Supplementary Information

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

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As far as we know, the Na$_2$O$_2$ could be reacted with H$_2$O as follows:

\[
\text{Na}_2\text{O}_2 + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2\text{O}_2
\]

\[2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2 \uparrow\]

When the Ni(NO$_3$)$_2$ aqueous solution was rapidly poured to the Na$_2$O$_2$ reaction solution, the generated NaOH could react with Ni(NO$_3$)$_2$ to obtain the precursor of Ni(OH)$_2$ precipitation.

\[
\text{NaOH} + \text{Ni(NO}_3\text{)}_2 \rightarrow 2\text{Ni(OH)}_2 \downarrow + 4\text{NaNO}_3
\]

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

\[2\text{Na}_2\text{O}_2 + 2\text{Ni(NO}_3\text{)}_2 + 2\text{H}_2\text{O} \rightarrow 2\text{Ni(OH)}_2 \downarrow + \text{O}_2 \uparrow + 4\text{NaNO}_3\]

When we replace the 0.4 M Na$_2$O$_2$ 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.

![Representative FESEM images at different magnifications of the product prepared by the NaOH reacted with Ni(NO$_3$)$_2$ aqueous solution.](image)

Here, the Na$_2$O$_2$ 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.