

**Table S1. Potassium Isotopic Fractionation of Ion Exchange Column**

|                           | Volume (mL) | Percentage of K | $\delta^{41}\text{K}_{\text{SRM3141a}}$ | 95% C.I. <sup>a</sup> | n <sup>b</sup> |
|---------------------------|-------------|-----------------|-----------------------------------------|-----------------------|----------------|
| <b>Column 1</b>           | <b>108</b>  | <b>100%</b>     | <b>-0.02</b>                            | <b>± 0.04</b>         | <b>16</b>      |
| <b>Column 2 frac. # 1</b> | 18          | 2%              | 1.17                                    | ± 0.09                | 6              |
| <b>Column 2 frac. # 2</b> | 18          | 13%             | 0.15                                    | ± 0.03                | 14             |
| <b>Column 2 frac. # 3</b> | 18          | 33%             | -0.22                                   | ± 0.04                | 14             |
| <b>Column 2 frac. # 4</b> | 18          | 36%             | -0.13                                   | ± 0.03                | 14             |
| <b>Column 2 frac. # 5</b> | 18          | 15%             | 0.15                                    | ± 0.03                | 14             |
| <b>Column 2 frac. # 6</b> | 18          | 2%              | 0.08                                    | ± 0.17                | 6              |
| <b>Total (#1-6)</b>       | <b>108</b>  | <b>100%</b>     | <b>-0.05</b>                            | <b>± 0.04</b>         |                |
| Subtotal of #1-5          | 90          | 98%             | -0.06                                   | ± 0.04                |                |
| Subtotal of #2-5          | 72          | 96%             | -0.08                                   | ± 0.03                |                |
| Subtotal of #2-6          | 90          | 98%             | -0.08                                   | ± 0.04                |                |

<sup>a</sup> 95% confidence interval.

<sup>b</sup> Number of measurements.

**Table S2. Potassium Isotopic Compositions of Standards Doped With Potential Matrix Elements**

| Matrix Elements | $\delta^{41}\text{K}_{\text{SRM3141a}}$ (‰) | 95% C.I. <sup>a</sup> | n <sup>b</sup> |
|-----------------|---------------------------------------------|-----------------------|----------------|
| 1% Cr           | −0.01 ±                                     | 0.06                  | 12             |
| 2% Cr           | 0.04 ±                                      | 0.06                  | 12             |
| 5% Cr           | 0.13 ±                                      | 0.04                  | 12             |
| 10% Cr          | 0.23 ±                                      | 0.05                  | 12             |

<sup>a</sup> 95% confidence interval.

<sup>b</sup> Number of measurements.