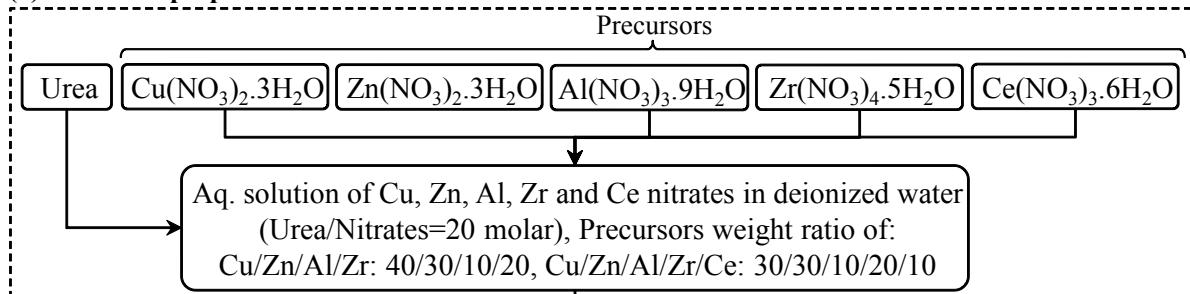


Figure 1s. Preparation steps of $\text{CuO}/\text{ZnO}/\text{Al}_2\text{O}_3/\text{ZrO}_2$ and $\text{CuO}/\text{ZnO}/\text{Al}_2\text{O}_3/\text{ZrO}_2/\text{CeO}_2$ nanocatalysts via urea-nitrate combustion method.

(a) Precursor preparation



(b) Homogeneous precipitation synthesis

Homogeneous precipitation: hydrolysis while mixing at 90°C for 24 h

(c) Oxides post treatment

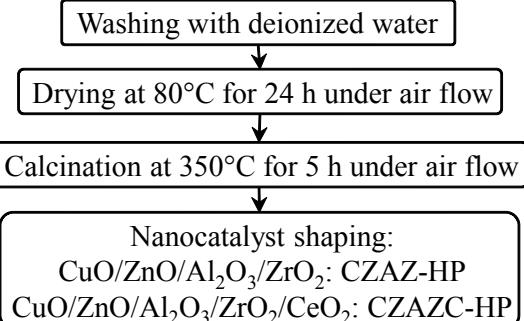


Figure 2s. Preparation steps of CuO/ZnO/Al₂O₃/ZrO₂ and CuO/ZnO/Al₂O₃/ZrO₂/CeO₂ nanocatalysts via homogeneous precipitation method.