Electronic Supplementary Information (ESI)

A novel method for extracting potassium (K) from K-poor and sodium-rich samples for high-precision stable K isotope analysis

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Table S1. Constants used to calculate activity coefficients of K, Na, and TPB ions in high ionic strength solution

	$[K^+]$	$[Na^+]$	$[TPB^-]$
a	0	0	1.91
b	0.0284	0.0088	-4.54
c	-0.219	-0.0701	5.48
d	0.777	0.701	0.712

Data were taken from McCabe (1996).

Table S2. K isotope results for a range of reference materials

	$\delta^{41}K_{NIST\ 3141a}$ (‰)	2SD	N	Method
AGV-2a	-0.45	0.04	8	collision cell
AGV-2a	-0.46	0.05	3	cold plasma
BCR-2	-0.44	0.05	27	collision cell
BCR-2	-0.44	0.04	6	cold plasma
GSP-2	-0.44	0.05	6	collision cell
GSP-2	-0.41	0.03	2	cold plasma
seawater	0.13	0.04	62	collision cell
seawater	0.13	0.08	6	cold plasma
UMN-K	0.43	0.04	187	collision cell
UMN-K	0.45	0.08	32	cold plasma

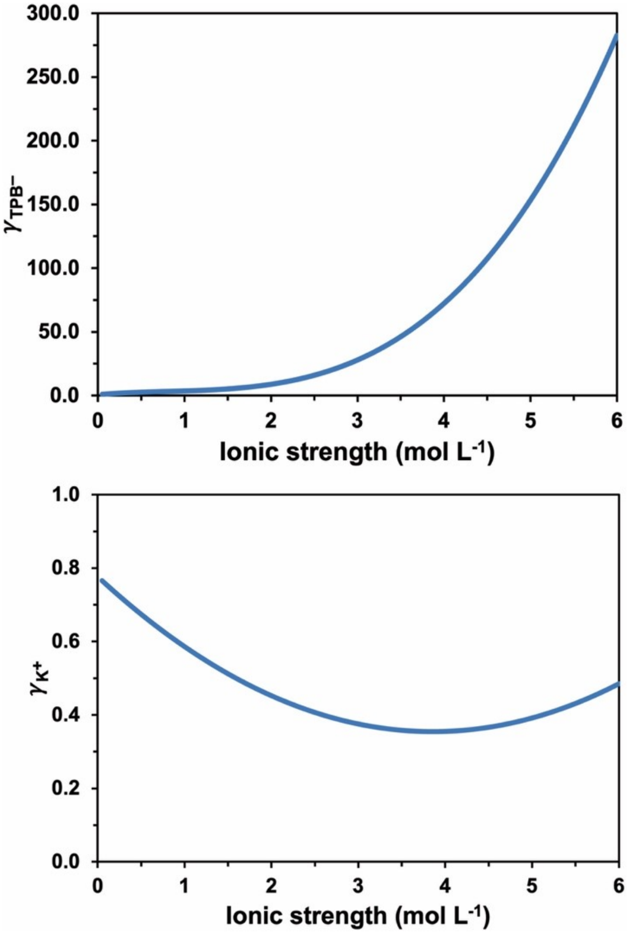

Fig. S1 Change in activity coefficients for K and TPB ions in a Na–K–TPB system as a function of the solution ionic strength, based on McCabe (1996).

References

D. McCabe, *Cesium, potassium, and sodium tetraphenylborate solubility in salt solution*, Savannah River Site (SRS), Aiken, SC (United States), 1996, https://doi.org/10.2172/626456.