

## Iron(II)

| Reaction  | Baes and Mesmer, 1976 | Nordstrom et al., 1990 | Hummel et al., 2002 | Lemire et al., 2013 | Brown and Ekberg, 2016 |
|---|-----------------------|------------------------|---------------------|---------------------|------------------------|
| $\text{Fe}^{2+} + \text{H}_2\text{O} \rightleftharpoons \text{FeOH}^+ + \text{H}^+$   | $-9.3 \pm 0.5$        | -9.5                   | -9.5                | $-9.1 \pm 0.4$      | $-9.43 \pm 0.10$       |
| $\text{Fe}^{2+} + 2 \text{H}_2\text{O} \rightleftharpoons \text{Fe}(\text{OH})_2 + 2 \text{H}^+$  | $-20.5 \pm 1.0$       |                        |                     |                     | $-20.52 \pm 0.08$      |
| $\text{Fe}^{2+} + 3 \text{H}_2\text{O} \rightleftharpoons \text{Fe}(\text{OH})_3^- + 3 \text{H}^+$  | $-29.4 \pm 1.2$       |                        |                     |                     | $-32.68 \pm 0.15$      |
| $\text{Fe}(\text{OH})_2(\text{s}) + 2 \text{H}^+ \rightleftharpoons \text{Fe}^{2+} + 2 \text{H}_2\text{O}$  |                       |                        |                     |                     | $12.27 \pm 0.88$       |
| $\frac{1}{3}\text{Fe}_3\text{O}_4(\text{s}) + 2 \text{H}^+ + \frac{1}{3}\text{H}_2 \rightleftharpoons \text{Fe}^{2+} + \frac{4}{3}\text{H}_2\text{O}$ |                       |                        |                     | 12.5                | $11.77 \pm 0.22$       |

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