

Supplementary Materials

Table S1. The concentrations of all elements in the hydrochloric leaching solution before and after precipitation of oxalates, analyzed with ICP-OES technique.

Ratio between added amount of oxalic acid and its stoichiometric amount	Concentration of elements in the leaching solution [g·L ⁻¹]							
	B	Co	Ni	Fe	Dy	Nd	Pr	Tb
	0.635	1.78	0.0175	35.6	1.65	18.6	0.880	0.0017
	Concentration of elements in the solution after precipitation of oxalates [g·L ⁻¹]							
	B	Co	Ni	Fe	Dy	Nd	Pr	Tb
0.8	0.634	1.71	0.0175	35.5	0.887	8.21	0.505	0.0016
1.0	0.631	1.77	0.0174	35.4	0.720	5.95	0.390	0.0011
1.2	0.635	1.70	0.0170	35.0	0.472	3.64	0.263	0.0011
1.4	0.601	1.54	0.0167	33.9	0.255	1.87	0.124	0.0009

Table S2. The concentrations of all elements in the sulfuric leaching solution before and after precipitation of oxalates, analyzed with ICP-OES technique.

Ratio between added amount of oxalic acid and its stoichiometric amount	Concentration of elements in the leaching solution [g·L ⁻¹]							
	B	Co	Ni	Fe	Dy	Nd	Pr	Tb
	0.605	1.23	0.015	33.4	1.13	15.8	0.957	0.0026
	Concentration of elements in the solution after precipitation of oxalates [g·L ⁻¹]							
	B	Co	Ni	Fe	Dy	Nd	Pr	Tb
0.8	0.608	1.12	0.0154	33.1	0.122	1.05	0.111	0.0019
1.0	0.602	1.21	0.0144	32.6	0.116	0.978	0.104	0.0009
1.2	0.572	1.21	0.0146	31.8	0.0519	0.476	0.043	0.0012
1.4	0.596	1.18	0.014	31	0.0261	0.278	0.026	0.0009