

## Sample Results Summary Sheet

Please return this form to the Curator for each allocated Sample

**Sample ID:** RA-QD02-0065

**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  $^{40}\text{Ar}$  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  $^4\text{He}$ ,  $(5.4-6.5)\times 10^{-13}$  for  $^{20}\text{Ne}$ ,  $(4.2-4.7)\times 10^{-14}$  for  $^{36}\text{Ar}$ ,  $(1.2-1.4)\times 10^{-11}$  for  $^{40}\text{Ar}$ ,  $(1.1-1.5)\times 10^{-15}$  for  $^{84}\text{Kr}$ , and  $(0.4-1.6)\times 10^{-16}$  for  $^{132}\text{Xe}$  in the unit of  $\text{cm}^3\text{STP}$ .

**Sample handling:** in ultra-high vacuum

**State of sample pre-analysis:** Hold in  $\text{N}_2$ -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  $60^\circ\text{C}$  overnight, followed by keeping at room temperature for a week.

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

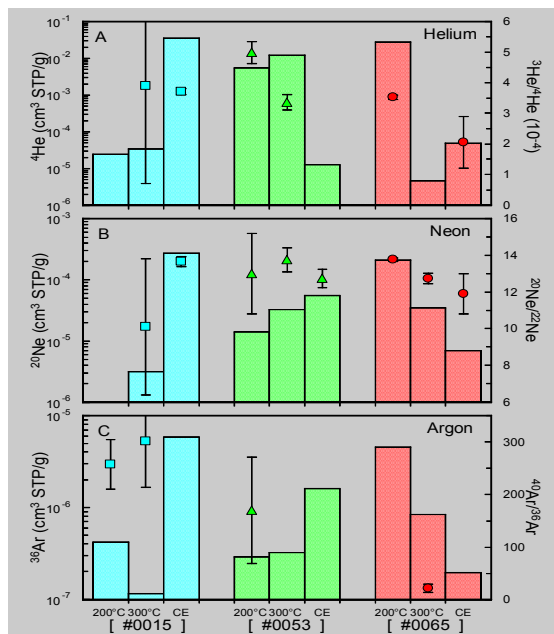
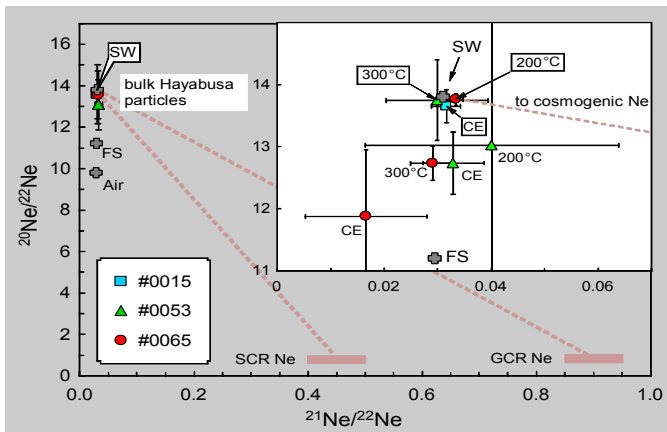
**Analysis data Notes:** Summarized in separate Excel file.

Isotopic ratios and concentrations of He, Ne, and Ar in Hayabusa RA-QD02-0065.

**RA-QD02-0065 (0.206 µg: estimated from shape and density)**

Extraction step	$^4\text{He}$ ( $10^{-6}$ cm $^3$ STP/g)	$^3\text{He}/^4\text{He}$	$^{22}\text{Ne}$ ( $10^{-6}$ cm $^3$ STP/g)	$^{20}\text{Ne}/^{22}\text{Ne}$	$^{21}\text{Ne}/^{22}\text{Ne}$	$^{36}\text{Ar}$ ( $10^{-6}$ cm $^3$ STP/g)	$^{38}\text{Ar}/^{36}\text{Ar}$	$^{40}\text{Ar}/^{36}\text{Ar}$	$^4\text{He}/^{20}\text{Ne}$	$^{36}\text{Ar}/^{20}\text{Ne}$
200°C	27645	0.0003526	15.2	13.763	0.0334	4.54	0.1815		132.6	0.0217
	± 2766	± 0.0000071	± 1.5	± 0.095	± 0.0014	± 0.47	0.0022		± 19.0	± 0.0032
300°C	4.6		0.294	13.2	0.025	0.103	± 0.201	176	1.2	0.0265
	± 3.1		± 0.068	± 1.3	± 0.021	± 0.037	0.045	± 64	± 0.9	± 0.0116
300°C (reheat)			2.44	12.68	0.0295	0.733	± 0.192			
			± 0.28	± 0.27	± 0.0038	± 0.096	0.013			
CE	48.4	0.000205	0.581	11.9	0.017	0.194	± 0.185		7.0	0.0281
	± 6.5	± 0.000084	± 0.084	± 1.1	± 0.011	± 0.048	0.019		± 1.5	± 0.0084
Total	27698	0.000352	18.5	13.6	0.0322	5.57	± 0.183	3.2	110.7	0.0222
	± 2766	± 0.000036	± 1.6	± 1.2	± 0.0031	± 0.49	± 0.016	± 1.2	± 17.3	± 0.0033

CE denotes Complete noble gas Extraction.



**RA-QD02-0065**

