

Supplementary Materials

Table S1. Concentration of Dy, Nd, Pr, Tb and Fe in solutions after leaching of magnets in a laboratory scale with HCl solution and in solutions after precipitation of rare earth oxalates.

Solution	Concentration [g·L ⁻¹]				
	Dy	Nd	Pr	Tb	Fe
After I leaching	1.64	20.3	1.23	0.150	64.8
After I precipitation	0.233	1.23	0.851	0.011	62.6
After II leaching	2.84	26.0	0.962	0.192	90.0
After II precipitation	0.129	1.15	0.032	0.012	63.2
After III leaching	1.30	18.0	1.57	0.120	98.4
After III precipitation	0.067	0.91	0.096	0.007	81.8
After IV leaching	1.40	16.0	1.42	0.100	114
After IV precipitation	0.151	2.08	0.192	0.010	104

Table S2. Concentration of Dy, Nd, Pr and Tb in solutions after leaching and after precipitation of lanthanide oxalates in a larger laboratory scale. Three samples from each solution were analysed with ICP-OES technique. The numbers in the table represent the average concentrations.

Solution	Concentration [g·L ⁻¹]			
	Dy	Nd	Pr	Tb
After I leaching	0.60 ± 0.06	13.7 ± 0.7	1.27 ± 0.19	0.141 ± 0.013
After I precipitation	0.016 ± 0.001	0.270 ± 0.010	0.032 ± 0.003	0.005 ± 0.001
After II leaching	0.55 ± 0.01	10.8 ± 0.4	1.14 ± 0.01	0.086 ± 0.006
After II precipitation	0.032 ± 0.005	0.53 ± 0.06	0.07 ± 0.01	0.006 ± 0.001
After III leaching	0.53 ± 0.03	10.7 ± 0.4	1.25 ± 0.08	0.082 ± 0.002
After III precipitation	0.055 ± 0.006	1.63 ± 0.08	0.21 ± 0.07	0.012 ± 0.004
After IV leaching	0.61 ± 0.04	15.5 ± 0.5	1.84 ± 0.13	0.137 ± 0.010
After IV precipitation	0.03 ± 0.01	0.79 ± 0.10	0.10 ± 0.04	0.006 ± 0.001

Table S3. Concentration of B, Co, Fe and Ni in solutions after leaching and after precipitation of lanthanide oxalates in a larger laboratory scale. Three samples from each solution were analysed with ICP-OES technique. The numbers in the table represent the average concentrations.

Solution	Concentration [g·L ⁻¹]			
	B	Co	Fe	Ni
After I leaching	0.43 ± 0.04	0.50 ± 0.13	33.6 ± 0.3	0.026 ± 0.003
After I precipitation	0.45 ± 0.04	0.60 ± 0.05	34.4 ± 1.4	0.027 ± 0.001
After II leaching	0.83 ± 0.05	1.16 ± 0.07	55.0 ± 1.24	0.036 ± 0.003
After II precipitation	0.86 ± 0.03	1.15 ± 0.19	56.8 ± 1.7	0.035 ± 0.004
After III leaching	1.18 ± 0.15	1.81 ± 0.08	83.5 ± 5.5	0.053 ± 0.002
After III precipitation	1.68 ± 0.03	1.99 ± 0.41	86.6 ± 5.6	0.058 ± 0.009
After IV leaching	1.71 ± 0.04	2.10 ± 0.13	112 ± 4	0.062 ± 0.009
After IV precipitation	1.25 ± 0.01	1.88 ± 0.11	115 ± 1	0.052 ± 0.005