

Sample Results Summary Sheet

Please return this form to the Curator for each allocated Sample

Sample ID: RA-QD02-0053

PI: Keisuke Nagao

Type and date of analysis performed: Noble gas isotopic compositions

30/01/2011 - 02/02/2011

Elements or phases identified: Solar wind He, Ne, and Ar were identified.

Contaminant phases identified: Most of ^{40}Ar and slightly higher abundances of Xe compared with blank levels would be terrestrial contamination. Kr was comparable with blank level. The blank levels were $(3.1-4.0)\times 10^{-12}$ for ^4He , $(5.4-6.5)\times 10^{-13}$ for ^{20}Ne , $(4.2-4.7)\times 10^{-14}$ for ^{36}Ar , $(1.2-1.4)\times 10^{-11}$ for ^{40}Ar , $(1.1-1.5)\times 10^{-15}$ for ^{84}Kr , and $(0.4-1.6)\times 10^{-16}$ for ^{132}Xe in the unit of cm^3STP .

Sample handling: in ultra-high vacuum

State of sample pre-analysis: Hold in N_2 -gas before in ultra-high vacuum. During the operation to connect the sample chamber with the purification line, the samples were accidentally exposed to the ambient atmosphere for about 2 hours. The chamber was evacuated to ultra-high vacuum condition, $\leq 10^{-7}$ Pa, and then mildly warmed at 60°C overnight, followed by keeping at room temperature for a week.

State of sample post-analysis: Consumed by laser ablation.

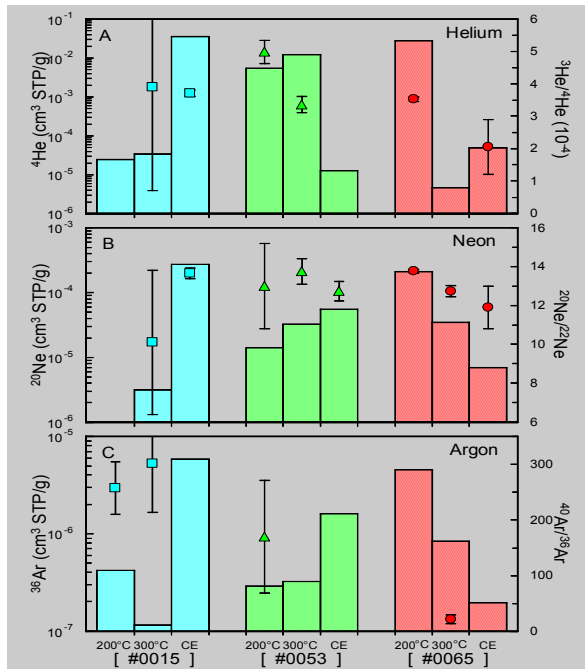
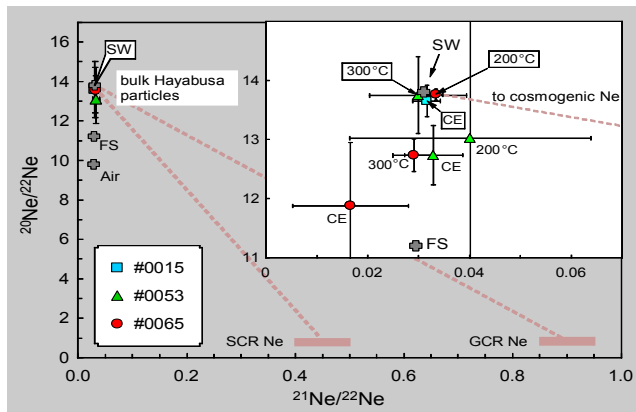
Analysis data Notes: Summarized in separate Excel file.

Isotopic ratios and concentrations of He, Ne, and Ar in Hayabusa RA-QD02-0053.

RA-QD02-0053 (0.061 μg: estimated from shape and density)

Extraction step	⁴ He (10 ⁻⁶ cm ³ STP/g)	³ He/ ⁴ He	²² Ne (10 ⁻⁶ cm ³ STP/g)	²⁰ Ne/ ²² Ne	²¹ Ne/ ²² Ne	³⁶ Ar (10 ⁻⁶ cm ³ STP/g)	³⁸ Ar/ ³⁶ Ar	⁴⁰ Ar/ ³⁶ Ar	⁴ He/ ²⁰ Ne	³⁶ Ar/ ²⁰ Ne
200°C	5579	0.000499	1.09	13.0	0.040	0.29	0.172	170	392.1	0.0204
±	563	± 0.000036	± 0.23	± 2.2	± 0.024	± 0.12	± 0.056	± 101	± 113.6	± 0.0100
300°C	11942	0.000336	2.37	13.75	0.0299	0.33	0.196		367.0	0.0100
±	1201	± 0.000025	± 0.36	± 0.65	± 0.0095	± 0.12	± 0.049		± 68.8	± 0.0041
CE	12.8		4.36	12.74	0.0329	1.61	0.179		0.2	0.0290
±	8.0		± 0.52	± 0.50	± 0.0057	± 0.25	± 0.018		± 0.1	± 0.0058
Total	17534	0.000387	7.82	13.1	0.0330	2.22	0.180	22	171.3	0.0217
±	1326	± 0.000036	± 0.67	± 1.2	± 0.0061	± 0.30	± 0.029	± 13	± 25.3	± 0.0040

CE denotes Complete noble gas Extraction.



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