

## Supplementary material for

A single-column and efficient procedure for separating Fe and Mg from geological materials for isotopic analyses using MC-ICP-MS

Guanhong Zhu <sup>a</sup>, Zhenmin Ge <sup>a,b</sup>, Le Zhang <sup>a</sup>, Gangjian Wei <sup>a</sup>, and Jinlong Ma<sup>\*a</sup>

<sup>a</sup> State Key Laboratory of Isotope Geochemistry, CAS Center for Excellence in Deep Earth Science, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China

<sup>b</sup> College of Earth and Planetary Sciences, University of Chinese Academy of Sciences, Beijing, 100049, China

### The contents include:

Table S1. Fe isotopic results of individual measurement of geological reference materials.

Sample ID	$\delta^{56}\text{Fe}$ (‰)	2se (‰)	$\delta^{57}\text{Fe}$ (‰)	2se (‰)
BCR-2-1	0.12		0.23	
BCR-2-2	0.11		0.19	
BCR-2-3	0.14		0.25	
BCR-2-4	0.09		0.18	
BCR-2-5	0.16	0.04	0.26	0.06
BCR-2-6	0.11		0.25	
BCR-2-7	0.12		0.21	
BCR-2-8	0.11		0.13	
BCR-2-9	0.13		0.19	
BHVO-2-1	0.15		0.27	
BHVO-2-2	0.12	0.03	0.16	0.05
BHVO-2-3	0.06		0.11	
SARM4-1	0.14	0.03	0.21	0.06

SARM4-2	0.11		0.19	
SARM4-3	0.07		0.10	
SARM4-4	0.09		0.12	
SARM4-5	0.10		0.18	
AGV-1-1	0.18		0.23	
AGV-1-2	0.08		0.12	
AGV-1-3	0.09		0.14	
AGV-1-4	0.10		0.12	
AGV-1-5	0.11	0.04	0.16	0.06
AGV-1-6	0.07		0.11	
AGV-1-7	0.09		0.17	
AGV-1-8	0.12		0.20	
AGV-1-9	0.08		0.09	
G-2-1	0.18		0.23	
G-2-2	0.15		0.22	
G-2-3	0.14	0.04	0.28	0.06
G-2-4	0.13		0.15	
G-2-5	0.15		0.28	
G-2-6	0.17		0.22	
GA-1	0.14		0.19	
GA-2	0.17		0.25	
GA-3	0.13		0.24	
GA-4	0.15		0.22	
GA-5	0.11	0.03	0.23	0.05
GA-6	0.14		0.21	
GA-7	0.17		0.24	
GA-8	0.15		0.19	
GA-9	0.11		0.22	

---

“se” represents the mean values of the standard error for the individual analyses.

Table S2. Mg isotopic results of individual measurement of geological reference materials.

<b>Sample ID</b>	<b><math>\delta^{26}\text{Mg}</math> (‰)</b>	<b>2se (‰)</b>	<b><math>\delta^{25}\text{Mg}</math> (‰)</b>	<b>2se (‰)</b>
BHVO-2-1	-0.18		-0.10	
BHVO-2-2	-0.19		-0.09	
BHVO-2-3	-0.15		-0.05	
BHVO-2-4	-0.14		-0.04	
BHVO-2-5	-0.23		-0.11	
BHVO-2-6	-0.19		-0.07	
BHVO-2-7	-0.15	0.02	-0.06	0.02
BHVO-2-8	-0.18		-0.09	
BHVO-2-9	-0.18		-0.10	
BHVO-2-10	-0.19		-0.10	
BHVO-2-11	-0.18		-0.08	
BHVO-2-12	-0.19		-0.07	
BHVO-2-13	-0.25		-0.10	
BHVO-2-14	-0.24		-0.10	
BCR-2-1	-0.19		-0.07	
BCR-2-2	-0.22		-0.13	
BCR-2-3	-0.20		-0.10	
BCR-2-4	-0.10		-0.04	
BCR-2-5	-0.10	0.02	-0.02	0.02
BCR-2-6	-0.25		-0.13	
BCR-2-7	-0.25		-0.12	
BCR-2-8	-0.17		-0.08	
BCR-2-9	-0.13		-0.06	
JB-1-1	-0.22		-0.12	
JB-1-2	-0.22		-0.12	
JB-1-3	-0.24	0.02	-0.12	0.03
JB-1-4	-0.19		-0.11	
JB-1-5	-0.20		-0.10	
JB-1-6	-0.22		-0.07	
SARM4-1	-0.17		-0.07	
SARM4-2	-0.20	0.02	-0.10	0.02
SARM4-3	-0.24		-0.10	
SARM4-4	-0.22		-0.09	

SARM4-5	-0.20		-0.09	
SARM4-6	-0.22		-0.11	
SARM4-7	-0.23		-0.11	
AGV-1-1	-0.10		-0.05	
AGV-1-2	-0.04		-0.03	
AGV-1-3	-0.10	0.02	-0.06	0.02
AGV-1-4	-0.11		-0.06	
AGV-1-5	-0.05		0.00	
AGV-1-6	-0.03		-0.03	
G-2-1	-0.27		-0.10	
G-2-2	-0.25		-0.12	
G-2-3	-0.09	0.03	-0.04	0.03
G-2-4	-0.20		-0.08	
G-2-5	-0.27		-0.14	
G-2-6	-0.14		-0.08	
GA-1	-0.26		-0.11	
GA-2	-0.27		-0.10	
GA-3	-0.20	0.02	-0.13	0.03
GA-4	-0.23		-0.12	
GA-5	-0.23		-0.11	
GA-6	-0.17		-0.07	
IAPSO-1	-0.81		-0.44	
IAPSO-2	-0.80		-0.39	
IAPSO-3	-0.83	0.02	-0.45	0.02
IAPSO-4	-0.79		-0.42	
IAPSO-5	-0.83		-0.41	
IAPSO-6	-0.88		-0.44	
JDo-1-1	-2.41		-1.26	
JDo-1-2	-2.41		-1.23	
JDo-1-3	-2.36	0.03	-1.26	0.03
JDo-1-4	-2.25		-1.18	
JDo-1-5	-2.20		-1.12	

---

“se” represents the mean values of the standard error for the individual analyses.