Electronic Supplementary Material (ESI) for RSC Advances

Supplementary Information for

X-Ray Absorption Fine Structure Spectroscopy Studies of Thermal Effect on Ion-Exchange Equilibria

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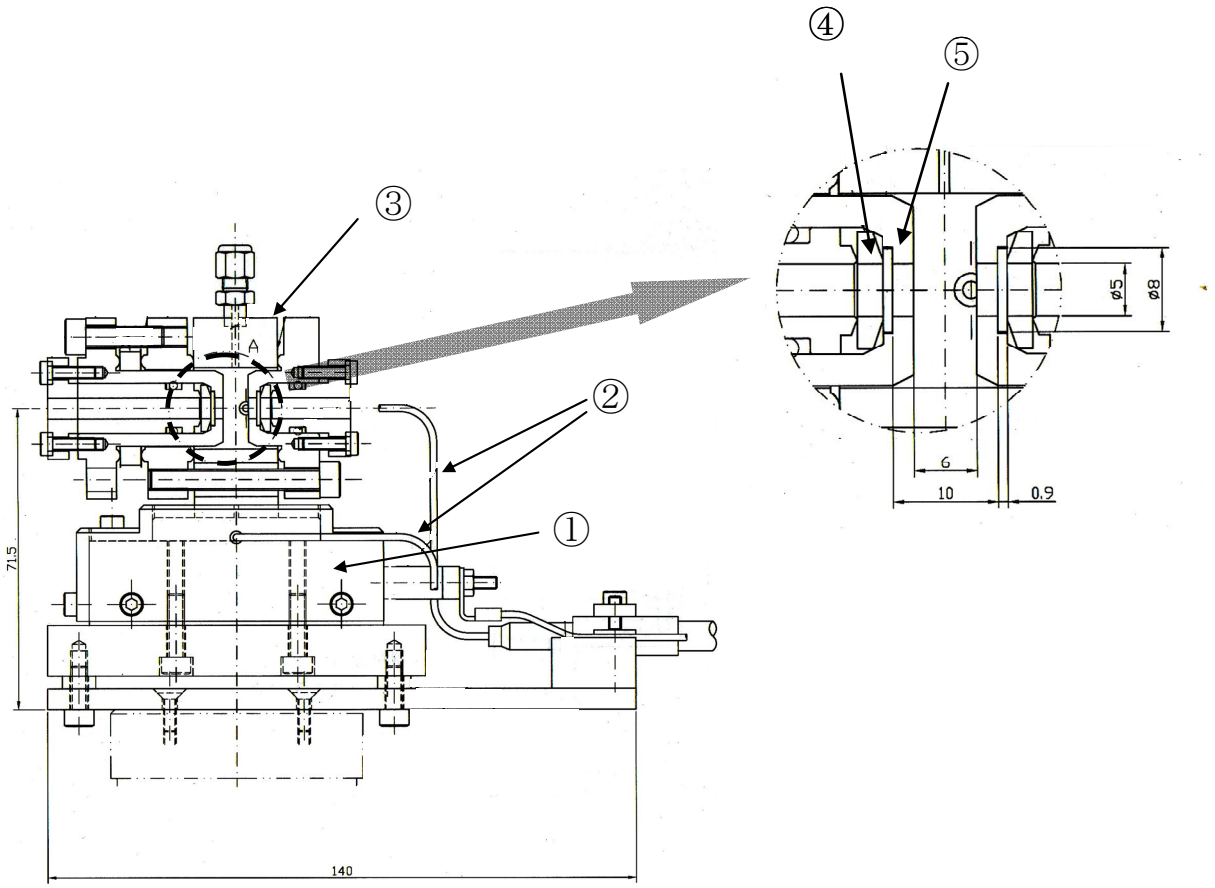

Fig. S1. Structure of the XAFS cell used in this study.
① = heater, ② = thermo couple, ③ = cell, ④ = Ag gasket, ⑤ = Be window

Table S1 Structural parameters of Rb^+, Sr^{2+}, Br^-, and I^- in aqueous solution

Ion	*k* range of the fit, $Å^{-1}$	*T*, °C	*N*	*r*, Å	σ, Å	R^a
Rb^+	1.8 – 5.8	26	4.00	2.88	0.156	0.01
		81	3.48	2.87	0.157	0.02
		96	3.45	2.86	0.159	0.02
		116	3.26	2.86	0.159	0.02
		134	3.10	2.85	0.158	0.02
		153	3.20	2.84	0.165	0.02
		172	2.99	2.83	0.161	0.03
Sr^{2+}	2.8 – 10.2	29	8.00	2.62	0.103	0.04
		77	7.45	2.62	0.107	0.05
		96	7.39	2.61	0.107	0.05
		115	7.04	2.60	0.106	0.05
		134	6.94	2.61	0.108	0.05
		153	6.79	2.62	0.108	0.05
		173	6.70	2.61	0.111	0.06
Br^-	1.8 – 6.0	29	6.00	3.27	0.176	0.03
		79	5.78	3.25	0.186	0.03
		99	5.37	3.24	0.183	0.03
		118	5.16	3.24	0.183	0.03
		137	4.67	3.24	0.184	0.03
I^-	2.5 – 6.0	27	6.00	3.64	0.159	0.03
		78	5.47	3.65	0.166	0.03
		100	5.21	3.65	0.168	0.03
		119	4.87	3.65	0.169	0.03
		139	4.69	3.65	0.175	0.04
		160	4.48	3.66	0.175	0.03

[a] Goodness of fit.

Table S2 Structural parameters of Rb^+ and Sr^{2+} in water swollen and dried cation-exchange resins

Ion	*k* range of the fit, Å^{-1}	resin[a]	*T*, °C	*N*	*r*, Å	σ, Å	*R*[b]
Rb^+	1.3 – 5.8	w	28	4.01	2.91	0.160	0.01
		w	79	3.86	2.88	0.170	0.02
		w	96	3.92	2.88	0.174	0.02
		w	115	3.91	2.86	0.177	0.02
		w	135	3.97	2.87	0.182	0.02
		w	154	3.82	2.86	0.182	0.02
		w	176	3.65	2.85	0.184	0.02
		d	34	3.00	2.94	0.153	0.07
Sr^{2+}	2.8 – 10.2	w	29	7.10	2.58	0.094	0.05
		w	78	7.02	2.61	0.104	0.05
		w	96	7.01	2.60	0.105	0.05
		w	115	7.00	2.61	0.110	0.05
		w	134	6.88	2.60	0.113	0.05
		w	154	6.82	2.59	0.113	0.05
		w	173	6.49	2.59	0.110	0.07
		d	34	5.16	2.51	0.110	0.08

[a] w: water swollen resin; d: dried resin
[b] Goodness of fit.