

E.S.I. Data 1

Analytical results of La Jolla standard solution with various instrumental setups at ion sampling interface of LA-MC-ICP-MS

1. INSTRUMENTAL CONDITIONS

We performed a series of tests to find the relationship between the oxide molecular yield and mass-independent isotope fractionation of Nd isotopes.^{1,2} Instrumental settings at the ICP interface were changed and the oxide molecular yield of a Nd isotope and key Nd isotope ratios were measured with Aridus II and Excimer LA dual intake-MC-ICP-MS (see the main text) by analysing a 20-ppb La Jolla^{3,4} standard solution. For the tests, we changed (1) the skimmer cone, (2) guard electrode (GE), and (3) sample gas flow rate. For representation, we tested four analytical conditions as follows:

Setting	Condition 1	Condition 2	Condition 3	Condition 4
Sample cone	Normal	Normal	Normal	Normal
Skimmer cone	X	X	H	H
GE	On	Off	On	Off
Interface pump	High efficiency	High efficiency	High efficiency	High efficiency
Aridus sweep	Variable	Variable	Variable	Variable

We reported instrumental sensitivity ($^{146}\text{Nd}/V$), Nd isotope ratios (both $^{143}\text{Nd}/^{144}\text{Nd}$ and $^{145}\text{Nd}/^{144}\text{Nd}$ were obtained by exponential mass fractionation correction using $^{146}\text{Nd}/^{144}\text{Nd} = 0.7219$), and oxide molecular yield ($^{146}\text{Nd}^{16}\text{O}^+ / ^{146}\text{Nd}^+ \times 100\%$). The high-efficiency interface rotary pump was always used for comparison, which provided low pressure (approximately 1.3 mbar from approximately 2.4 mbar with the normal rotary pump) at the expansion chamber and contributed to the enhancement of sensitivity, especially under condition 4.⁵ N_2 gas with a gas flow rate of 0.005 L/min was applied from Aridus II for the enhancement of sensitivity. Helium was used as the LA aerosol carrier gas with a gas flow rate of 0.7 L/min. However, these gas flow rates were kept constant as these were not essential for the oxide molecular yield.

The condition 4 setup was exactly the same as that used for Sr isotope analyses by LA-MC-ICP-MS (Neptune) and with a sector field high-resolution LA-ICP-MS (Element XR) for the elemental analyses in our previous works.^{5,6} Another interface option such as JET sample cone⁷ could have accomplished greater sensitivity; however,

the oxide molecular yield was huge and a strong mass-independent mass fractionation of Nd was observed. Such an extreme setup was not tested.

Table 1 Results of Nd isotope ratio analyses with different interface settings

Gas flow (L/min)	¹⁴⁶ Nd (V)	Sensitivity ¹⁶² NdO (V/ppm)	Oxide yield (V)	Oxide yield (%)	Isotope ratio ¹⁴³ Nd/ ¹⁴⁴ Nd	Error (2SE)	Deviation RD (ppm)	Isotope ratio ¹⁴⁵ Nd/ ¹⁴⁴ Nd	Error (2SE)	Deviation RD (ppm)
<i>Condition 1: X skimmer, GE on, 1400W plasma power</i>										
4.04	1.967	572	0.400	20.3	0.511515	0.000009	-667	0.348288	0.000009	-371
3.94	1.604	466	0.158	9.85	0.511658	0.000010	-386	0.348358	0.000016	-169
3.84	0.921	268	0.026	2.82	0.511773	0.000014	-162	0.348387	0.000016	-87
3.74	0.595	173	0.007	1.18	0.511774	0.000014	-161	0.348381	0.000017	-103
3.64	0.400	116	0.002	0.50	0.511765	0.000020	-178	0.348360	0.000014	-164
<i>Condition 2: X skimmer, GE off, 1400W plasma power</i>										
4.00	1.580	459	0.053	3.35	0.511710	0.000008	-284	0.348356	0.000007	-176
3.90	1.959	570	0.0277	1.41	0.511803	0.000010	-104	0.348396	0.000008	-61
3.80	2.132	620	0.0110	0.52	0.511831	0.000007	-48	0.348433	0.000010	47
3.70	1.860	541	0.0034	0.18	0.511850	0.000010	-11	0.348432	0.000010	42
3.60	1.316	383	0.0010	0.08	0.511841	0.000010	-30	0.348427	0.000017	29
3.50	0.760	221	0.0003	0.04	0.511854	0.000019	-3	0.348431	0.000025	40
<i>Condition 3: H skimmer, GE on, 1400W plasma power</i>										
3.84	1.430	416	0.0310	2.17	0.511778	0.000007	-153	0.348419	0.000009	5
3.74	1.120	326	0.0100	0.89	0.511817	0.000010	-76	0.348434	0.000018	48
3.64	0.670	195	0.0025	0.37	0.511829	0.000016	-53	0.348439	0.000029	63
3.54	0.360	105	0.0007	0.19	0.511841	0.000018	-30	0.348420	0.000020	8
<i>Condition 4: H skimmer, GE off, 1400W plasma power</i>										
3.65	0.770	224	0.00070	0.09	0.511856	0.000013	1	0.348428	0.000010	30
3.55	0.810	235	0.00020	0.02	0.511855	0.000010	-1	0.348422	0.000012	13
3.45	0.830	241	0.00010	0.01	0.511856	0.000011	0	0.348420	0.000009	8
3.35	0.755	219	0.00007	0.01	0.511853	0.000012	-6	0.348425	0.000011	24
3.25	0.610	177	0.00005	0.01	0.511840	0.000017	-31	0.348424	0.000013	20
La Jolla reference value					0.511856	0.000008 (Ref.3)		0.348417	0.000007 (Ref. 4)	

The highest sensitivity of sweep gas flow setting is represented by bold letters. See references 3 and 4 for the La Jolla reference values analysed by TIMS. The gas flow rate is reported from the readings of the sweep gas flow rate by Aridus II, which controls the carrier gas flow rate of the Ar sample at the ICP. The Ar sweep gas and N2 gas flow rates were controlled by high-precision mass flow controllers, which replaced the original needle gas flow controllers in Aridus II. Therefore, the indicated gas flow rates differ from those obtained by the original Aridus II.

2. RESULTS AND RECOMMENDED SETTINGS

The analytical results showed that only the normal-sample and H-skimmer cones with GE-off mode (condition 4) could provide suitable Nd isotope ratios for both ¹⁴³Nd/¹⁴⁴Nd and ¹⁴⁵Nd/¹⁴⁴Nd (less than 8 ppm RD at best, see Table S1). Moreover, an intentional alteration of the sample gas flow rate to ±0.1 L/min or more from the highest sensitivity tuning did not affect the isotope ratios. The normal-sample and X-skimmer cones with GE-off mode (condition 2) also showed isotope ratios close to the reference values. However, it was only achieved when the sample gas flow rate was significantly reduced from that in the highest sensitivity tuning (Table 1). Under this condition of reduced oxides, the sensitivity was also reduced to approximately 36% of the highest sensitivity

(from 620 to 221 V/ppm), which was lower than the highest sensitivity obtained under condition 4. Settings with GE-on mode could not provide proper isotope ratios even when the gas flow rate was significantly reduced (Table 1). From these findings, it is clear that condition 4 was the most robust, sensitive, and stable setup for accurate measurement of Nd isotope ratios. This confirmed our previous reports for other LA-(MC)-ICP-MS applications.^{5,6}

3. ORIGIN OF MASS-INDEPENDENT ISOTOPIC FRACTIONATION

Oxide yields decreased in the order of condition 1 to 3 and 2 to 4 (Fig. 1a). Although sensitivity decreased dramatically with the decreasing gas flow rate (and oxide) under conditions 1–3, it was fairly stable under condition 4 (Fig. 1b). A decrease in the oxide ions resulted in a decrease in mass-independent isotope fractionation (Fig. 1c).

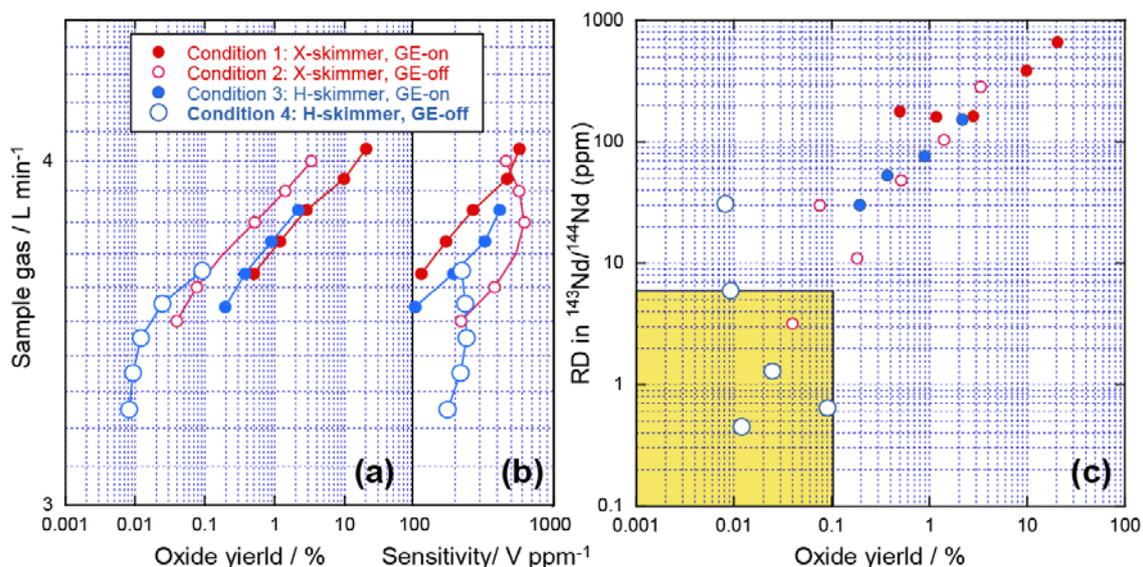


Fig. 1 Relationship between gas flow rate, oxide yield (a), sensitivity (b), and Nd isotope ratio (c). Effect of interface setups on ¹⁴³Nd/¹⁴⁴Nd isotope ratio is shown by relative deviation (RD) from La Jolla reference value in ppm. *Yellow field* in (c) shows results from the recommended setting achieved under condition 4.

- (1) It was concluded that the Nd isotope ratios were altered by the different yields of oxide ions of the isotopes. This resulted in mass-independent isotopic fractionation of metal ions and the shifts in Nd isotope ratios even after internal mass fractionation correction (Table 1 and Fig 1c), as reported in previous studies.^{1,2}
- (2) It was recommended that the oxide yield should be kept at least below 0.1%. Use of X-skimmer cones systematically increased the oxide yield (see the comparisons

between conditions 1 and 3 and also between 2 and 4 in Fig. 1). The use of GE-on mode also provided the same results, so that under the highest sensitivity condition 1 (X-skimmer and GE-on) we obtained the highest oxides and the greatest shifts in the Nd isotope ratios (Fig. 1a–c). Further, the use of GE-on mode never reproduced the reference Nd isotope ratios even with a low oxide tuning (see the *solid symbols* for conditions 1 and 3 in Fig. 1c). It was simply because of the high oxide yield (>0.1 %) under those conditions (Fig. 1c).

4. CONCLUSION

The low oxide yield (approximately 0.01%) together with the highest sensitivity (241 V/ppm) was simultaneously achieved under condition 4 (H-skimmer and GE-off) at the interface setup, and the low oxide yield was maintained over a wide range of the sample gas flow rates (3.65–3.35 L/min) (Table S1). The setup was robust, sensitive, stable, and provided accurate Nd isotope ratios without external mass bias correction in both LA and solution modes. This was confirmed by the stable analytical results obtained for few months as shown in the main text and **E.S.I. Data 2**.

The causal mechanism of oxides under different interface setups is beyond the scope of this study. However, it should be explored in the future as isotopes such as Nd clearly show mass-independent isotopic fractionation because of the oxide molecular yield at the interface (Fig. S1c). The reduced oxide molecular yield is also crucial for multiple element analyses and isotope analyses of natural samples with complex concomitant matrix elements.^{5,6} It is particularly true for LA applications. We suggest that further oxide reduction along with better sensitivity appears to be feasible by careful modifications at the ICP interface.

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†E.S.I. Data 2 Table 1 LA-MC-ICP-MS analytical results of Nd isotope ratios in standard solutions, SRM 610 glass, apatite, sphene, monazite, and St. Helena basalt groundmass.

[Standard solutions]

[La Jolla]

Day	Sample	Remarks	¹⁴⁶ Nd/V	¹⁴⁷ Sm/V	¹⁴³ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁵ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁶ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁷ Sm/ ¹⁴⁹ Sm	2SE	¹⁴⁷ Sm/ ¹⁴⁴ Nd	2SE
Day 2	La Jolla-1	10ppb sln/100scn	0.337	0.000	0.511870	0.000021	0.348416	0.000016	0.743557	0.000022	-	-	-	-
Day 2	La Jolla-2	10ppb sln/100scn	0.436	0.000	0.511826	0.000016	0.348409	0.000007	0.744650	0.000023	-	-	-	-
Day 2	La Jolla-3	10ppb sln/100scn	0.436	0.000	0.511885	0.000015	0.348423	0.000007	0.744740	0.000018	-	-	-	-
Day 2	La Jolla-4	10ppb sln/100scn	0.403	0.000	0.511857	0.000013	0.348444	0.000009	0.745535	0.000014	-	-	-	-
Day 2	La Jolla-5	10ppb sln/100scn	0.374	0.000	0.511868	0.000014	0.348429	0.000009	0.745752	0.000021	-	-	-	-
Day 3	La Jolla-1	10ppb sln/100scn	0.398	0.000	0.511853	0.000014	0.348426	0.000009	0.743540	0.000017	-	-	-	-
Day 3	La Jolla-2	10ppb sln/100scn	0.362	0.000	0.511856	0.000015	0.348432	0.000011	0.744335	0.000016	-	-	-	-
Day 3	La Jolla-3	10ppb sln/100scn	0.323	0.000	0.511839	0.000015	0.348410	0.000011	0.743392	0.000023	-	-	-	-
Day 3	La Jolla-4	10ppb sln/100scn	0.309	0.000	0.511859	0.000012	0.348419	0.000009	0.743580	0.000020	-	-	-	-
Day 3	La Jolla-5	10ppb sln/100scn	0.300	0.000	0.511858	0.000018	0.348449	0.000009	0.743720	0.000019	-	-	-	-
Day 4	La Jolla-1	10ppb sln/100scn	0.384	0.000	0.511877	0.000013	0.348406	0.000008	0.745196	0.000019	-	-	-	-
Day 4	La Jolla-2	20ppb sln/60scn	0.630	0.000	0.511863	0.000014	0.348435	0.000009	0.745778	0.000046	-	-	-	-
Day 4	La Jolla-3	20ppb sln/60scn	0.591	0.000	0.511866	0.000014	0.348413	0.000008	0.746034	0.000024	-	-	-	-
Day 4	La Jolla-4	20ppb sln/60scn	0.614	0.000	0.511850	0.000010	0.348412	0.000010	0.745732	0.000016	-	-	-	-
Day 4	La Jolla-5	20ppb sln/60scn	0.609	0.000	0.511874	0.000011	0.348422	0.000008	0.745572	0.000022	-	-	-	-
Day 4	La Jolla-6	20ppb sln/60scn	0.591	0.000	0.511866	0.000017	0.348436	0.000010	0.745072	0.000018	-	-	-	-
Day 4	La Jolla-7	20ppb sln/100scn	0.578	0.000	0.511873	0.000011	0.348405	0.000009	0.745985	0.000013	-	-	-	-
Day 5	La Jolla-1	20ppb sln/100scn	0.663	0.000	0.511856	0.000010	0.348432	0.000006	0.745525	0.000017	-	-	-	-
Day 5	La Jolla-2	20ppb sln/60scn	0.586	0.000	0.511842	0.000009	0.348428	0.000007	0.746350	0.000027	-	-	-	-
Day 5	La Jolla-3	20ppb sln/60scn	0.640	0.000	0.511868	0.000015	0.348419	0.000007	0.746137	0.000015	-	-	-	-
Day 5	La Jolla-4	20ppb sln/60scn	0.626	0.000	0.511867	0.000013	0.348417	0.000007	0.745971	0.000019	-	-	-	-
Day 5	La Jolla-5	20ppb sln/60scn	0.574	0.000	0.511860	0.000014	0.348398	0.000009	0.746657	0.000021	-	-	-	-
Day 7	La Jolla-1	20ppb sln/100scn	0.608	0.000	0.511854	0.000015	0.348407	0.000009	0.744449	0.000026	-	-	-	-
Day 7	La Jolla-2	20ppb sln/60scn	0.600	0.000	0.511868	0.000018	0.348417	0.000011	0.744082	0.000022	-	-	-	-
Day 8	La Jolla-1	20ppb sln/60scn	0.365	0.000	0.511848	0.000025	0.348448	0.000011	0.747114	0.000032	-	-	-	-
Average/2SD			n =	25	0.511860	0.000026	0.348422	0.000027	0.745138	0.002149	-	-	-	-
Reference**					0.511857	0.000006	0.348417	0.000007	0.721900	-	-	-	-	-
Difference					6.3	ppm	14.8	ppm	3.2	%				

[JMC]

Day	Sample	Remarks	¹⁴⁶ Nd/V	¹⁴⁷ Sm/V	¹⁴³ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁵ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁶ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁷ Sm/ ¹⁴⁹ Sm	2SE	¹⁴⁷ Sm/ ¹⁴⁴ Nd	2SE
Day 1	JMC Nd-1	10ppb sln/100scn	0.480	0.000	0.512228	0.000012	0.348423	0.000008	0.741915	0.000014	-	-	-	-
Day 1	JMC Nd-2	10ppb sln/100scn	0.444	0.000	0.512224	0.000014	0.348420	0.000008	0.742614	0.000016	-	-	-	-
Day 1	JMC Nd-3	10ppb sln/100scn	0.404	0.000	0.512235	0.000015	0.348403	0.000008	0.745199	0.000021	-	-	-	-
Day 1	JMC Nd-4	10ppb sln/100scn	0.333	0.000	0.512235	0.000016	0.348452	0.000009	0.746131	0.000017	-	-	-	-
Day 2	JMC Nd-1	10ppb sln/100scn	0.432	0.000	0.512192	0.000014	0.348404	0.000008	0.743620	0.000015	-	-	-	-
Day 3	JMC Nd-1	10ppb sln/100scn	0.341	0.000	0.512234	0.000018	0.348420	0.000009	0.743701	0.000020	-	-	-	-
Day 4	JMC Nd-1	10ppb sln/100scn	0.313	0.000	0.512198	0.000016	0.348426	0.000010	0.745427	0.000022	-	-	-	-
Day 5	JMC Nd-1	20ppb sln/100scn	0.549	0.000	0.512207	0.000014	0.348422	0.000008	0.745850	0.000019	-	-	-	-
Day 6	JMC Nd-1	10ppb sln/100scn	0.456	0.000	0.512236	0.000018	0.348437	0.000012	0.743459	0.000117	-	-	-	-
Day 6	JMC Nd-2	10ppb sln/100scn	0.457	0.000	0.512233	0.000020	0.348414	0.000011	0.743386	0.000069	-	-	-	-
Day 6	JMC Nd-3	10ppb sln/100scn	0.446	0.000	0.512218	0.000026	0.348450	0.000010	0.743273	0.000097	-	-	-	-
Day 6	JMC Nd-4	10ppb sln/100scn	0.409	0.000	0.512160	0.000035	0.348417	0.000012	0.744244	0.000073	-	-	-	-
Day 7	JMC Nd-1	20ppb sln/100scn	0.434	0.000	0.512217	0.000019	0.348419	0.000013	0.744786	0.000016	-	-	-	-
Day 8	JMC Nd-1	20ppb sln/50scn	0.284	0.000	0.512208	0.000031	0.348439	0.000013	0.747350	0.000031	-	-	-	-
Average/2SD			n =	14	0.512216	0.000044	0.348425	0.000030	0.744354	0.003002	-	-	-	-
Reference*					0.512223	0.000036	0.348417	0.000007	0.721900	-	-	-	-	-
Difference					-13.7	ppm	22.0	ppm	3.1	%				

[Sm-doped JMC]

Day	Sample	Remarks	¹⁴⁶ Nd/V	¹⁴⁷ Sm/V	¹⁴³ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁵ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁶ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁷ Sm/ ¹⁴⁹ Sm	2SE	¹⁴⁷ Sm/ ¹⁴⁴ Nd	2SE
Day 1	JMC Nd_Sm-1	10_5ppb mix sln/100scn	0.530	0.172	0.512222	0.000012	0.348423	0.000005	0.742145	0.000016	1.060533	0.000041	0.242155	0.000032
Day 1	JMC Nd_Sm-2	10_5ppb mix sln/100scn	0.495	0.171	0.512201	0.000011	0.348414	0.000007	0.744129	0.000012	1.057783	0.000036	0.257900	0.000072
Day 1	JMC Nd_Sm-3	10_5ppb mix sln/100scn	0.405	0.132	0.512236	0.000015	0.348402	0.000008	0.745372	0.000022	1.056274	0.000052	0.244775	0.000099
Day 2	JMC Nd_Sm-1	10_5ppb mix sln/100scn	0.458	0.162	0.512195	0.000014	0.348399	0.000007	0.743892	0.000015	1.058105	0.000043	0.263680	0.000159
Day 3	JMC Nd_Sm-1	10_5ppb mix sln/100scn	0.372	0.119	0.512194	0.000016	0.348420	0.000009	0.743605	0.000016	1.058478	0.000041	0.239925	0.000051
Day 4	JMC Nd_Sm-1	10_5ppb mix sln/100scn	0.332	0.116	0.512201	0.000014	0.348399	0.000011	0.745480	0.000017	1.055628	0.000048	0.261374	0.000216
Day 5	JMC Nd_Sm-1	20_10ppb mix sln/100scn	0.525	0.224	0.512213	0.000012	0.348426	0.000007	0.745766	0.000017	1.055524	0.000033	0.319994	0.000091
Day 6	JMC Nd_Sm-1	10_5ppb mix sln/100scn	0.854	0.283	0.512209	0.000009	0.348447	0.000013	0.744226	0.000011	1.057618	0.000036	0.247934	0.000047
Day 7	JMC Nd_Sm-1	20_10ppb mix sln/100scn	0.434	0.190	0.512233	0.000021	0.348441	0.000013	0.744788	0.000014	1.056830	0.000044	0.327535	0.000243
Day 8	JMC Nd_Sm-1	20_10ppb mix sln/100scn	0.282	0.114	0.512209	0.000022	0.348414	0.000008	0.747286	0.000030	1.053692	0.000079	0.304492	0.000034
Average/2SD			n =	10	0.512211	0.000030	0.348419	0.000033	0.744669	0.002814	1.057046	0.003796	0.270976	0.066845
Reference*					0.512223	0.000036	0.348417	0.000007	0.721900	-	1.085070	-	-	-
Difference					-22.8	ppm	4.3	ppm	3.2	%	-2.6	%		

[Standard glass/mineral]

[SRM610]

Day	Sample	Remarks	¹⁴⁶ Nd/V	¹⁴⁷ Sm/V	¹⁴³ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁵ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁶ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁷ Sm/ ¹⁴⁹ Sm	2SE	¹⁴⁷ Sm/ ¹⁴⁴ Nd	2SE
Day 1	SRM610-1	200um/10Hz/25scn	1.080	0.982	0.511915	0.000046	0.348425	0.000011	0.741989	0.000295	1.060368	0.000446	0.681974	0.004349
Day 1	SRM610-2	200um/10Hz/25scn	0.927	0.843	0.511930	0.000015	0.348411	0.000010	0.742464	0.000044	1.059720	0.000072	0.682511	0.002678
Day 1	SRM610-3	200um/10Hz/25scn	0.873	0.792	0.511925	0.000021	0.348432	0.000013	0.742696	0.000040	1.059404	0.000047	0.681409	0.002744
Day 1	SRM610-4	200um/10Hz/25scn	0.853	0.774	0.511941	0.000020	0.348429	0.000012	0.742870	0.000046	1.059242	0.000043	0.681493	0.002936
Day 1	SRM610-5	200um/10Hz/25scn	0.817	0.742	0.511957	0.000023	0.348416	0.000015	0.743015	0.000026	1.059029	0.000033	0.682274	0.003123

Day 1	SRM610-6	200um/10Hz/25scn	1.030	0.962	0.511917	0.000027	0.348450	0.000020	0.743455	0.000032	1.058376	0.000052	0.703194	0.001608	
Day 1	SRM610-7	200um/10Hz/25scn	0.934	0.871	0.511915	0.000031	0.348462	0.000023	0.743756	0.000036	1.057992	0.000032	0.702436	0.003035	
Day 1	SRM610-8	200um/10Hz/25scn	0.902	0.840	0.511937	0.000026	0.348466	0.000019	0.743919	0.000042	1.057779	0.000056	0.701205	0.002661	
Day 1	SRM610-9	200um/10Hz/25scn	0.846	0.787	0.511927	0.000030	0.348468	0.000026	0.744200	0.000037	1.057341	0.000069	0.700782	0.002839	
Day 1	SRM610-10	200um/10Hz/25scn	0.835	0.783	0.511930	0.000026	0.348450	0.000024	0.744411	0.000040	1.056968	0.000032	0.707458	0.002487	
Day 1	SRM610-11	200um/10Hz/25scn	0.882	0.814	0.511945	0.000020	0.348443	0.000015	0.744144	0.000037	1.057401	0.000058	0.696268	0.001880	
Day 1	SRM610-12	200um/10Hz/25scn	0.860	0.798	0.511916	0.000024	0.348443	0.000022	0.744420	0.000045	1.057089	0.000068	0.700961	0.001789	
Day 1	SRM610-13	200um/10Hz/25scn	0.803	0.745	0.511937	0.000026	0.348447	0.000023	0.744705	0.000032	1.056621	0.000051	0.700704	0.002518	
Day 1	SRM610-14	200um/10Hz/25scn	0.784	0.726	0.511935	0.000023	0.348437	0.000014	0.744834	0.000034	1.056426	0.000050	0.700108	0.002626	
Day 1	SRM610-15	200um/10Hz/25scn	0.787	0.731	0.511947	0.000028	0.348434	0.000013	0.744964	0.000048	1.056234	0.000080	0.701182	0.001672	
Day 1	SRM610-16	200um/10Hz/25scn	0.905	0.822	0.511929	0.000021	0.348435	0.000011	0.744199	0.000053	1.057414	0.000072	0.684876	0.001385	
Day 1	SRM610-17	200um/10Hz/25scn	0.872	0.791	0.511933	0.000026	0.348432	0.000010	0.744385	0.000043	1.057152	0.000050	0.684109	0.001641	
Day 1	SRM610-18	200um/10Hz/25scn	0.811	0.738	0.511906	0.000031	0.348411	0.000012	0.744560	0.000072	1.056832	0.000082	0.686348	0.001103	
Day 1	SRM610-19	200um/10Hz/25scn	0.785	0.717	0.511913	0.000025	0.348412	0.000010	0.744844	0.000052	1.056392	0.000079	0.688154	0.001433	
Day 1	SRM610-20	200um/10Hz/25scn	0.741	0.676	0.511881	0.000023	0.348428	0.000016	0.744977	0.000046	1.056231	0.000054	0.688416	0.001053	
Average/2SD						0.511927	0.000034	0.348437	0.000035	0.743940	0.001797	1.057701	0.002508	0.692793	0.018508
Reference***						0.511927	0.000004	0.348417	0.000007	0.721900	-	1.08507	-	0.6502	-
Difference						-0.5	ppm	56.2	ppm	3.1	%	-2.5	%	6.5	%
Day 2	SRM610-1	200um/10Hz/25scn	0.713	0.668	0.511924	0.000023	0.348465	0.000019	0.742899	0.000074	1.059169	0.000122	0.704189	0.002633	
Day 2	SRM610-2	200um/10Hz/25scn	0.698	0.656	0.511925	0.000033	0.348458	0.000016	0.743337	0.000058	1.058538	0.000074	0.707656	0.003547	
Day 2	SRM610-3	200um/10Hz/25scn	0.679	0.636	0.511915	0.000036	0.348462	0.000016	0.743699	0.000038	1.058006	0.000065	0.705603	0.003454	
Day 2	SRM610-4	200um/10Hz/25scn	0.688	0.646	0.511936	0.000026	0.348455	0.000018	0.743955	0.000026	1.057705	0.000064	0.706997	0.003226	
Day 2	SRM610-5	200um/10Hz/25scn	0.683	0.641	0.511891	0.000025	0.348485	0.000021	0.744043	0.000039	1.057414	0.000039	0.706456	0.003997	
Day 2	SRM610-6	200um/10Hz/25scn	0.565	0.542	0.511927	0.000028	0.348498	0.000021	0.744480	0.000039	1.056873	0.000068	0.723893	0.002790	
Day 2	SRM610-7	200um/10Hz/25scn	0.720	0.665	0.511945	0.000029	0.348461	0.000013	0.743791	0.000069	1.057919	0.000089	0.695429	0.002857	
Day 2	SRM610-8	200um/10Hz/25scn	0.682	0.631	0.511920	0.000021	0.348439	0.000012	0.743955	0.000031	1.057708	0.000049	0.696494	0.003054	
Day 2	SRM610-9	200um/10Hz/25scn	0.667	0.617	0.511920	0.000029	0.348452	0.000015	0.744105	0.000061	1.057456	0.000070	0.697096	0.003185	
Day 2	SRM610-10	200um/10Hz/25scn	0.625	0.585	0.511909	0.000020	0.348459	0.000015	0.744614	0.000057	1.056663	0.000077	0.706526	0.001984	
Day 2	SRM610-11	200um/10Hz/25scn	0.671	0.607	0.511886	0.000024	0.348448	0.000016	0.743500	0.000045	1.058333	0.000060	0.679806	0.002194	
Day 2	SRM610-12	200um/10Hz/25scn	0.873	0.796	0.511918	0.000022	0.348423	0.000014	0.743900	0.000066	1.057770	0.000103	0.686616	0.002410	
Day 2	SRM610-13	200um/10Hz/25scn	0.846	0.772	0.511928	0.000032	0.348422	0.000012	0.744266	0.000046	1.057206	0.000089	0.687254	0.002022	
Day 2	SRM610-14	200um/10Hz/25scn	0.785	0.713	0.511893	0.000022	0.348431	0.000013	0.744226	0.000055	1.057263	0.000068	0.683232	0.002769	
Day 2	SRM610-15	200um/10Hz/25scn	0.754	0.673	0.511906	0.000029	0.348413	0.000015	0.743652	0.000042	1.058117	0.000058	0.671464	0.002357	
Day 2	SRM610-16	200um/10Hz/25scn	0.771	0.706	0.511906	0.000023	0.348433	0.000011	0.744740	0.000031	1.056511	0.000052	0.690946	0.002225	
Day 2	SRM610-17	200um/10Hz/25scn	0.750	0.687	0.511943	0.000017	0.348426	0.000014	0.744927	0.000039	1.056277	0.000061	0.690551	0.002188	
Day 2	SRM610-18	200um/10Hz/25scn	0.739	0.678	0.511897	0.000015	0.348446	0.000010	0.745068	0.000039	1.056047	0.000065	0.691766	0.002054	
Day 2	SRM610-19	200um/10Hz/25scn	0.716	0.658	0.511913	0.000030	0.348431	0.000011	0.745211	0.000047	1.055813	0.000075	0.692942	0.001327	
Day 2	SRM610-20	200um/10Hz/25scn	0.670	0.615	0.511908	0.000020	0.348440	0.000017	0.745029	0.000064	1.056173	0.000083	0.690475	0.001838	
Average/2SD						0.511915	0.000033	0.348447	0.000043	0.744170	0.001249	1.057348	0.001807	0.695770	0.023929
Reference***						0.511927	0.000004	0.348417	0.000007	0.721900	-	1.08507	-	0.6502	-
Difference						-22.5	ppm	87.3	ppm	3.1	%	-2.6	%	7.0	%
Day 3	SRM610-1	200um/10Hz/25scn	0.744	0.672	0.511934	0.000020	0.348431	0.000011	0.743150	0.000052	1.058768	0.000089	0.681010	0.003628	
Day 3	SRM610-2	200um/10Hz/25scn	0.753	0.678	0.511955	0.000024	0.348422	0.000012	0.743444	0.000036	1.058322	0.000061	0.678764	0.002865	
Day 3	SRM610-3	200um/10Hz/25scn	0.765	0.689	0.511919	0.000023	0.348420	0.000010	0.743523	0.000026	1.058271	0.000042	0.677395	0.003708	
Day 3	SRM610-4	200um/10Hz/25scn	0.737	0.665	0.511907	0.000024	0.348410	0.000014	0.743636	0.000041	1.058050	0.000046	0.678807	0.002407	
Day 3	SRM610-5	200um/10Hz/25scn	0.725	0.650	0.511938	0.000024	0.348428	0.000014	0.743756	0.000044	1.057974	0.000044	0.674698	0.002587	
Day 3	SRM610-6	200um/10Hz/25scn	0.802	0.719	0.511922	0.000020	0.348420	0.000011	0.743661	0.000029	1.058056	0.000042	0.675509	0.003324	
Day 3	SRM610-7	200um/10Hz/25scn	0.789	0.710	0.511935	0.000017	0.348418	0.000009	0.743791	0.000050	1.057850	0.000061	0.676668	0.002753	
Day 3	SRM610-8	200um/10Hz/25scn	0.746	0.670	0.511903	0.000029	0.348408	0.000013	0.743893	0.000041	1.057722	0.000060	0.676320	0.002502	
Day 3	SRM610-9	200um/10Hz/25scn	0.731	0.660	0.511912	0.000023	0.348415	0.000013	0.743984	0.000033	1.057585	0.000051	0.679047	0.001966	
Day 3	SRM610-10	200um/10Hz/25scn	0.738	0.664	0.511932	0.000021	0.348420	0.000010	0.744051	0.000034	1.057529	0.000046	0.677680	0.001668	
Day 3	SRM610-11	200um/10Hz/25scn	0.766	0.683	0.511916	0.000025	0.348419	0.000010	0.742637	0.000038	1.059531	0.000055	0.670512	0.002138	
Day 3	SRM610-12	200um/10Hz/25scn	0.765	0.682	0.511898	0.000028	0.348437	0.000011	0.742721	0.000030	1.059413	0.000030	0.669135	0.002909	
Day 3	SRM610-13	200um/10Hz/25scn	0.741	0.660	0.511942	0.000024	0.348421	0.000009	0.742792	0.000022	1.059315	0.000048	0.669775	0.002475	
Day 3	SRM610-14	200um/10Hz/25scn	0.759	0.677	0.511910	0.000030	0.348404	0.000014	0.742822	0.000031	1.059233	0.000055	0.669464	0.001719	
Day 3	SRM610-15	200um/10Hz/25scn	0.726	0.646	0.511924	0.000022	0.348426	0.000011	0.742845	0.000027	1.059241	0.000045	0.669661	0.002317	
Day 3	SRM610-16	200um/10Hz/25scn	0.719	0.640	0.511906	0.000016	0.348425	0.000009	0.742924	0.000040	1.059089	0.000048	0.668735	0.003408	
Day 3	SRM610-17	200um/10Hz/25scn	0.717	0.640	0.511922	0.000020	0.348421	0.000013	0.742947	0.000027	1.059120	0.000057	0.670442	0.002576	
Day 3	SRM610-18	200um/10Hz/25scn	0.726	0.651	0.511922	0.000023	0.348434	0.000011	0.742874	0.000031	1.059248	0.000046	0.673333	0.002196	
Day 3	SRM610-19	200um/10Hz/25scn	0.736	0.655	0.511913	0.000028	0.348417	0.000009	0.742980	0.000045	1.059044	0.000050	0.668571	0.002324	
Day 3	SRM610-20	200um/10Hz/25scn	0.724	0.646	0.511913	0.000021	0.348408	0.000012	0.742976	0.000034	1.058994	0.000065	0.671350	0.001389	
Average/2SD						0.511921	0.000029	0.348420	0.000017	0.743270	0.000949	1.058618	0.001364	0.673844	0.008343
Reference***						0.511927	0.000004	0.348417	0.000007	0.721900	-	1.08507	-	0.6502	-
Difference						-11.5	ppm	9.2	ppm	3.0	%	-2.4	%	3.6	%
Day 4	SRM610-1	200um/10Hz/25scn/150mJ	0.953	0.877	0.511924	0.000020	0.348458	0.000018	0.744582	0.000038	1.056802	0.000050	0.695650	0.003224	
Day 4	SRM610-2	200um/10Hz/25scn/150mJ	0.899	0.830	0.511933	0.000021	0.348451	0.000017	0.744851	0.000019	1.056380	0.000043	0.697065	0.002898	
Day 4	SRM610-3	200um/10Hz/25scn/150mJ	0.848	0.789	0.511931	0.000019	0.348461	0.000017	0.745102	0.000040	1.0				

Day 5	SRM610-3	200um/10Hz/25scn/150mJ	0.729	0.667	0.511927	0.000023	0.348435	0.000015	0.745447	0.000035	1.055537	0.000053	0.690895	0.002178
Day 5	SRM610-4	200um/10Hz/25scn/150mJ	0.702	0.644	0.511900	0.000021	0.348413	0.000013	0.745536	0.000026	1.055428	0.000032	0.693333	0.001569
Day 5	SRM610-5	200um/10Hz/25scn/150mJ	0.657	0.599	0.511901	0.000027	0.348427	0.000009	0.745733	0.000031	1.055202	0.000048	0.688646	0.002386
Average/2SD			n =	70	0.511914	0.000029	0.348426	0.000016	0.745436	0.000443	1.055585	0.000618	0.688529	0.007462
Reference***					0.511927	0.000004	0.348417	0.000007	0.721900	-	1.08507	-	0.6502	-
Difference					-25.4	ppm	24.8	ppm	3.3	%	-2.7	%	5.9	%
G.average/2SD			0.777		0.511921	0.000013	0.348438	0.000031	0.744368	-	1.05708	-	0.6899	0.0195
Reference***					0.511927	0.000004	0.348417	0.000007	0.721900	-	1.08507	-	0.6502	-
Difference					-11.5	ppm	59.3	ppm	3.1	%	-2.6	%	6.1	%

[Durango apatite]

Day	Sample	Remarks	¹⁴⁶ Nd/V	¹⁴⁷ Sm/V	¹⁴³ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁵ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁶ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁷ Sm/ ¹⁴⁹ Sm	2SE	¹⁴⁷ Sm/ ¹⁴⁴ Nd	2SE
Day 3	Durango Ap-1	100um/7Hz/25scn	0.759	0.077	0.512485	0.000031	0.348406	0.000013	0.743084	0.000034	1.058633	0.000116	0.075372	0.000264
Day 3	Durango Ap-2	100um/7Hz/25scn	0.886	0.092	0.512496	0.000021	0.348428	0.000009	0.743277	0.000110	1.058596	0.000217	0.077931	0.000413
Day 3	Durango Ap-3	100um/7Hz/25scn	0.819	0.085	0.512491	0.000020	0.348435	0.000007	0.743274	0.000047	1.058409	0.000070	0.077379	0.000200
Day 3	Durango Ap-4	100um/7Hz/25scn	0.840	0.087	0.512497	0.000025	0.348420	0.000010	0.743206	0.000037	1.058856	0.000119	0.077325	0.000176
Day 3	Durango Ap-5	100um/7Hz/25scn	0.803	0.083	0.512503	0.000019	0.348411	0.000009	0.743186	0.000041	1.058699	0.000132	0.076795	0.000295
Average/2SD					0.512494	0.000014	0.348420	0.000024	0.743206	0.000158	1.058639	0.000325	0.076960	0.001950
Reference****					0.512483	0.000003	0.348417	0.000007	0.721900	-	1.08507	-	0.0812	-
Difference					22.1	ppm	8.5	ppm	3.0	%	-2.4	%	-5.2	%
Day 4	Durango-1	100um/7Hz/25scn/150mJ	0.865	0.096	0.512479	0.000022	0.348415	0.000010	0.744589	0.000052	1.056622	0.000138	0.082670	0.000481
Day 4	Durango-2	100um/7Hz/25scn/150mJ	0.841	0.093	0.512490	0.000027	0.348418	0.000009	0.744580	0.000064	1.056706	0.000141	0.082307	0.000516
Day 4	Durango-3	100um/7Hz/25scn/150mJ	0.893	0.097	0.512510	0.000019	0.348419	0.000012	0.744574	0.000059	1.056805	0.000139	0.081415	0.000442
Day 4	Durango-4	100um/7Hz/25scn/150mJ	0.934	0.102	0.512497	0.000018	0.348417	0.000009	0.744525	0.000056	1.056716	0.000144	0.081281	0.000374
Day 4	Durango-5	100um/7Hz/25scn/150mJ	0.704	0.080	0.512506	0.000026	0.348427	0.000009	0.744856	0.000049	1.056341	0.000143	0.084538	0.000482
Average/2SD					0.512496	0.000025	0.348419	0.000009	0.744625	0.000263	1.056638	0.000356	0.082442	0.002621
Reference****					0.512483	0.000003	0.348417	0.000007	0.721900	-	1.08507	-	0.0812	-
Difference					26.0	ppm	6.2	ppm	3.1	%	-2.6	%	1.5	%
Day 5	Durango-1	100um/7Hz/25scn/150mJ	0.780	0.086	0.512483	0.000020	0.348421	0.000012	0.745264	0.000044	1.055713	0.000091	0.083013	0.000408
Day 5	Durango-2	100um/7Hz/25scn/150mJ	0.764	0.085	0.512485	0.000024	0.348421	0.000011	0.745352	0.000043	1.056444	0.000120	0.083318	0.000454
Day 5	Durango-3	100um/7Hz/25scn/150mJ	0.750	0.083	0.512465	0.000018	0.348433	0.000011	0.745244	0.000039	1.055702	0.000128	0.083201	0.000407
Day 5	Durango-4	100um/7Hz/25scn/150mJ	0.810	0.093	0.512484	0.000026	0.348415	0.000012	0.745846	0.000032	1.054741	0.000115	0.085603	0.000174
Day 5	Durango-5	100um/7Hz/25scn/150mJ	0.723	0.081	0.512484	0.000031	0.348427	0.000014	0.745669	0.000036	1.055324	0.000135	0.084036	0.000466
Average/2SD					0.512480	0.000017	0.348423	0.000014	0.745475	0.000537	1.055424	0.000828	0.083834	0.002124
Reference****			n =	15	0.512483	0.000003	0.348417	0.000007	0.721900	-	1.08507	-	0.0812	-
Difference					-5.4	ppm	17.9	ppm	3.3	%	-2.7	%	3.2	%
G.average/2SD			0.811		0.512490	0.000018	0.348421	0.000004	0.744435	-	1.056900	-	0.081079	-
Reference***					0.512483	0.000003	0.348417	0.000007	0.721900	-	1.08507	-	0.0812	-
Difference					14.2	ppm	10.9	ppm	3.1	%	-2.6	%	-0.1	%

[FCT sphene]

Day	Sample	Remarks	¹⁴⁶ Nd/V	¹⁴⁷ Sm/V	¹⁴³ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁵ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁶ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁷ Sm/ ¹⁴⁹ Sm	2SE	¹⁴⁷ Sm/ ¹⁴⁴ Nd	2SE
Day 4	FCT Sp-1	100um/5Hz/12scn/110mJ	2.471	0.415	0.512198	0.000033	0.348415	0.000010	0.745228	0.000074	1.055877	0.000140	0.124577	0.001373
Day 4	FCT Sp-2	100um/7Hz/10scn/50mJ	1.897	0.314	0.512204	0.000042	0.348433	0.000009	0.745097	0.000066	1.056106	0.000136	0.123444	0.001907
Day 4	FCT Sp-3	100um/7Hz/10scn/50mJ	1.691	0.291	0.512186	0.000033	0.348427	0.000018	0.745090	0.000052	1.056079	0.000104	0.126102	0.001920
Day 4	FCT Sp-4	100um/7Hz/10scn/50mJ	1.553	0.267	0.512198	0.000060	0.348414	0.000011	0.745180	0.000088	1.056021	0.000148	0.128604	0.002271
Day 4	FCT Sp-5	100um/7Hz/10scn/50mJ	1.748	0.298	0.512222	0.000082	0.348421	0.000015	0.744987	0.000043	1.056409	0.000178	0.126447	0.002850
Day 4	FCT Sp-6	100um/7Hz/10scn/50mJ	3.154	0.584	0.512185	0.000030	0.348425	0.000008	0.744821	0.000062	1.056569	0.000122	0.140048	0.003338
Day 4	FCT Sp-7	100um/7Hz/10scn/50mJ	1.930	0.308	0.512169	0.000133	0.348420	0.000024	0.744593	0.000079	1.056762	0.000178	0.119203	0.003903
Day 4	FCT Sp-8	100um/7Hz/10scn/50mJ	1.889	0.314	0.512223	0.000079	0.348406	0.000022	0.744644	0.000068	1.056934	0.000180	0.124045	0.001275
Day 4	FCT Sp-9	100um/7Hz/10scn/50mJ	2.209	0.374	0.512200	0.000030	0.348423	0.000014	0.744698	0.000074	1.056696	0.000200	0.126461	0.001549
Day 4	FCT Sp-10	100um/7Hz/10scn/50mJ	2.146	0.364	0.512183	0.000034	0.348438	0.000014	0.744764	0.000063	1.056650	0.000086	0.126639	0.000600
Average/2SD					0.512197	0.000034	0.348422	0.000019	0.744910	0.000468	1.056410	0.000731	0.126557	0.010759
Reference****					0.512213	0.000046	0.348417	0.000007	0.721900	-	1.08507	-	-	-
Difference					-31.8	ppm	14.8	ppm	3.2	%	-2.6	%		
Day 5	FCT Sp-1	100um/7Hz/10scn/50mJ	2.900	0.629	0.512187	0.000029	0.348409	0.000009	0.745599	0.000067	1.055426	0.000067	0.162136	0.000803
Day 5	FCT Sp-2	100um/7Hz/10scn/50mJ	2.547	0.429	0.512175	0.000019	0.348415	0.000007	0.745107	0.000031	1.056168	0.000126	0.125627	0.002146
Day 5	FCT Sp-3	100um/7Hz/10scn/50mJ	1.686	0.278	0.512218	0.000021	0.348422	0.000011	0.745206	0.000100	1.055958	0.000157	0.123268	0.000247
Day 5	FCT Sp-4	100um/7Hz/10scn/50mJ	1.669	0.274	0.512215	0.000034	0.348426	0.000008	0.745255	0.000077	1.056026	0.000153	0.122700	0.000406
Day 5	FCT Sp-5	100um/7Hz/10scn/50mJ	1.715	0.281	0.512221	0.000035	0.348421	0.000007	0.745218	0.000092	1.056054	0.000134	0.122434	0.000445
Average/2SD					0.512203	0.000041	0.348418	0.000013	0.745277	0.000377	1.055926	0.000580	0.131233	0.034642
Reference****			n =	15	0.512213	0.000046	0.348417	0.000007	0.721900	-	1.08507	-	-	-
Difference					-19.3	ppm	4.2	ppm	3.2	%	-2.7	%		
G.average/2SD			2.080		0.512200	0.000009	0.348420	0.000005	0.745094	-	1.056168	-	0.128895	-
Reference***					0.512213	0.000046	0.348417	0.000007	0.721900	-	1.08507	-	-	-
Difference					-25.6	ppm	9.5	ppm	3.2	%	-2.7	%		

[EDR monazite]

Day	Sample	Remarks	¹⁴⁶ Nd/V	¹⁴⁷ Sm/V	¹⁴³ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁵ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁶ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁷ Sm/ ¹⁴⁹ Sm	2SE	¹⁴⁷ Sm/ ¹⁴⁴ Nd	2SE
Day 4	EDR-4(L)-1	30um/5Hz/25scn/30mJ	2.388	0.390	0.512243	0.000058	0.348414	0.000009	0.745494	0.000056	1.055737	0.000124	0.121623	0.000519
Day 4	EDR-4(L)-2	30um/5Hz/25scn/30mJ	2.345	0.374	0.512218	0.000046	0.348419	0.000010	0.745379	0.000047	1.055846	0.000079	0.118869	0.000356
Day 4	EDR-4(L)-3	30um/5Hz/25scn/30mJ	2.365	0.377	0.512245	0.000043	0.348422							

Day 4	EDR-4(L)-4	30um/3Hz/25scn/30mJ	1.738	0.277	0.512228	0.000054	0.348426	0.000011	0.745264	0.000043	1.056060	0.000122	0.118736	0.000314
Day 4	EDR-4(L)-5	50um/5Hz/25scn/50mJ	7.926	1.258	0.512236	0.000036	0.348423	0.000007	0.745202	0.000033	1.056156	0.000056	0.118324	0.000290
Day 4	EDR-4(R)-6	30um/5Hz/25scn/30mJ	3.363	0.499	0.512230	0.000038	0.348424	0.000007	0.745308	0.000038	1.056021	0.000070	0.110703	0.000280
Day 4	EDR-4(R)-7	30um/5Hz/25scn/30mJ	3.451	0.506	0.512218	0.000040	0.348423	0.000008	0.745271	0.000030	1.055964	0.000094	0.110723	0.000594
Day 4	EDR-4(R)-8	30um/5Hz/25scn/30mJ	3.522	0.511	0.512223	0.000035	0.348420	0.000007	0.745318	0.000030	1.055989	0.000084	0.109767	0.002162
Day 4	EDR-4(R)-9	30um/5Hz/25scn/30mJ	3.729	0.533	0.512241	0.000040	0.348414	0.000006	0.744897	0.000043	1.056561	0.000079	0.107974	0.001968
Day 4	EDR-4(R)-10	30um/5Hz/25scn/30mJ	3.657	0.539	0.512245	0.000033	0.348427	0.000011	0.744951	0.000041	1.056543	0.000091	0.110552	0.000740
Average/2SD					0.512233	0.000022	0.348421	0.000009	0.745238	0.000367	1.056083	0.000544	0.114617	0.010130
Reference****					0.512265	0.000005	0.348417	0.000007	0.721900	-	1.08507	-	0.09742	-
Difference					-63.0	ppm	12.2	ppm	3.2	%	-2.7	%	17.7	%

Day 5	EDR-4(L)-1	30um/5Hz/25scn/50mJ	2.221	0.346	0.512242	0.000047	0.348427	0.000008	0.745801	0.000038	1.055400	0.000100	0.116314	0.000275
Day 5	EDR-4(L)-2	30um/5Hz/25scn/50mJ	2.177	0.340	0.512250	0.000043	0.348417	0.000011	0.745831	0.000042	1.055297	0.000084	0.116593	0.000250
Day 5	EDR-4(L)-3	30um/5Hz/25scn/50mJ	2.256	0.353	0.512240	0.000037	0.348422	0.000011	0.745765	0.000032	1.055304	0.000088	0.116769	0.000207
Day 5	EDR-4(L)-4	30um/5Hz/25scn/50mJ	2.277	0.356	0.512231	0.000045	0.348418	0.000009	0.745799	0.000044	1.055403	0.000097	0.116657	0.000302
Day 5	EDR-4(L)-5	30um/5Hz/25scn/50mJ	1.918	0.312	0.512204	0.000046	0.348410	0.000009	0.746471	0.000094	1.054198	0.000175	0.122499	0.000714
Day 5	EDR-4(R)-10	30um/5Hz/25scn/30mJ	2.678	0.407	0.512250	0.000050	0.348413	0.000009	0.746397	0.000105	1.054228	0.000266	0.114046	0.001260
Day 5	EDR-4(R)-6	30um/5Hz/25scn/30mJ	3.095	0.463	0.512216	0.000058	0.348433	0.000009	0.746285	0.000038	1.054504	0.000097	0.112030	0.000542
Day 5	EDR-4(R)-7	30um/5Hz/25scn/30mJ	2.769	0.385	0.512217	0.000055	0.348423	0.000007	0.746302	0.000062	1.054526	0.000145	0.104699	0.001485
Day 5	EDR-4(R)-8	30um/5Hz/25scn/30mJ	3.563	0.539	0.512228	0.000031	0.348427	0.000008	0.746164	0.000045	1.054800	0.000094	0.112998	0.000282
Day 5	EDR-4(R)-9	30um/5Hz/25scn/30mJ	3.376	0.510	0.512227	0.000055	0.348427	0.000013	0.746258	0.000062	1.054657	0.000110	0.113040	0.000537
Average/2SD					0.512231	0.000030	0.348422	0.000014	0.746107	0.000555	1.054832	0.000963	0.114564	0.009145
Reference****					0.512265	0.000005	0.348417	0.000007	0.721900	-	1.08507	-	0.09742	-
Difference					-67.3	ppm	13.6	ppm	3.4	%	-2.8	%	17.6	%

G.average/2SD		3.041	0.512232	0.000003	0.348421	0.000001	0.745673	-	1.055457	-	0.114591	-
Reference***			0.512265	0.000005	0.348417	0.000007	0.721900	-	1.08507	-	0.09742	-
Difference			-65.1	ppm	12.9	ppm	3.3	%	-2.7	%	17.6	%

[16-F-6 monazite]

Day	Sample	Remarks	¹⁴⁶ Nd/V	¹⁴⁷ Sm/V	¹⁴³ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁵ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁶ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁷ Sm/ ¹⁴⁸ Sm	2SE	¹⁴⁷ Sm/ ¹⁴⁴ Nd	2SE
Day 4	16-F-6-1	30um/5Hz/25scn/50mJ	5.818	0.958	0.510750	0.000024	0.348426	0.000004	0.744931	0.000042	1.056532	0.000084	0.122704	0.000317
Day 4	16-F-6-2	30um/5Hz/25scn/50mJ	5.915	0.945	0.510688	0.000020	0.348424	0.000004	0.744941	0.000038	1.056447	0.000069	0.118939	0.000517
Day 4	16-F-6-3	30um/5Hz/25scn/50mJ	6.691	1.048	0.510642	0.000019	0.348418	0.000004	0.744979	0.000037	1.056402	0.000078	0.116663	0.000321
Day 4	16-F-6-4	30um/5Hz/25scn/50mJ	6.951	1.076	0.510641	0.000035	0.348420	0.000008	0.744870	0.000032	1.056597	0.000074	0.115404	0.000120
Day 4	16-F-6-5	30um/5Hz/25scn/50mJ	7.077	1.114	0.510679	0.000021	0.348425	0.000005	0.744817	0.000029	1.056684	0.000065	0.117347	0.000340
Average/2SD					0.510680	0.000089	0.348423	0.000007	0.744908	0.000128	1.056532	0.000227	0.118211	0.005633
Reference****					0.510848	0.000338	0.348417	0.000007	0.721900	-	1.08507	-	0.105400	-
Difference					-329	ppm	16	ppm	3.2	%	-2.6	%	12.2	%

Day 5	16-F-6(R)-1	30um/5Hz/25scn/50mJ	3.702	0.587	0.510619	0.000030	0.348423	0.000006	0.746381	0.000045	1.054452	0.000064	0.118307	0.000306
Day 5	16-F-6(R)-2	30um/5Hz/25scn/50mJ	3.314	0.525	0.510618	0.000038	0.348420	0.000007	0.746333	0.000053	1.054487	0.000127	0.118574	0.000673
Day 5	16-F-6(R)-3	30um/5Hz/25scn/50mJ	3.036	0.477	0.510623	0.000035	0.348423	0.000009	0.746435	0.000034	1.054335	0.000085	0.117521	0.000345
Day 5	16-F-6(L)-4	30um/5Hz/25scn/50mJ	4.537	0.719	0.510629	0.000033	0.348420	0.000006	0.746437	0.000027	1.054404	0.000075	0.117961	0.000877
Day 5	16-F-6(L)-5	30um/5Hz/25scn/50mJ	4.098	0.680	0.510708	0.000045	0.348426	0.000007	0.746425	0.000028	1.054300	0.000092	0.124075	0.000457
Day 5	16-F-6(L)-6	30um/5Hz/25scn/50mJ	3.951	0.645	0.510681	0.000048	0.348419	0.000010	0.746509	0.000046	1.054237	0.000098	0.121778	0.000807
Day 5	16-F-6(L)-7	30um/5Hz/25scn/50mJ	4.002	0.653	0.510668	0.000045	0.348422	0.000008	0.746514	0.000034	1.054168	0.000084	0.121349	0.001117
Day 5	16-F-6(L)-8	30um/5Hz/25scn/50mJ	4.122	0.665	0.510634	0.000048	0.348423	0.000006	0.746544	0.000042	1.054187	0.000088	0.121188	0.000790
Day 5	16-F-6(L)-9	30um/5Hz/25scn/50mJ	4.036	0.637	0.510570	0.000046	0.348423	0.000006	0.746621	0.000030	1.054085	0.000075	0.118022	0.000511
Day 5	16-F-6(L)-10	30um/5Hz/25scn/50mJ	4.575	0.738	0.510637	0.000036	0.348417	0.000008	0.746640	0.000034	1.054094	0.000061	0.120255	0.000829
Average/2SD					0.510639	0.000077	0.348422	0.000005	0.746484	0.000200	1.054275	0.000288	0.119903	0.004325
Reference****					0.510848	0.000338	0.348417	0.000007	0.721900	-	1.08507	-	0.10540	-
Difference					-410	ppm	13	ppm	3.4	%	-2.8	%	13.8	%

Day 7	16-F-6(R)-1	30um/3Hz/25scn/200fs	0.983	0.174	0.510836	0.000081	0.348435	0.000014	0.743995	0.000049	1.057839	0.000101	0.132211	0.000329	
Day 7	16-F-6(R)-2	30um/4Hz/25scn/200fs	1.517	0.258	0.510752	0.000066	0.348423	0.000012	0.743888	0.000028	1.057954	0.000125	0.126642	0.000169	
Day 7	16-F-6(R)-3	30um/4Hz/25scn/200fs	1.575	0.265	0.510702	0.000058	0.348430	0.000007	0.743850	0.000028	1.058062	0.000099	0.125218	0.000076	
Day 7	16-F-6(R)-4	30um/4Hz/25scn/200fs	1.430	0.234	0.510684	0.000083	0.348425	0.000012	0.743738	0.000038	1.058162	0.000118	0.122068	0.000342	
Day 7	16-F-6(R)-5	30um/4Hz/25scn/200fs	1.492	0.253	0.510757	0.000061	0.348421	0.000010	0.743653	0.000028	1.058342	0.000138	0.126345	0.000136	
Day 7	16-F-6(L)-1	30um/4Hz/25scn/200fs	1.392	0.219	0.510589	0.000070	0.348431	0.000012	0.743868	0.000040	1.057951	0.000128	0.117285	0.000160	
Day 7	16-F-6(L)-2	30um/4Hz/25scn/200fs	1.452	0.237	0.510665	0.000057	0.348429	0.000014	0.743814	0.000050	1.057985	0.000112	0.121821	0.000158	
Day 7	16-F-6(L)-3	30um/4Hz/25scn/200fs	1.420	0.231	0.510689	0.000054	0.348420	0.000011	0.743529	0.000022	1.058497	0.000096	0.120956	0.000061	
Day 7	16-F-6(L)-4	30um/4Hz/25scn/200fs	1.349	0.222	0.510711	0.000048	0.348415	0.000013	0.743491	0.000042	1.058645	0.000100	0.122736	0.001050	
Day 7	16-F-6(L)-5	30um/4Hz/25scn/200fs	1.364	0.214	0.510644	0.000061	0.348434	0.000012	0.743499	0.000037	1.058535	0.000098	0.116621	0.000144	
Average/2SD					0.510703	0.000136	0.348426	0.000013	0.743732	0.000361	1.058197	0.000572	0.123190	0.009279	
Reference****					4.788	0.510848	0.000338	0.348417	0.000007	0.721900	-	1.08507	-	0.10540	-
Difference					-284	ppm	27	ppm	3.0	%	-2.5	%	16.9	%	

[SH-35 groundmass/ clinopyroxene]

Day	Sample	Remarks	¹⁴⁶ Nd/V	¹⁴⁷ Sm/V	¹⁴³ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁵ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁶ Nd/ ¹⁴⁴ Nd	2SE	¹⁴⁷ Sm/ ¹⁴⁸ Sm	2SE	¹⁴⁷ Sm/ ¹⁴⁴ Nd	2SE
Day 5	SH-35 gm1	200um/10Hz/25scn/170mJ	0.031	0.006	0.512669	0.000204	0.348356	0.000167	0.746027	0.000200	1.054495	0.001407	0.142885	0.002983
Day 5	SH-35 gm2	200um/10Hz/25scn/170mJ	0.033	0.006	0.512792	0.000211	0.348363	0.000106	0.745949	0.000168	1.055104	0.000779	0.137808	0.001037
Day 5	SH-35 gm3	200um/10Hz/25scn/170mJ	0.048	0.009	0.512921	0.000141	0.348305	0.000064	0.745547	0.000136	1.054248	0.000607	0.138385	0.001618
Day 5	SH-35 gm4	200um/10Hz/25scn/170mJ	0.045	0.008	0.512938	0.000186	0.348577	0.000110	0.746056	0.000196	1.056177	0.000953	0.134966	0.001077
Day 5	SH-35 gm5	200um/10Hz/25scn/170mJ	0.042	0.008	0.512845	0.000179	0.348534	0.000089	0.745939	0.000143	1.055471	0.000948	0.136231	0.002023
Day 5	SH-35 gm6	200um/10Hz/25scn/170mJ	0.030	0.006	0.513248	0.000156	0.348228	0.000150						

Day 5	SH-35 gm9	200um/10Hz/25scn/170mJ	0.037	0.007	0.513102	0.000224	0.348486	0.000131	0.746129	0.000218	1.054018	0.001082	0.136132	0.001272		
Day 5	SH-35 gm10	200um/10Hz/25scn/170mJ	0.032	0.006	0.512886	0.000191	0.348500	0.000120	0.746171	0.000177	1.054228	0.001272	0.134940	0.002203		
Day 5	SH-35 gm11	200um/10Hz/25scn/170mJ	0.046	0.008	0.512673	0.000122	0.348571	0.000084	0.746534	0.000098	1.056071	0.000850	0.135785	0.002540		
Day 5	SH-35 gm12	200um/10Hz/25scn/170mJ	0.030	0.006	0.512923	0.000146	0.348687	0.000119	0.746779	0.000169	1.055372	0.001403	0.141173	0.001968		
Day 5	SH-35 gm13	200um/10Hz/25scn/170mJ	0.033	0.006	0.512911	0.000168	0.348408	0.000176	0.747012	0.000140	1.052440	0.001161	0.136502	0.001526		
Day 5	SH-35 gm14	200um/10Hz/25scn/170mJ	0.035	0.006	0.512594	0.000191	0.348497	0.000096	0.746561	0.000190	1.057830	0.001738	0.134385	0.000953		
Day 5	SH-35 gm15	200um/10Hz/25scn/170mJ	0.036	0.006	0.513011	0.000180	0.348336	0.000104	0.747302	0.000154	1.053959	0.001011	0.133360	0.001053		
Day 5	SH-35 gm16	200um/10Hz/25scn/170mJ	0.034	0.006	0.512911	0.000184	0.348444	0.000109	0.746650	0.000208	1.053954	0.001046	0.135633	0.001973		
Day 5	SH-35 gm17	200um/10Hz/25scn/170mJ	0.030	0.005	0.512976	0.000204	0.348686	0.000106	0.747175	0.000226	1.054970	0.001565	0.138805	0.002512		
Day 5	SH-35 gm18	200um/10Hz/25scn/170mJ	0.034	0.006	0.513107	0.000154	0.348268	0.000105	0.746931	0.000149	1.053881	0.001388	0.133767	0.001857		
Day 5	SH-35 gm19	200um/10Hz/25scn/170mJ	0.035	0.006	0.513106	0.000186	0.348689	0.000117	0.747136	0.000194	1.053517	0.000807	0.142169	0.002102		
Day 5	SH-35 gm20	200um/10Hz/25scn/170mJ	0.038	0.007	0.512938	0.000146	0.348498	0.000083	0.746442	0.000137	1.054709	0.000731	0.133023	0.001117		
Average/2SD					2SE	0.512939	0.000078	0.348476	0.000066	0.746468	0.000958	1.054866	0.003400	0.137633	0.006966	
Reference*****						0.512865	0.000011	0.348417	0.000007	0.721900	-	1.08507	-	0.13609	-	
Difference						143	ppm	168	ppm	3.4	%	-2.8	%	1.1	%	
Day 6	SH35-gm1	200um/10Hz/25scn/170mJ	0.033	0.006	0.513507	0.000166	0.348459	0.000139	0.742740	0.000162	1.065180	0.001105	0.132656	0.001242		
Day 6	SH35-gm2	200um/10Hz/25scn/170mJ	0.044	0.008	0.512736	0.000164	0.348435	0.000088	0.742083	0.000163	1.060074	0.000937	0.130577	0.001398		
Day 6	SH35-gm3	200um/10Hz/25scn/170mJ	0.036	0.006	0.513025	0.000182	0.348364	0.000124	0.742334	0.000170	1.060766	0.001182	0.132100	0.001482		
Day 6	SH35-gm4	200um/10Hz/25scn/170mJ	0.031	0.006	0.512918	0.000185	0.348181	0.000151	0.742846	0.000225	1.056286	0.001678	0.134101	0.001123		
Day 6	SH35-gm5	200um/10Hz/25scn/170mJ	0.026	0.005	0.512838	0.000224	0.348678	0.000128	0.742882	0.000237	1.060361	0.001329	0.141919	0.001976		
Day 6	SH35-gm6	200um/10Hz/25scn/170mJ	0.027	0.005	0.512601	0.000167	0.347915	0.000134	0.742691	0.000188	1.053600	0.001386	0.138955	0.001138		
Day 6	SH35-gm7	200um/10Hz/25scn/170mJ	0.030	0.006	0.512953	0.000174	0.348477	0.000094	0.743052	0.000229	1.058877	0.001314	0.138558	0.001034		
Day 6	SH35-gm8	200um/10Hz/25scn/170mJ	0.030	0.006	0.512645	0.000218	0.348331	0.000113	0.743027	0.000206	1.056567	0.001205	0.142353	0.001402		
Day 6	<i>SH35-cpx1</i>	<i>200um/10Hz/25scn/170mJ</i>	<i>0.021</i>	<i>0.005</i>	<i>0.512806</i>	<i>0.000271</i>	<i>0.348961</i>	<i>0.000177</i>	<i>0.742385</i>	<i>0.000320</i>	<i>1.063194</i>	<i>0.001685</i>	<i>0.186681</i>	<i>0.005734</i>		
Day 6	<i>SH35-cpx2</i>	<i>200um/10Hz/25scn/170mJ</i>	<i>0.017</i>	<i>0.004</i>	<i>0.512732</i>	<i>0.000294</i>	<i>0.348713</i>	<i>0.000216</i>	<i>0.742060</i>	<i>0.000356</i>	<i>1.057701</i>	<i>0.001131</i>	<i>0.200126</i>	<i>0.000745</i>		
Day 6	<i>SH35-cpx3</i>	<i>200um/10Hz/25scn/170mJ</i>	<i>0.024</i>	<i>0.005</i>	<i>0.512227</i>	<i>0.000301</i>	<i>0.348011</i>	<i>0.000173</i>	<i>0.741859</i>	<i>0.000337</i>	<i>1.062125</i>	<i>0.001311</i>	<i>0.178570</i>	<i>0.006932</i>		
Day 6	<i>SH35-cpx4 C</i>	<i>200um/10Hz/25scn/170mJ</i>	<i>0.015</i>	<i>0.003</i>	<i>0.513411</i>	<i>0.000320</i>	<i>0.348340</i>	<i>0.000222</i>	<i>0.743998</i>	<i>0.000291</i>	<i>1.056980</i>	<i>0.002529</i>	<i>0.173108</i>	<i>0.004353</i>		
Day 6	<i>SH35-cpx5 C</i>	<i>200um/20Hz/25scn/170mJ</i>	<i>0.020</i>	<i>0.006</i>	<i>0.513507</i>	<i>0.000294</i>	<i>0.349010</i>	<i>0.000164</i>	<i>0.743457</i>	<i>0.000291</i>	<i>1.056037</i>	<i>0.001567</i>	<i>0.205989</i>	<i>0.001087</i>		
Day 6	<i>SH35-cpx6 R</i>	<i>200um/20Hz/25scn/170mJ</i>	<i>0.028</i>	<i>0.006</i>	<i>0.513051</i>	<i>0.000252</i>	<i>0.348336</i>	<i>0.000143</i>	<i>0.743676</i>	<i>0.000265</i>	<i>1.057460</i>	<i>0.001215</i>	<i>0.170491</i>	<i>0.007719</i>		
Day 6	<i>SH35-cpx7 R</i>	<i>200um/20Hz/25scn/170mJ</i>	<i>0.019</i>	<i>0.005</i>	<i>0.512569</i>	<i>0.000327</i>	<i>0.348915</i>	<i>0.000205</i>	<i>0.744044</i>	<i>0.000344</i>	<i>1.058554</i>	<i>0.001504</i>	<i>0.201518</i>	<i>0.001904</i>		
Day 6	<i>SH35-cpx8 R</i>	<i>200um/15Hz/25scn/170mJ</i>	<i>0.018</i>	<i>0.005</i>	<i>0.512994</i>	<i>0.000216</i>	<i>0.347947</i>	<i>0.000167</i>	<i>0.743374</i>	<i>0.000275</i>	<i>1.059853</i>	<i>0.001825</i>	<i>0.202643</i>	<i>0.000853</i>		
Day 6	<i>SH35-cpx9 C</i>	<i>200um/15Hz/25scn/170mJ</i>	<i>0.016</i>	<i>0.004</i>	<i>0.512985</i>	<i>0.000310</i>	<i>0.347836</i>	<i>0.000208</i>	<i>0.743415</i>	<i>0.000311</i>	<i>1.059264</i>	<i>0.001623</i>	<i>0.199171</i>	<i>0.000588</i>		
Day 6	<i>SH35-cpx10 C</i>	<i>200um/15Hz/25scn/170mJ</i>	<i>0.031</i>	<i>0.006</i>	<i>0.513183</i>	<i>0.000211</i>	<i>0.348368</i>	<i>0.000128</i>	<i>0.743505</i>	<i>0.000224</i>	<i>1.060602</i>	<i>0.001132</i>	<i>0.161577</i>	<i>0.006785</i>		
Average/2SD					2SE	0.512903	0.000216	0.348355	0.000172	0.742707	0.000256	1.058964	0.002662	0.136402	0.003485	
Reference*****						0.512865	0.000011	0.348417	0.000007	0.721900	-	1.08507	-	0.13609	-	
Difference						74.1	ppm	-178.6	ppm	2.9	%	-2.4	%	0.2	%	
Day 8	SH35-gm1	400um/10Hz/25scn/180mJ	0.096	0.016	0.512888	0.000071	0.348348	0.000045	0.746378	0.000077	1.055505	0.000565	0.127584	0.001751		
Day 8	SH35-gm2	400um/10Hz/25scn/180mJ	0.080	0.014	0.512909	0.000092	0.348305	0.000072	0.746486	0.000097	1.053695	0.000426	0.132266	0.002908		
Day 8	SH35-gm3	400um/10Hz/25scn/180mJ	0.066	0.012	0.512700	0.000118	0.348372	0.000058	0.746438	0.000128	1.052383	0.000576	0.131823	0.000952		
Day 8	SH35-gm4	400um/10Hz/25scn/180mJ	0.089	0.015	0.512952	0.000112	0.348322	0.000041	0.746398	0.000095	1.054350	0.000468	0.124188	0.000829		
Day 8	SH35-gm5	400um/10Hz/25scn/180mJ	0.089	0.015	0.512702	0.000073	0.348313	0.000042	0.746470	0.000072	1.053809	0.000413	0.128890	0.001104		
Day 8	SH35-gm6	400um/10Hz/25scn/180mJ	0.069	0.012	0.512729	0.000101	0.348316	0.000063	0.746483	0.000108	1.052454	0.000611	0.131807	0.001244		
Day 8	SH35-gm7	400um/10Hz/25scn/180mJ	0.079	0.014	0.512890	0.000104	0.348360	0.000046	0.746570	0.000116	1.053738	0.000576	0.131984	0.000845		
Day 8	SH35-gm8	400um/10Hz/25scn/180mJ	0.070	0.013	0.512793	0.000074	0.348437	0.000057	0.746872	0.000074	1.054153	0.000415	0.137024	0.001633		
Day 8	SH35-gm9	400um/15Hz/25scn/180mJ	0.081	0.014	0.512852	0.000079	0.348383	0.000042	0.746883	0.000104	1.054175	0.000528	0.127661	0.000906		
Day 8	SH35-gm10	400um/15Hz/25scn/180mJ	0.073	0.013	0.512742	0.000099	0.348414	0.000046	0.747209	0.000107	1.053635	0.000657	0.129737	0.001479		
Day 8	SH35-gm11	400um/15Hz/25scn/180mJ	0.083	0.014	0.512872	0.000094	0.348360	0.000058	0.747104	0.000112	1.053564	0.000567	0.130609	0.001195		
Day 8	SH35-gm12	400um/15Hz/25scn/180mJ	0.086	0.015	0.512842	0.000094	0.348282	0.000054	0.747125	0.000087	1.053312	0.000704	0.131655	0.001017		
Day 8	SH35-gm13	400um/15Hz/25scn/180mJ	0.088	0.016	0.512866	0.000069	0.348353	0.000037	0.747303	0.000087	1.053377	0.000444	0.133435	0.001634		
Day 8	SH35-gm14	400um/15Hz/25scn/180mJ	0.079	0.014	0.512667	0.000081	0.348426	0.000058	0.747143	0.000081	1.053102	0.000607	0.128418	0.001688		
Day 8	SH35-gm15	400um/15Hz/25scn/180mJ	0.065	0.012	0.512873	0.000132	0.348548	0.000051	0.747398	0.000131	1.053830	0.000670	0.132756	0.001047		
Day 8	SH35-gm16	400um/15Hz/25scn/180mJ	0.069	0.012	0.512947	0.000114	0.348452	0.000047	0.747513	0.000107	1.053552	0.000719	0.133420	0.001557		
Day 8	SH35-gm17	400um/15Hz/25scn/180mJ	0.073	0.013	0.512791	0.000123	0.348380	0.000048	0.747594	0.000099	1.053309	0.000698	0.129428	0.001226		
Day 8	SH35-gm18	400um/15Hz/25scn/180mJ	0.070	0.012	0.512607	0.000118	0.348352	0.000068	0.747456	0.000109	1.051571	0.000484	0.131430	0.001494		
Day 8	SH35-gm19	400um/15Hz/25scn/180mJ	0.066	0.012	0.512773	0.000093	0.348435	0.000078	0.747746	0.000107	1.053335	0.000369	0.131727	0.001134		
Average/2SD					2SE	0.512806	0.000048	0.348378	0.000032	0.747011	0.000218	1.053408	0.000335	0.131014	0.001337	
Reference*****						0.512865	0.000011	0.348417	0.000007	0.721900	-	1.08507	-	0.13609	-	
Difference						-115	ppm	-111	ppm	3.5	%	-2.9	%	-3.7	%	
Average/2SD					n =	47	0.512882	0.000137	0.348403	0.000128	0.745440	0.00469	1.05575	0.00576	0.13502	0.00704
Reference*****					0.032		0.512865	0.000011	0.348417	0.000007	0.721900	-	1.08507	-	0.13609	-
Difference						34.1	ppm	-40.4	ppm	3.3	%	-2.7	%	-0.8	%	

Note: SD: standard deviation, SE: standard error; clinopyroxene data from SH-35 on Day 6 (italics) are also shown but not used for calculations

Reference data

La Jolla: Thirlwall (1991)

JMC: Luais et al. (1997)

SRM 610: Woodhead and Hergt (2007)

Durango apatite for sphene: Foster and Vance (2006)

Fish Canyon Tuff apatite: Foster and Vance (2007)

EDR monazite: Iizuka et al. (2011)

16-F-6 monazite: Iizuka et al. (2011)