Electronic Supplementary Information

A prototype for catalytic removals of formaldehyde and CO in a compact air cleaner powered by portable electricity

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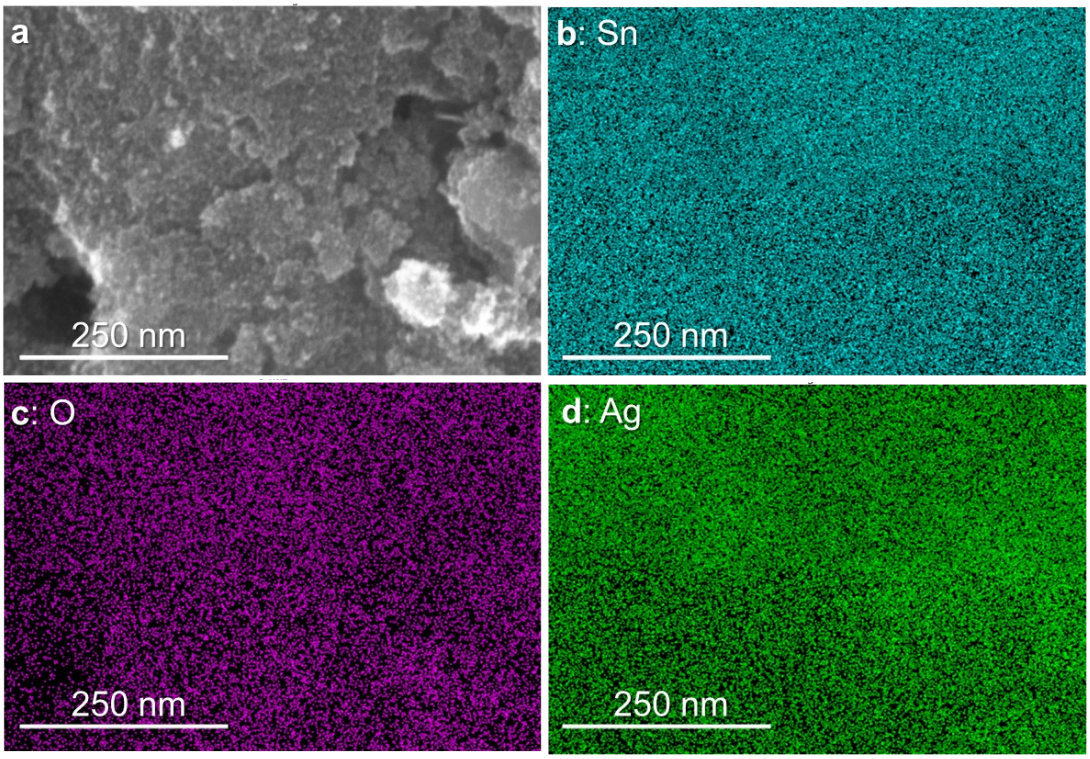

Fig. S1 Energy dispersive spectroscopy (EDS) on the scanning electron microscope (SEM) for the Ag-SnO_2 catalyst. (a) SEM image, (b-d) EDS maps showing Sn (b), O (c) and Ag (d)

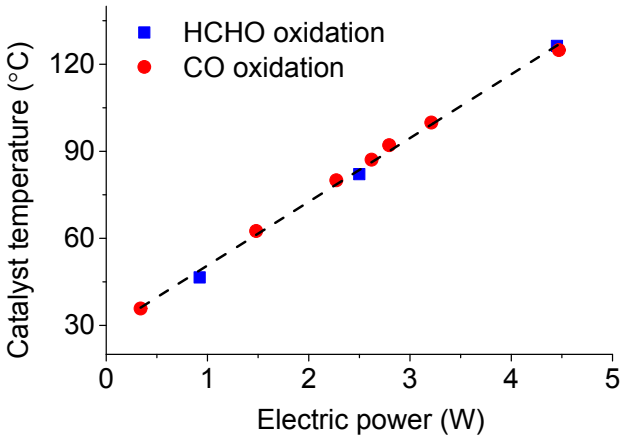

Fig. S2 Plot of the dependence of catalyst temperature on the electric power in the HCHO and CO oxidations powered by electricity.

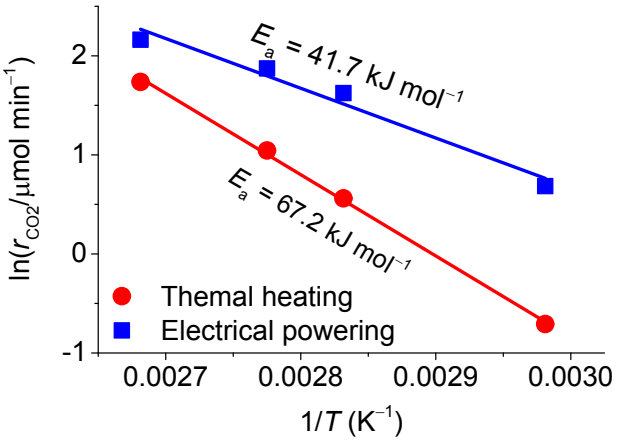

Fig. S3 Arrhenius plots labeled with the calculated apparent activated energies (E_a) for CO oxidations over the Ag-SnO_2 catalyst in the electrical powering and thermal heating ways.

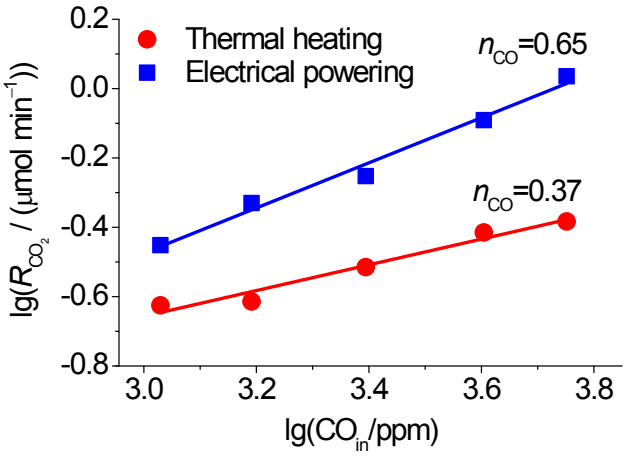

Fig. S4 Comparison in the logarithm plots for CO reaction orders over the Ag-SnO_2 catalyst in the electrical powering and thermal heating ways. The reaction in the electrical powering way was performed with the electric current of 0.3 A induced a catalyst temperature of 67 ºC while the reaction in the thermal heating way was conducted at the same temperature.

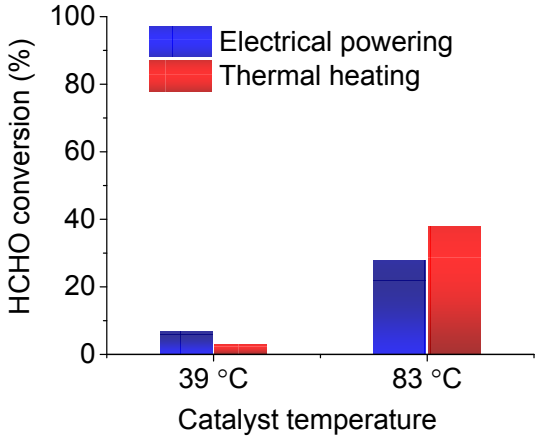

Fig. S5 Performance comparison in HCHO conversion between the electrical powering and the thermal heating ways over the Ag-SnO_2 catalyst with Ag content of 70 wt.%.

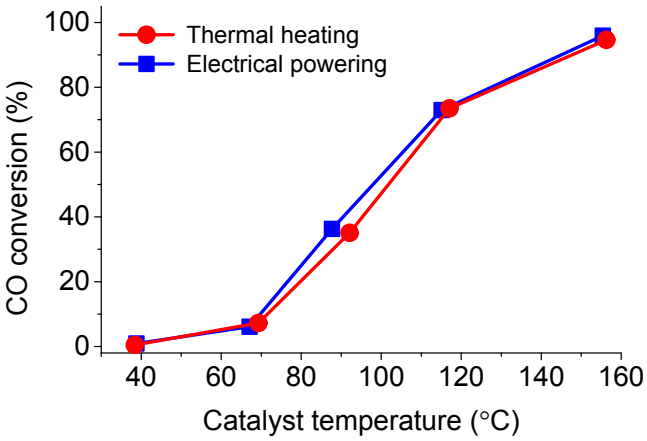

Fig. S6 Performance comparison in CO conversion between the electrical powering and the thermal heating ways over the Ag-SnO_2 catalyst with the Ag content of 70 wt.%.

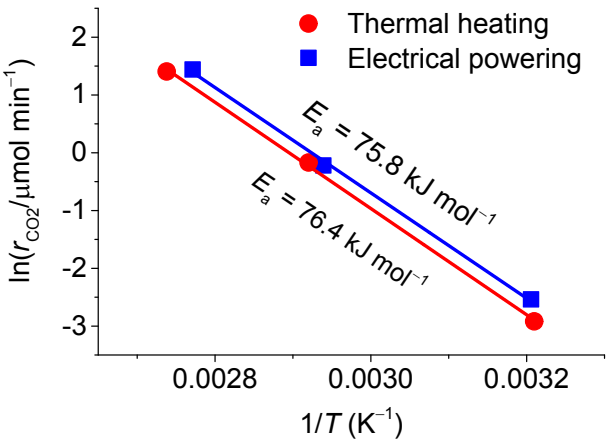

Fig. S7 Arrhenius plots labeled with the calculated apparent activated energies (E_a) for CO oxidations in the electrical powering and thermal heating ways over the Ag-SnO_2 catalyst with 70 wt.% Ag content.