Supplementary Information

Coprecipitation fabrication and electrochemical performances of coral-like mesoporous NiO nanobars

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As far as we know, the Na_2O_2 could be reacted with H_2O as follows:

$Na_2O_2 + 2H_2O \rightarrow 2NaOH + H_2O_2$

$2H_2O_2 \rightarrow 2H_2O + O_2 \uparrow$

When the $Ni(NO_3)_2$ aqueous solution was rapidly poured to the Na_2O_2 reaction solution, the generated NaOH could react with $Ni(NO_3)_2$ to obtain the precursor of $Ni(OH)_2$ precipitation.

$NaOH + Ni(NO_3)_2 \rightarrow 2Ni(OH)_2 \downarrow + 4NaNO_3$

In our synthesis approach, the reaction equation could be written as follow:

$2Na_2O_2 + 2Ni(NO_3)_2 + 2H_2O \rightarrow 2Ni(OH)_2 \downarrow + O_2 \uparrow + 4NaNO_3$

When we replace the 0.4 M Na_2O_2 aqueous solution with 0.8 M NaOH aqueous solution in our experiment, we could obtain the product as shown in Fig. S1. The nanobars become shorter, most of them nearly like nanospheres. And they aggregate more tightly with extremely less porous.

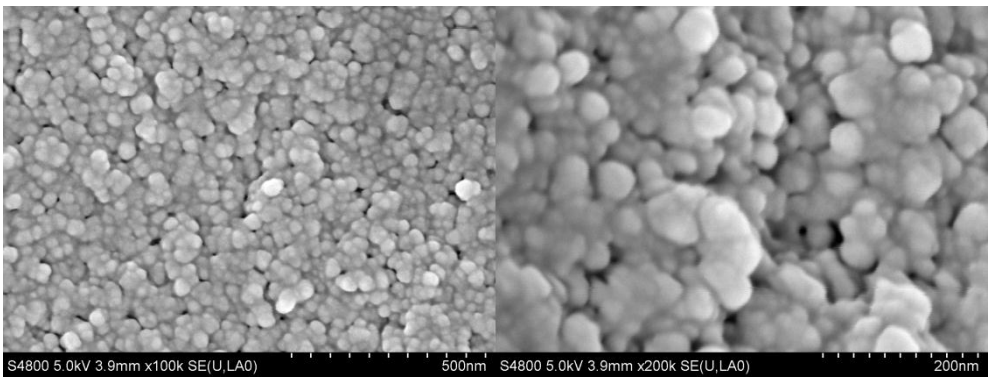

Fig. S1 Representative FESEM images at different magnifications of the product prepared by the NaOH reacted with $Ni(NO_3)_2$ aqeous solution.

Here, the Na_2O_2 aqueous solution is not only used as the OH^- source, but also as the pore-forming agent for the generation of the O_2 gas bubbles during the reaction process.