

## **Study on the thermal decomposition behavior of ammonium perchlorate catalyzed by Zn-Co cooperation in MOF**

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**Keywords:** MOF; ammonium perchlorate; synergy effect; thermal decomposition; catalytic mechanism.

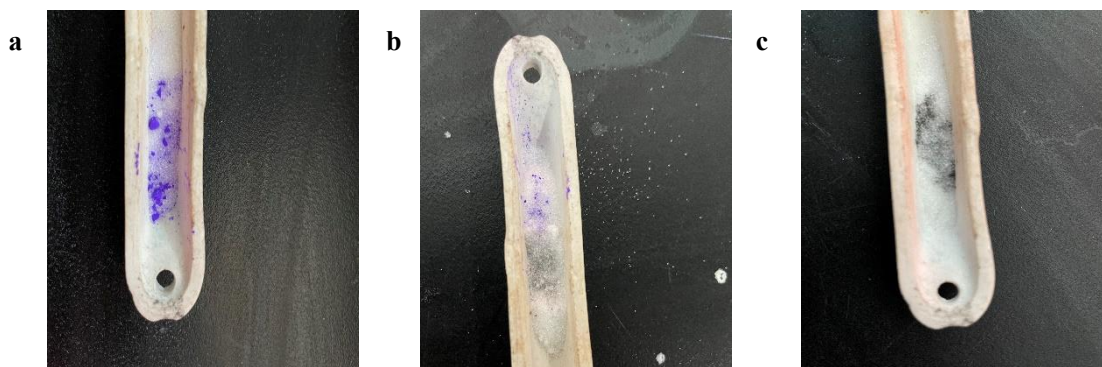


Fig. S1 The state of the mixture of ZnCo-ZIF and AP at room temperature (a), 240 °C (b) and 250 °C (c)

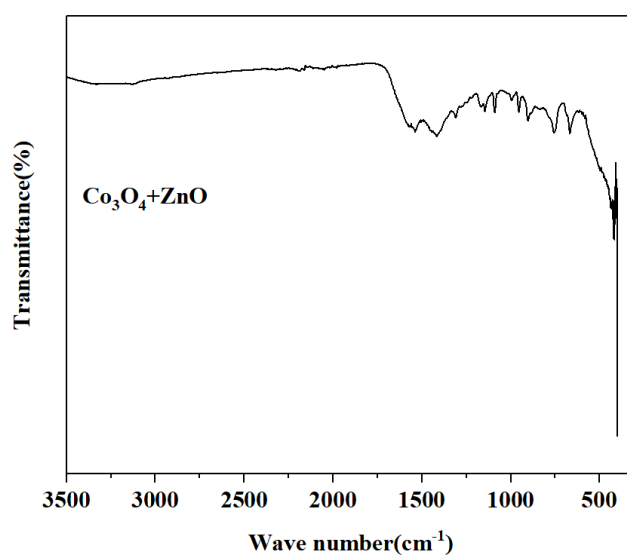


Fig. S2 FTIR test results of Co<sub>3</sub>O<sub>4</sub>/ZnO

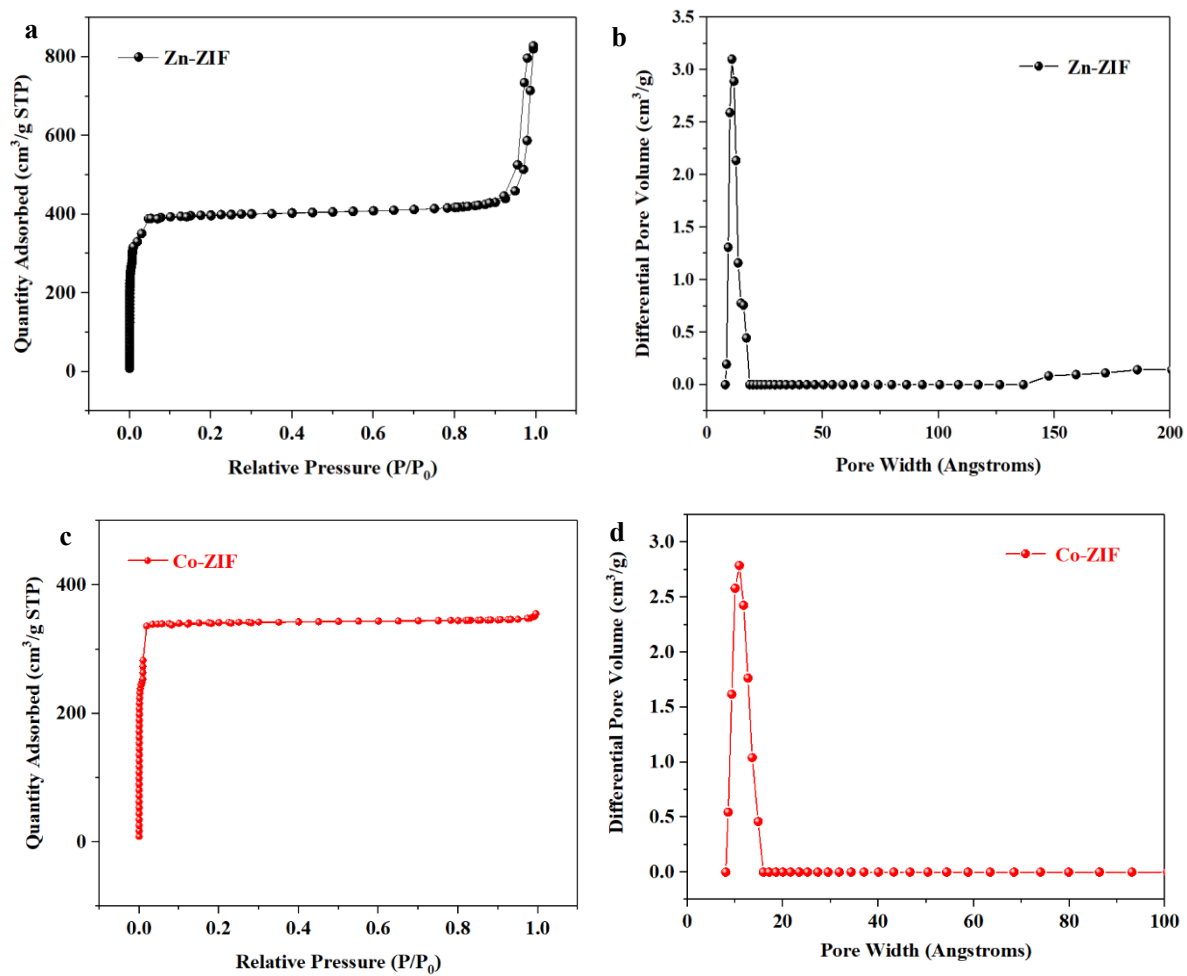


Fig. S3. Nitrogen adsorption/desorption isotherms (a, c) and corresponding pore size distribution plots (b, d) of Co-ZIF and Zn-ZIF.

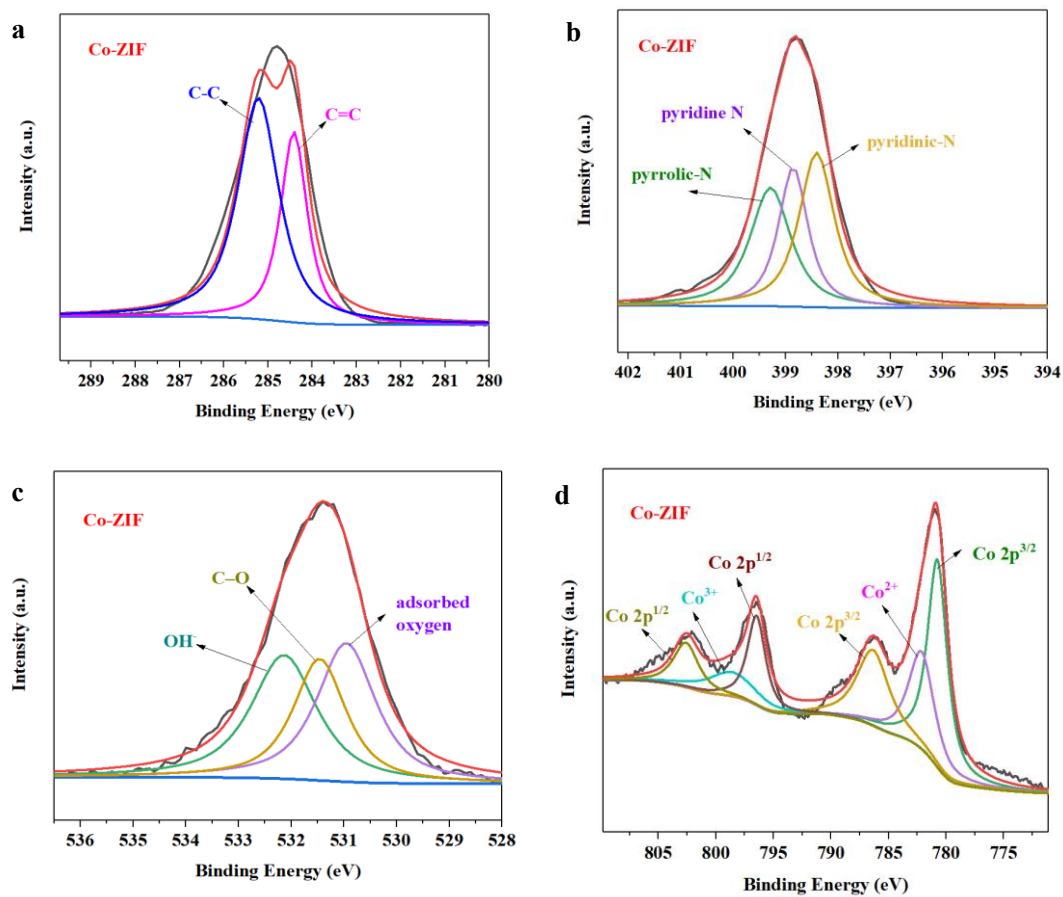


Fig. S4. C 1s (a), N 1s (b), O 1s (c) and Co 2p (d) XPS spectra of Co-ZIF.

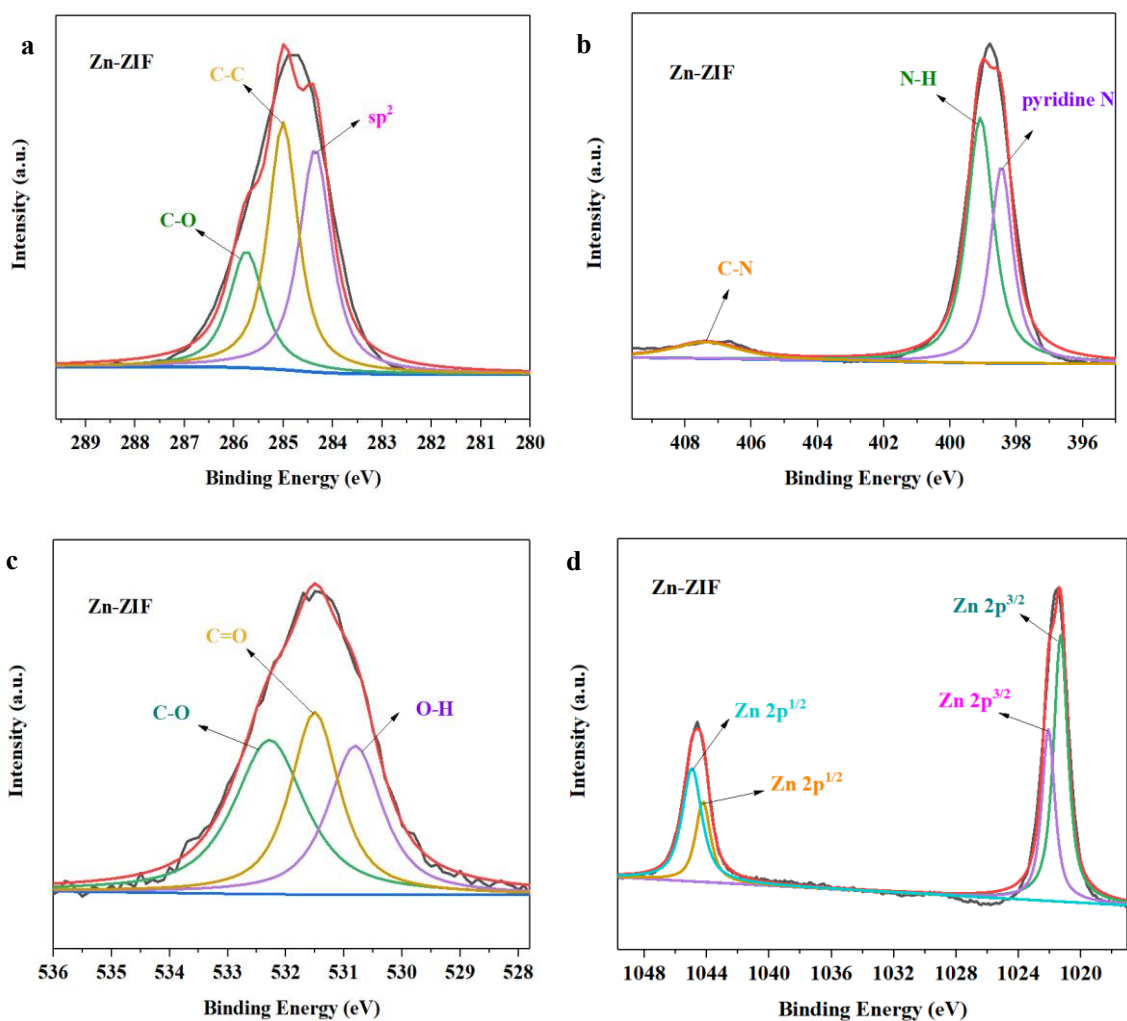


Fig. S5. C 1s (a), N 1s (b), O 1s (c) and Zn 2p (d) XPS spectra of Zn-ZIF.

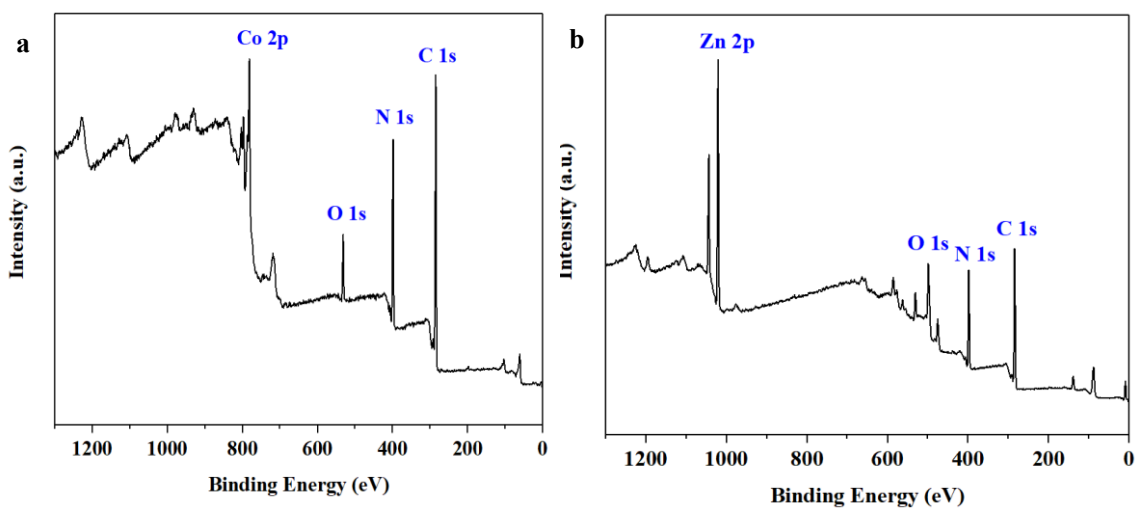


Fig. S6. XPS spectra of Co-ZIF (a) and Zn-ZIF (b).

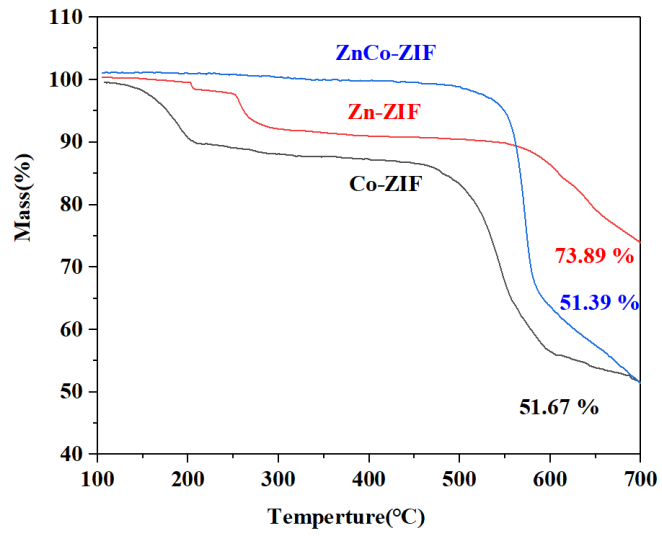


Fig. S7. TG of Co-ZIF、Zn-ZIF and ZnCo-ZIF.

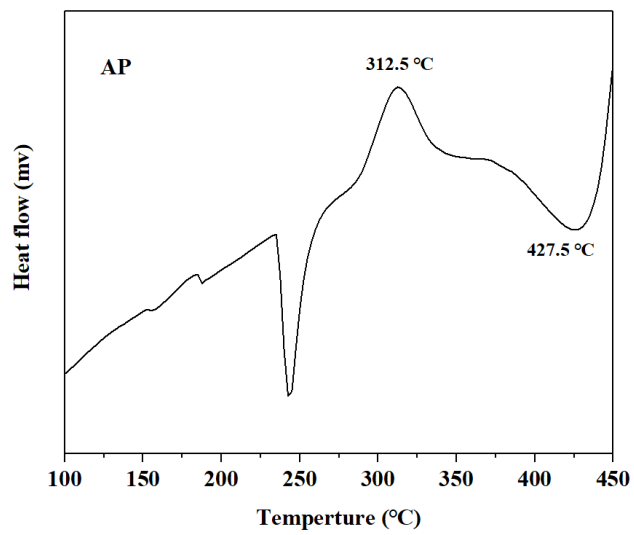


Fig. S8.AP thermal decomposition DSC test

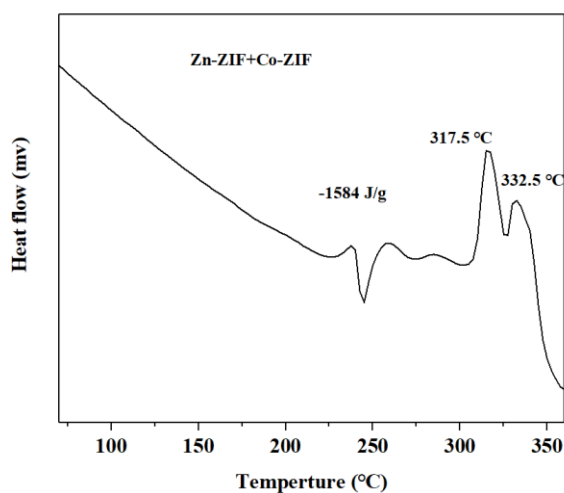


Fig. S9. Thermal decomposition effect of AP catalyzed by Zn-ZIF/Co-ZIF(the mass fractions of Zn ZIF and co ZIF are 1% respectively)

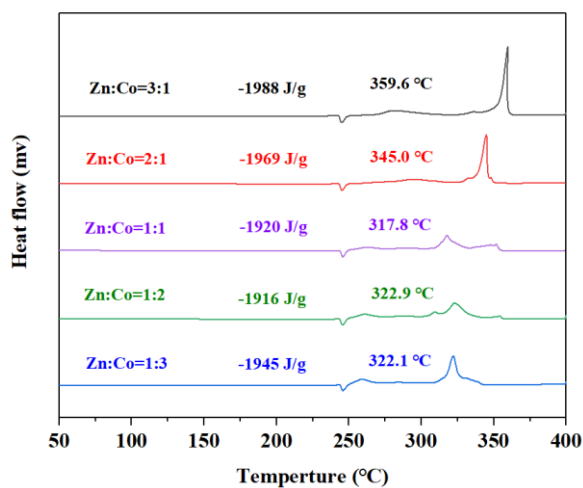


Fig. S10. Thermal decomposition of AP catalyzed by ZnCo ZIF with different Zn/Co molar ratios