

## Neodymium(III)

Reaction	Baes and Mesmer, 1976	NIST46	Neck et al., 2009	Brown and Ekberg, 2016
$\text{Nd}^{3+} + \text{H}_2\text{O} \rightleftharpoons \text{Nd}(\text{OH})^{2+} + \text{H}^+$	-8.0	-8.0	$-7.4 \pm 0.4$	$-8.13 \pm 0.05$
$\text{Nd}^{3+} + 2 \text{H}_2\text{O} \rightleftharpoons \text{Nd}(\text{OH})_2^+ + 2 \text{H}^+$	(-16.9)		$-15.7 \pm 0.7$	
$\text{Nd}^{3+} + 3 \text{H}_2\text{O} \rightleftharpoons \text{Nd}(\text{OH})_{3(\text{aq})} + 3 \text{H}^+$	(-26.5)		$-26.2 \pm 0.5$	
$\text{Nd}^{3+} + 4 \text{H}_2\text{O} \rightleftharpoons \text{Nd}(\text{OH})_4^- + 4 \text{H}^+$	(-37.1)	-37.4	$-40.7 \pm 0.7$	
$2 \text{Nd}^{3+} + 2 \text{H}_2\text{O} \rightleftharpoons \text{Nd}_2(\text{OH})_2^{4+} + 2 \text{H}^+$	-13.86	-13.9		$-15.56 \pm 0.20$
$3 \text{Nd}^{3+} + 5 \text{H}_2\text{O} \rightleftharpoons \text{Nd}_3(\text{OH})_5^{4+} + 5 \text{H}^+$	< -28.5			$-34.2 \pm 0.3$
$\text{Nd}(\text{OH})_3(\text{s}) + 3 \text{H}^+ \rightleftharpoons \text{Nd}^{3+} + 3 \text{H}_2\text{O}$	18.6		$17.2 \pm 0.4$	$17.89 \pm 0.09$

Nd(OH) <sub>3</sub> (s) ⇌ Nd <sup>3+</sup> + 3 OH <sup>-</sup>		-23.2 ± 0.9	-21.5 (act) -23.1 (inact)	
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C.F. Baes and R.E. Mesmer, *The Hydrolysis of Cations*. Wiley, New York, 1976.

P.L. Brown and C. Ekberg, *Hydrolysis of Metal Ions*. Wiley, 2016, pp. 135-145.

V. Neck, M. Altmaier, T. Rabung, J. Lützenkirchen and T. Fanghänel. *Pure Appl. Chem.*, 81, 1555–1568 (2009).

NIST46, NIST Critically Selected Stability Constants of Metal Complexes: Version 8.0. Available at: [www.nist.gov/srd/nist46](http://www.nist.gov/srd/nist46)