄ hollow spheres	1000	20	174	202	1
CoAl mixed oxides	1000	20	189	222	2
Cu _{0.13} Ce _{0.87} O _y foam	1000	20	200	223	3
MnO _x /TiO ₂ nanofibers	500	5.0	275	360	4
CuCeO _x nanofibers	500	20	190	225	5
V-TiO ₂ -carbon composite	500	5.0	230	292	6
V ₂ O ₅ /TiO ₂ nanofibers	500	5.0	270	300	7
Au/Fe ₂ O ₃ nanoparticles	700	10	≈235	≈268	8
Cu/CeO ₂ nanoparticles	700	10	240	260	9

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