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Supplementary Materials

Improved Understanding of the Sulfidization Mechanism in Amine Flotationof Smithsonite: An XPS, AFM and UV–Vis DRS Study

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1. Thermodynamic Calculations

HSC chemistry ver. 6.0 is used for the thermodynamic calculations. The relevant thermodynamic data were as follows:

Table S1. Thermodynamic data for Equation (2).

T K	Delta H kJ	DeltaS J/K	DeltaG kJ	K	Log(K)
273.150	-64.874	4.792	-66.183	4.543E+012	12.657
278.150	-64.663	5.558	-66.209	2.721E+012	12.435
283.150	-64.479	6.213	-66.239	1.662E+012	12.221
288.150	-64.318	6.778	-66.271	1.034E+012	12.014
293.150	-64.174	7.272	-66.306	6.542E+011	11.816
298.150	-64.045	7.710	-66.344	4.209E+011	11.624
303.150	-63.927	8.102	-66.383	2.749E+011	11.439

Table S2. Thermodynamic data for Equation (3).

T K	DeltaH kJ	DeltaS J/K	DeltaG kJ	K	Log(K)
273.150	-64.518	4.965	-65.875	3.965E+012	12.598
278.150	-64.307	5.732	-65.901	2.381E+012	12.377
283.150	-64.123	6.388	-65.932	1.458E+012	12.164
288.150	-63.961	6.955	-65.965	9.096E+011	11.959
293.150	-63.817	7.451	-66.001	5.772E+011	11.761
298.150	-63.687	7.890	-66.039	3.722E+011	11.571
303.150	-63.569	8.284	-66.080	2.437E+011	11.387