



Emanuele Zanda 20 January 2022

## Selenium(-II)

| Reaction                                 | Olin et al.,<br>2005 | Thoenen et al., 2014 |
|--|----------------------|----------------------|
| $H_2Se(g) \rightleftharpoons H_2Se(aq)$  | $-1.10 \pm 0.01$     | $-1.10 \pm 0.01$     |
| $H_2Se \rightleftharpoons HSe^- + H^+$   | $-3.85 \pm 0.05$     | $-3.85 \pm 0.05$     |
| $HSe^- \rightleftharpoons Se^{2-} + H^+$ | $-14.91 \pm 0.20$    |                      |

Å. Olin, B. Noläng, L.-O. Öhman, E. Osadchii, E. Rosén, Chemical Thermodynamics of Selenium, OECD Pub., 2005.

T. Thoenen, W. Hummel, U. Berner and E. Curti, The PSI/Nagra Chemical Thermodynamic Database 12/07, Villigen: Paul Scherrer Institut PSI, 2014.





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## Selenium(IV)

| Reaction                                       | Baes and<br>Mesmer, 1976 | Olin et al.,<br>2005 | Thoenen et al., 2014 |
|--|--------------------------|----------------------|----------------------|
| $SO_3^{2-} + H^+ \rightleftharpoons HSeO_3^-$  |                          | $8.36 \pm 0.23$      | $8.36 \pm 0.23$      |
| $HSO_3^- + H^+ \rightleftharpoons H_2SeO_3$    | 2.75 <sup>a</sup>        | $2.64 \pm 0.14$      | $2.64 \pm 0.14$      |
| $SO_3^{2-} + 2H^+ \rightleftharpoons H_2SeO_3$ | 11.25 <sup>a</sup>       |                      |                      |

<sup>&</sup>lt;sup>a</sup>Reaction written as deprotonation reaction in the original publication.

C.F. Baes and R.E. Mesmer, The Hydrolysis of Cations. Wiley, New York, 1976.

Å. Olin, B. Noläng, L.-O. Öhman, E. Osadchii, E. Rosén, Chemical Thermodynamics of Selenium, OECD Pub., 2005.

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## Selenium(VI)

| Reaction                                       | Baes and<br>Mesmer, 1976 | Olin et al.,<br>2005 | Thoenen et al., 2014 |
|--|--------------------------|----------------------|----------------------|
| $SeO_4^{2-} + H^+ \rightleftharpoons HSeO_4^-$ | 1.663 <sup>a</sup>       | $1.75 \pm 0.10^{a}$  | $1.75 \pm 0.10$      |

<sup>&</sup>lt;sup>a</sup>Reaction written as deprotonation reaction in the original publication.

C.F. Baes and R.E. Mesmer, The Hydrolysis of Cations. Wiley, New York, 1976.

Å. Olin, B. Noläng, L.-O. Öhman, E. Osadchii and E. Rosén, Chemical Thermodynamics of Selenium, OECD Pub., 2005.

T. Thoenen, W. Hummel, U. Berner, E. Curti, The PSI/Nagra Chemical Thermodynamic Database 12/07, Villigen: Paul Scherrer Institut PSI, 2014.