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## **Supplementary Information**

## Effect of tartrate on the mild leaching of low-grade polymetallic complex chalcopyrite ore in acidic ferric chloride solution

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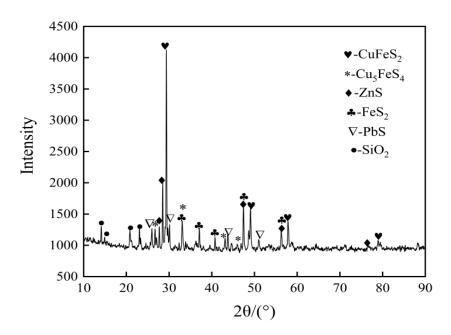
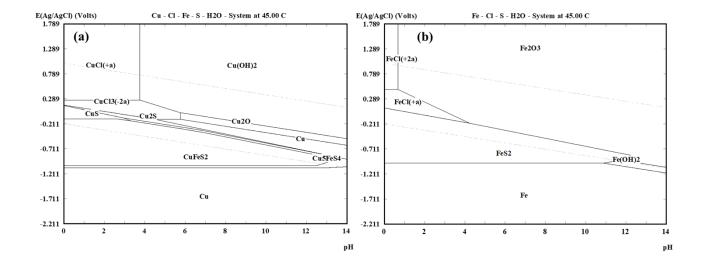
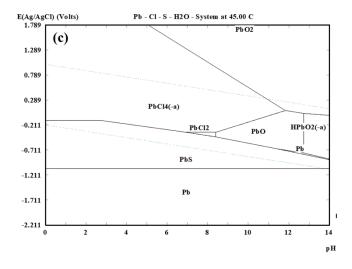


Fig.S1 XRD pattern of raw materials





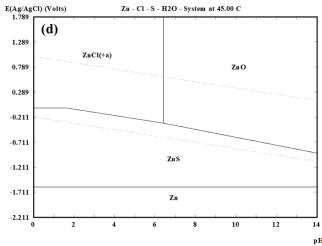


Fig.S2. Calculated Pourbaix diagrams (vs Ag/AgCl) in software of HSC Chemistry for (a) Cu-Fe-S-Cl-H<sub>2</sub>O, (b) Fe-S-Cl-H<sub>2</sub>O, (c) Pb-S-Cl-H<sub>2</sub>O and (d) Zn-S-Cl-H<sub>2</sub>O systems at 318 K by using the value of  $\alpha$ (Cl)=1.3 M,  $\alpha$ (Cu)=0.07 M,  $\alpha$ (Fe)=0.3 M,  $\alpha$ (Pb)= $\alpha$ (Zn)=0.017 M, and  $\alpha$ (S)=0.001M.