

## Supplementary Information

### Cobalt and nickel with various morphologies: mineralizer-assisted synthesis, formation mechanism, and magnetic properties

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Table. 1 The influence of different salts on the morphologies of the product.

NO.	Salts	Morphology
a	Na <sub>2</sub> SO <sub>4</sub>	flowers
b	K <sub>2</sub> SO <sub>4</sub>	flowers
c	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	rods and particles
d	NaCl	rough spheres
e	KCl	rough spheres
f	NH <sub>4</sub> Cl	irregular aggregations
g	NaNO <sub>3</sub>	assembly spheres
h	KNO <sub>3</sub>	assembly spheres
i	NH <sub>4</sub> NO <sub>3</sub>	microspheres
j	NaF	network-like spheres
k	KF	network-like spheres
l	NH <sub>4</sub> F	irregular aggregations

Fig. S1 SEM images of Ni samples with different amounts of NaOH keeping the other conditions unchanged: (a)  $0.5 \text{ mol}\cdot\text{L}^{-1}$ ; (b)  $2 \text{ mol}\cdot\text{L}^{-1}$ ; (c)  $3 \text{ mol}\cdot\text{L}^{-1}$  and (d)  $5 \text{ mol}\cdot\text{L}^{-1}$ .

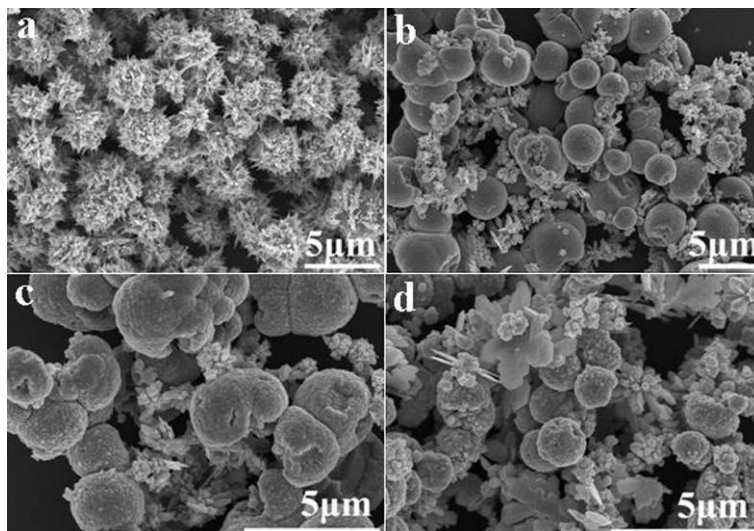


Fig. S2 SEM images of the samples obtained at different addition of reducing agents: (a)  $\text{NaBH}_4$  and (b)  $\text{NaH}_2\text{PO}_2$ .

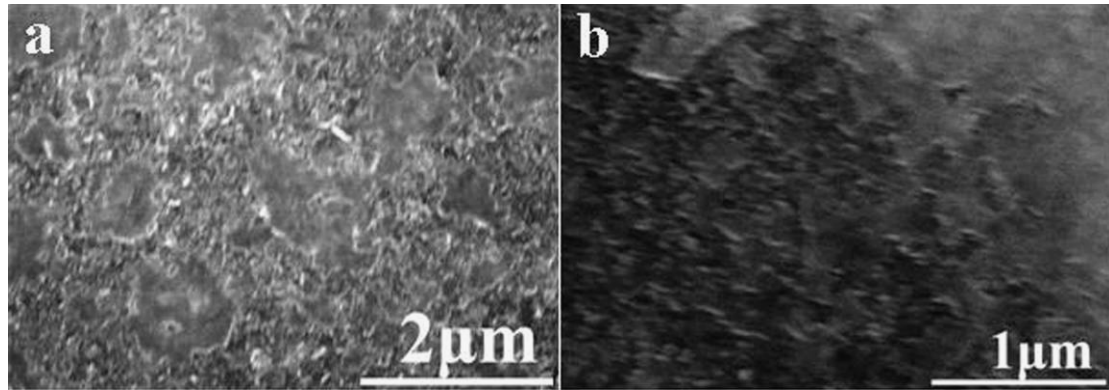


Fig. S3 SEM image of the sample Co obtained without addition of  $\text{Na}_2\text{SO}_4$ .

