

Supplementary material

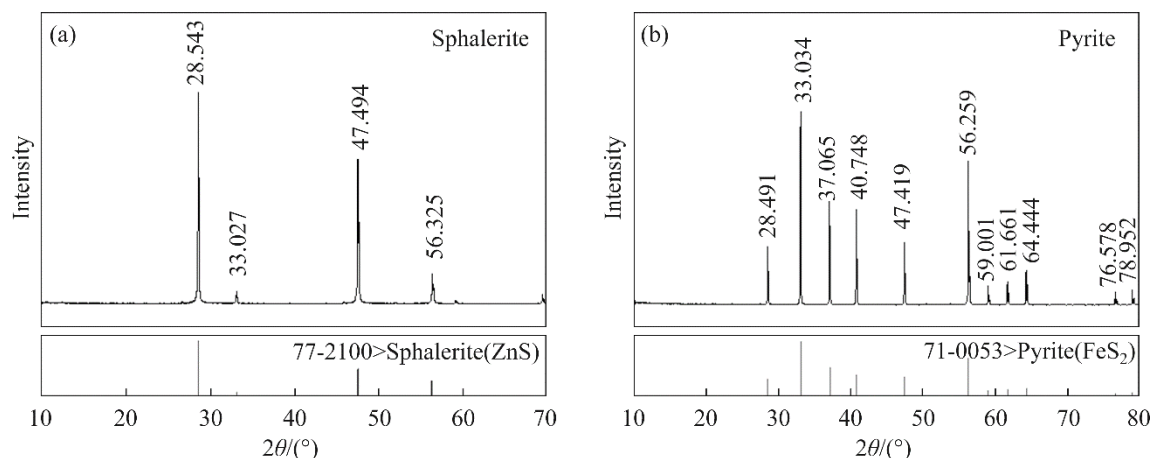


Figure S1 XRD patterns of (a) sphalerite and (b) pyrite samples

Table S1 The compositions of sphalerite and pyrite samples											wt%
Sample	Zn	S	Fe	Pb	O	Si	Ca	Mn	Al	Mg	Others
Sphalerite	64.39	33.51	0.44	0.01	1.06	0.24	0.06	0.02	0.11	0.05	0.11
Pyrite	0.06	53.47	44.39	0.01	1.28	0.31	0.11	—	0.16	0.09	0.12

Text S1

The feed was 2 g pure mineral or artificially mixed mineral samples (with a mass ratio of 1:1). Firstly, after thrice ultrasonic cleaning, 2 g feed and a calculated volume of dilute water were added into a beaker. Secondly, the pH was adjusted with dilute HCl or NaOH solutions while stirring the pulp for 1 min. Then, the depressant ferric chloride, activator cupric sulfate and collector BX were added in sequence. The total volume of the pulp was controlled in 200 mL with the addition of dilute water and the pH value was remeasured. Afterwards, the pulp was transferred to the Hallimond tube and the flotation experiments was carried out for 3 min under 0.2 L/min nitrogen flow. The concentrations and tailings were separately collected, dried, weighed and analyzed.