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# Tin(II)

| Reaction | Baes and Mesmer, 1976 | Feitknecht, 1963 | Hummel et al., 2002 | NIST46 | Cigala et al., 2012 | Gamsjäger et al, 2012 | Brown and Ekberg, 2016 |
|---|---|---|---|---|---|---|---|
| $Sn^{2+} + H_2O \rightleftharpoons SnOH^+ + H^+$ | –3.40 | | –3.8 ± 0.2 | –3.4 | –3.52 ± 0.05 | –3.53 ± 0.40 | –3.53 ± 0.40 |
| $Sn^{2+} + 2\ H_2O \rightleftharpoons Sn(OH)_2 + 2\ H^+$ | –7.06 | | –7.7 ± 0.2 | –7.1 | –6.26 ± 0.06 | –7.68 ± 0.40 | –7.68 ± 0.40 |
| $Sn^{2+} + 3\ H_2O \rightleftharpoons Sn(OH)_3^- + 3\ H^+$ | –16.61 | | –17.5 ± 0.2 | –16.6 | –16.97 ± 0.17 | –17.00 ± 0.60 | –17.56 ± 0.40 |
| $2\ Sn^{2+} + 2\ H_2O \rightleftharpoons Sn_2(OH)_2^{2+} + 2\ H^+$ | –4.77 | | | –4.8 | –4.79 ± 0.05 | | |
| $3\ Sn^{2+} + 4\ H_2O \rightleftharpoons Sn_3(OH)_4^{2+} + 4\ H^+$ | –6.88 | | –5.6 ± 1.6 | –6.88 | –5.88 ± 0.05 | –5.60 ± 0.47 | −5.60 ± 0.47 |
| $Sn(OH)_2(s) \rightleftharpoons Sn^{2+} + 2\ OH^-$ | | | | –25.8 | –26.28 ± 0.08 | | |

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|---|---|---|---|---|---|---|---|
| $SnO(s) + 2\ H^+ \rightleftharpoons Sn^{2+} + H_2O$ | 1.76 | | 2.5± 0.5 | | | | 1.60 ± 0.15 |
| $SnO(s) + H_2O \rightleftharpoons Sn^{2+} + 2\ OH^-$ | | –26.2 | | | | | |
| $SnO(s) + H_2O \rightleftharpoons Sn(OH)_2$ | | –5.3 | | | | | |
| $SnO(s) + 2\ H_2O \rightleftharpoons Sn(OH)_3^- + H^+$ | | –0.9 | | | | | |


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# Tin(IV)

| Reaction | Hummel et al., 2002 | Gamsjäger et al, 2012 | Brown and Ekberg, 2016 |
|---|---|---|---|
| $Sn^{4+} + 4\ H_2O \rightleftharpoons Sn(OH)_4 + 4\ H^+$ | | | 7.53 ± 0.12 |
| $Sn^{4+} + 5\ H_2O \rightleftharpoons Sn(OH)_5^- + 5\ H^+$ | | | –1.07 ± 0.42 |
| $Sn^{4+} + 6\ H_2O \rightleftharpoons Sn(OH)_6^{2-} + 6\ H^+$ | | | –11.14 ± 0.32 |
| $Sn(OH)_4 + H_2O$ v $Sn(OH)_5^- + H^+$ | –8.0 ± 0.3 | –8.60 ± 0.40 | |
| $Sn(OH)_4 + 2\ H_2O \rightleftharpoons Sn(OH)_6^{2-} + 2\ H^+$ | –18.4 ± 0.3 | –18.67 ± 0.30 | |
| $SnO_2(cr) + 2\ H_2O \rightleftharpoons Sn(OH)_4$ | –8.0 ± 0.2 | –8.06 ± 0.11 | |

| | | | |
|---|---|---|---|
| $SnO_2(am) + 2\ H_2O = Sn(OH)_4$ | –7.3 ± 0.3 | –7.22 ± 0.08 | |
| $SnO_2(s) + 4\ H^+ = Sn^{4+} + 2\ H_2O$ | | | –15.59 ± 0.04 |

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