Supplementary Information for：

Efficient flotation of smithsonite using sulfidation reconstruction based on fluidization roasting

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Supplementary Figures

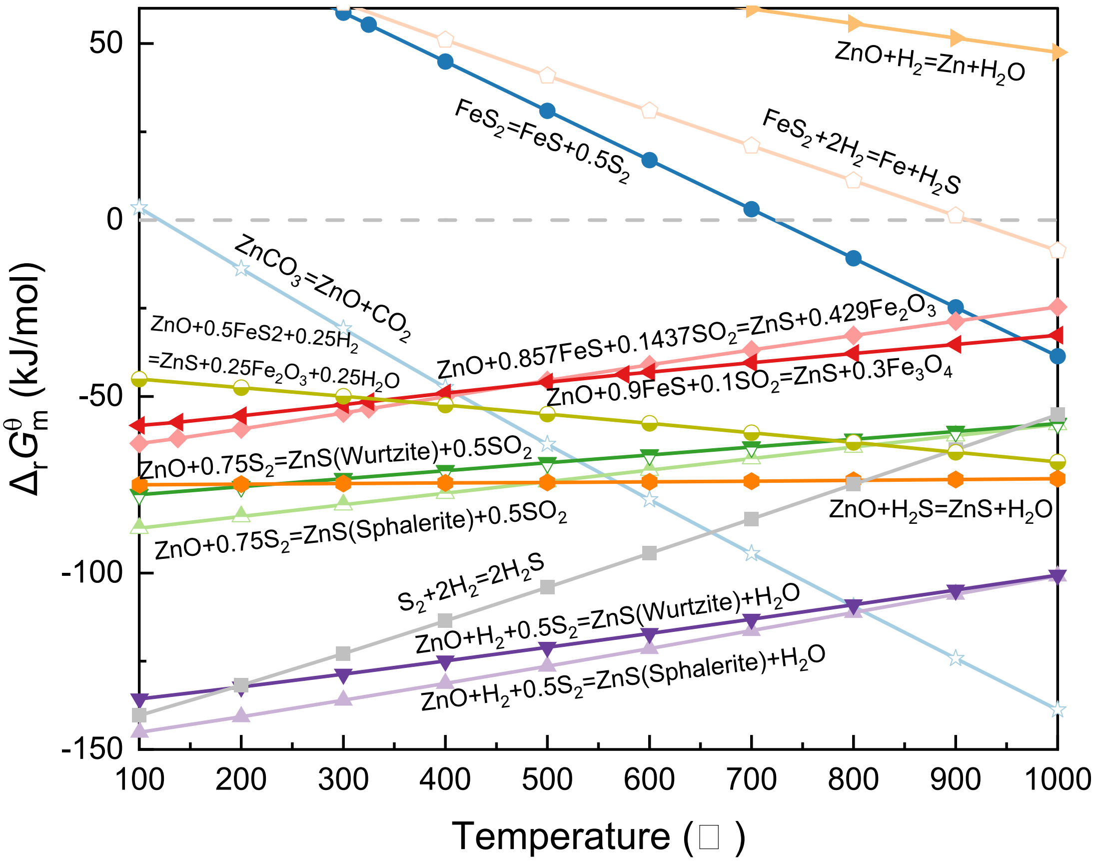

Figure S-1. Reaction of smithsonite with pyrite at different temperatures for $\Delta_r G_m^\theta$.

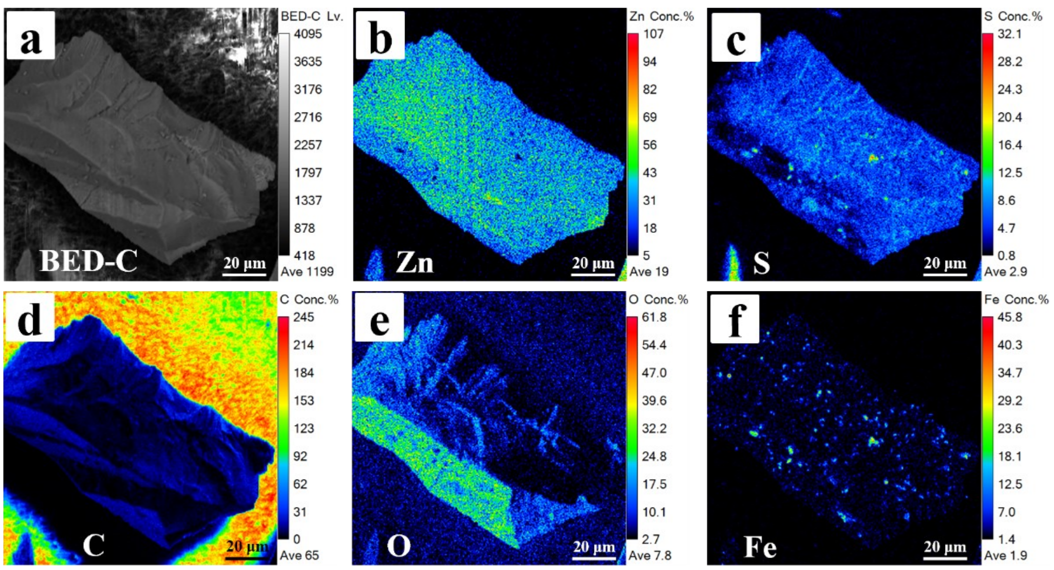

Figure S-2. EPMA results for reconstructed smithsonite at a temperature of 750℃: BED-C image (a). Discrete elemental maps of (b) Zn, (c) S, (d) C, (e) O, and (f) Fe.

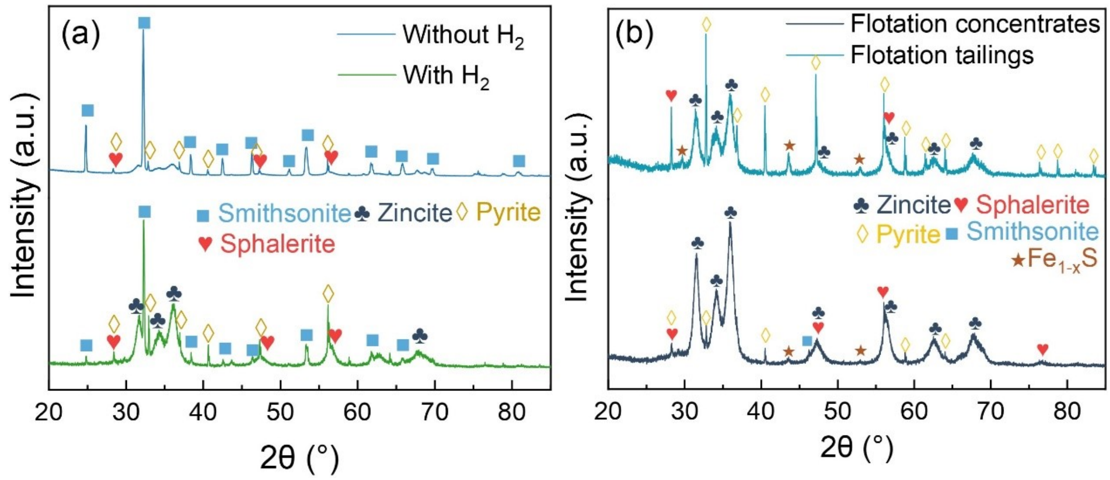

Figure S-3. XRD patterns of roasting products: (a) Mineral composition of the roasting products of smithsonite and pyrite with and without H_2 at a roasting temperature of 450°C. (b) Mineral composition of flotation concentrates and tailings of roasting products in the presence of H_2 at a roasting temperature of 450 °C.

Supplementary Table

Table S-1. Chemical composition of feedstocks and roasted products (wt%).

Sample	Zn	S
Feedstock	38.40	11.92
Roasted product	47.81	14.23