

**Carbon supported perovskite-like CsCuCl<sub>3</sub> nanoparticles: A highly active and cost-effective heterogeneous catalyst in the hydrochlorination of acetylene to vinyl chloride**

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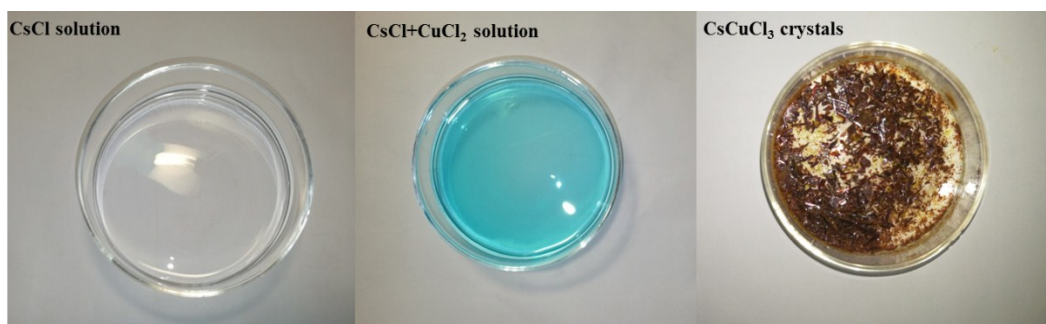
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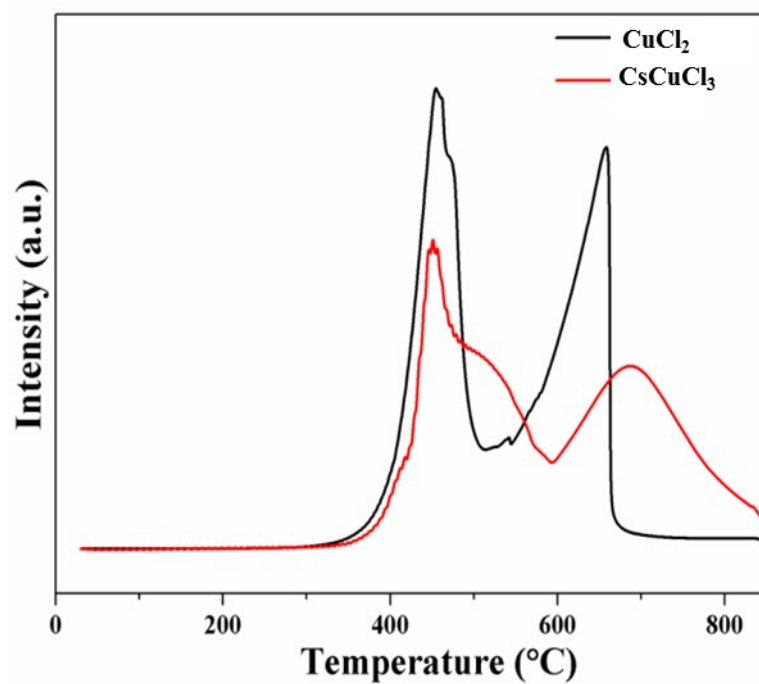
**Supporting information**

### Syntheses of unsupported $\text{CsCuCl}_3$

Cesium cupric chloride ( $\text{CsCuCl}_3$ ) was synthesized in an aqueous solution. The Cs precursor,  $\text{CsCl}$ , was weighted and dissolved in the deionized water, then the equal molar  $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$  was added into  $\text{CsCl}$  solution. After full stirring and dissolving, set the solution quietly at room temperature.  $\text{CsCuCl}_3$  crystals readily grew from the solution. After adequate 12h growth, dark yellow  $\text{CsCuCl}_3$  crystals can be obtained.



**Fig.S1** The preparation procedure of  $\text{CsCuCl}_3$  crystals



**Figure.S2** H<sub>2</sub>-TPR analysis of unsupported CuCl<sub>2</sub> and CuCsCl<sub>3</sub> crystals