

Lanthanum

Reaction	Baes and Mesmer, 1976	Brown and Ekberg, 2016
$\text{La}^{3+} + \text{H}_2\text{O} \rightleftharpoons \text{LaOH}^{2+} + \text{H}^+$	-8.5	-8.89 ± 0.10
$\text{La}^{3+} + 2 \text{H}_2\text{O} \rightleftharpoons \text{La}(\text{OH})_2^+ + 2 \text{H}^+$		<i>only a single exp. value at 1 M NaClO₄; accepted</i>
$\text{La}^{3+} + 3 \text{H}_2\text{O} \rightleftharpoons \text{La}(\text{OH})_3 + 3 \text{H}^+$		<i>only three exp. values; only one accepted at 1 M NaClO₄</i>
$2 \text{La}^{3+} + 2 \text{H}_2\text{O} \rightleftharpoons \text{La}_2(\text{OH})_2^{4+} + 2 \text{H}^+$	~ -17.5	-17.57 ± 0.20
$3 \text{La}^{3+} + 5 \text{H}_2\text{O} \rightleftharpoons \text{La}_3(\text{OH})_5^{4+} + 5 \text{H}^+$	~ -38.3	-37.8 ± 0.3

$5 \text{La}^{3+} + 9 \text{H}_2\text{O} \rightleftharpoons \text{La}_5(\text{OH})_9^{6+} + 9 \text{H}^+$	-71.2	
$\text{La}(\text{OH})_3(\text{s}) + 3 \text{H}^+ \rightleftharpoons \text{La}^{3+} + 3 \text{H}_2\text{O}$	(20.3)*	19.72 ± 0.34

*Estimation.

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.