

Table S4: Full details of analytical set-up for LA-ICP-MS analysis of REE fluorocarbonates.

Analysis Details			
Mass	Element	Dwell Time (s)	Avg Detection Limit (ppm)
23	Na	0.005	64.3
27	Al	0.005	4.66
29	Si	0.005	1385
31	P	0.005	208
43	Ca	0.01	892
45	Sc	0.01	1.16
55	Mn	0.01	3.55
57	Fe	0.01	73.0
65	Cu	0.01	5.21
75	As	0.01	6.85
88	Sr	0.01	0.067
89	Y	0.01	0.041
90	Zr	0.01	0.076
93	Nb	0.01	0.019
137	Ba	0.01	0.245
139	La	0.01	0.013
141	Pr	0.01	0.013
146	Nd	0.01	0.050
147	Sm	0.01	0.051
153	Eu	0.01	0.038
157	Gd	0.01	0.177
159	Tb	0.01	0.014
163	Dy	0.01	0.034
165	Ho	0.01	0.008
166	Er	0.01	0.032
169	Tm	0.01	0.008
172	Yb	0.01	0.036
175	Lu	0.01	0.011
178	Hf	0.01	0.029
181	Ta	0.01	0.010
182	W	0.01	0.039
202	Hg	0.01	-
204	Pb	0.01	18.4
206	Pb	0.02	0.197
207	Pb	0.02	0.169
208	Pb	0.01	0.166
209	Bi	0.01	0.275
232	Th	0.03	0.009
238	U	0.03	0.008

Operating Conditions			
	Spot Size (um)	Hz	Fluence (J/cm ²)
Unknowns	9-29	5	3.5
Standards (GSD-1G, NIST-610)	51		