Supplementary data

Extraction of Se(IV) and Se(VI) from aqueous HCl solution by using a diamide-containing tertiary amine

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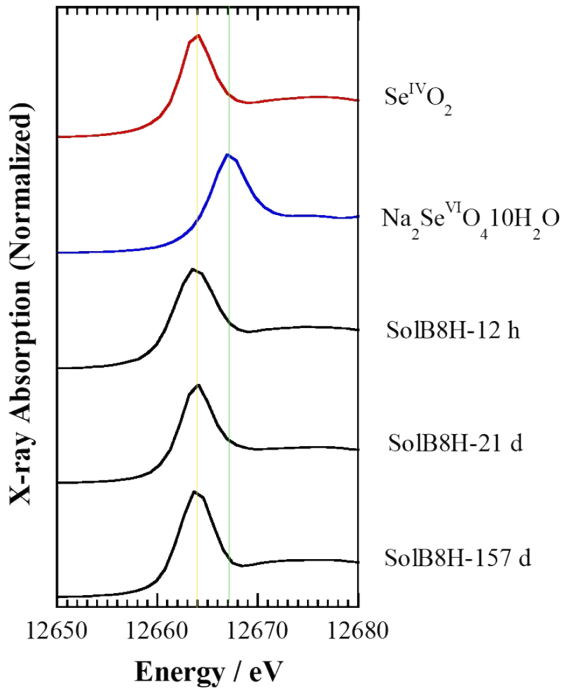

Fig. S1 Effect of standing time (12 h, 21 d, or 157 d) on selenium K-edge XANES spectra obtained for **SolB8H**. **SolB8H** was obtained by dissolving $Na_2Se^{VI}O_4 \cdot 10H_2O$ in 8 M HCl. The solution was then left to stand for the indicated times and then the selenium K-edge XANES spectrum was collected. The spectra for solid samples of $Se^{IV}O_2$ and $Na_2Se^{VI}O_4 \cdot 10H_2O$ are shown for comparison.

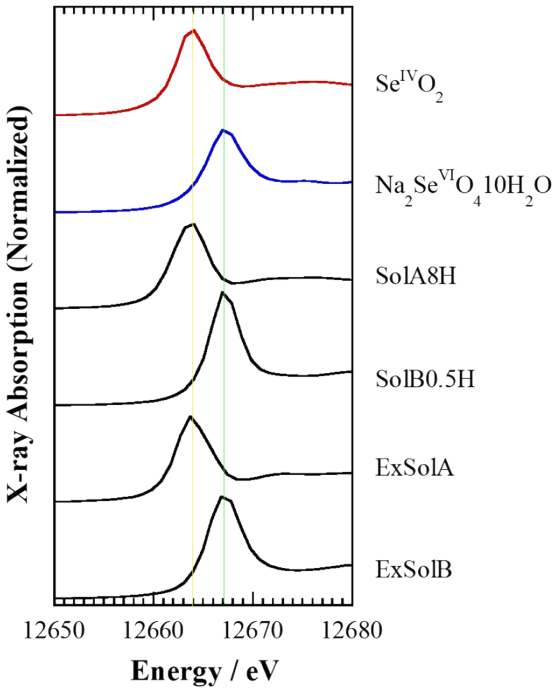

Fig. S2 Se K-edge XANES spectra for the aqueous solutions **SolA8H** and **SolB0.5H**, the organic solutions **ExSolA** and **ExSolB**, and the reference solid ($Se^{IV}O_2$ and $Na_2Se^{VI}O_4 \cdot 10H_2O$).

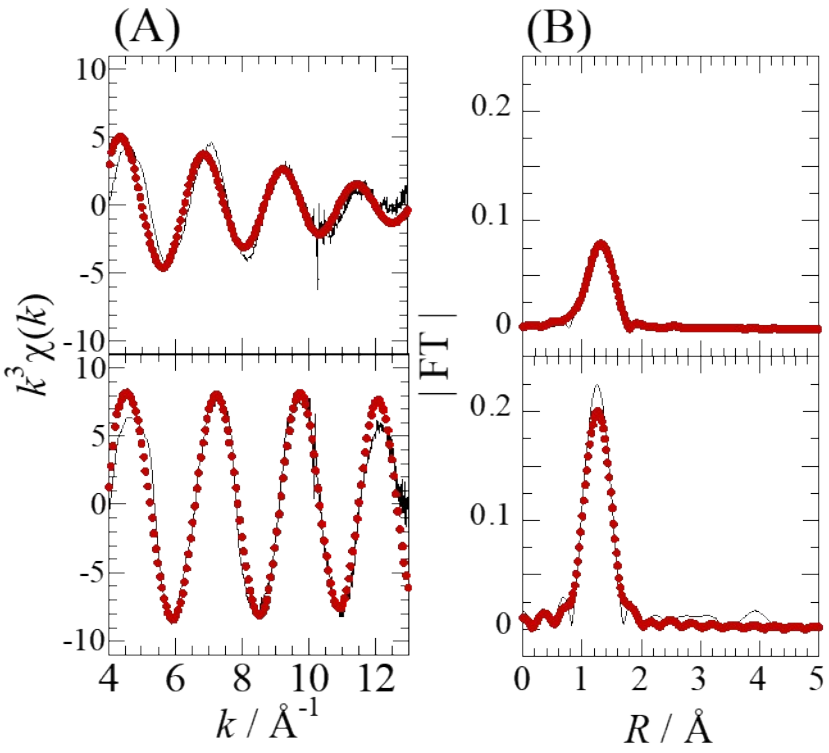

Fig. S3 Se K-edge k^3-weighted EXAFS spectra (A) and the corresponding Fourier transforms (FT) (B) for the reference solid ($Se^{IV}O_2$ (top) and $Na_2Se^{VI}O_4 \cdot 10H_2O$ (bottom)). The phase shifts are not corrected. Experimental data (solid line) and theoretical fit (dotted line).

Table S1 Curve-fitting results for selenium EXAFS data

		N	*r* (Å)	σ^2 (Å^2)	ΔE (eV)	R-factor
SeO_2	Se–O	3.1(3)	1.72(1)	0.005(1)	9(1)	12
$Na_2SeO_4 \cdot 10H_2O$	Se–O	4.0(4)	1.645(1)	0.0005(1)	6(1)	8.1

The amplitude reduction factor, S_0^2 was fixed at 0.86. *N*: Coordination number; *r*: Bond distance (Å); σ^2: Debye-Waller factor squared (Å^2); [d] ΔE: The shift in threshold energy(eV); R-factor = $\Sigma|k^3\chi(k)_{obs} - k^3\chi(k)_{calc}| / \Sigma|k^3\chi(k)_{obs}| \times 100$; Estimated errors are shown in parentheses.