Author: montserrat.filella@unige.ch
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Source: modified from compilation COST Action 1802

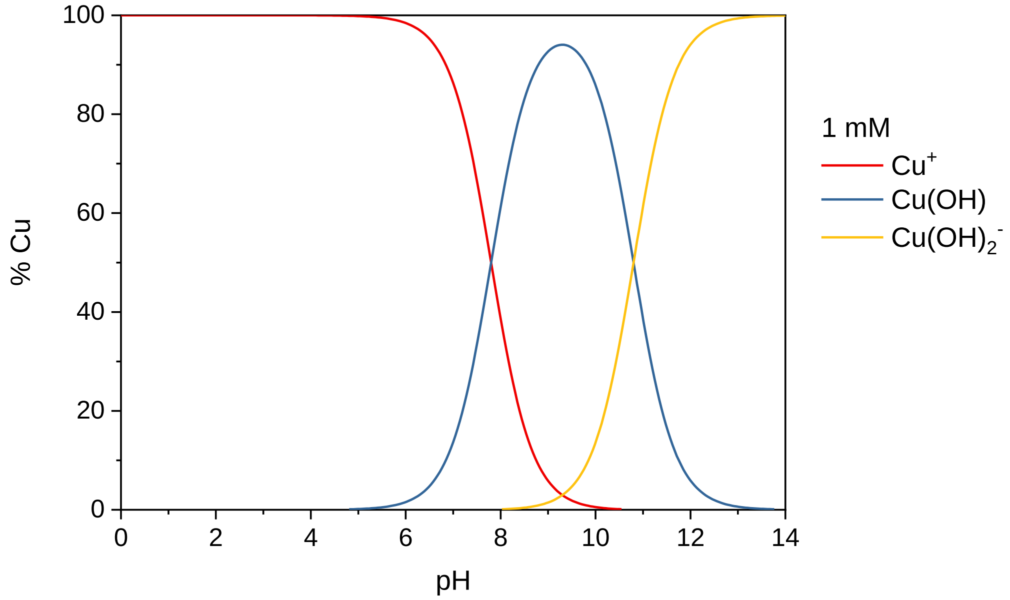
Copper(I)

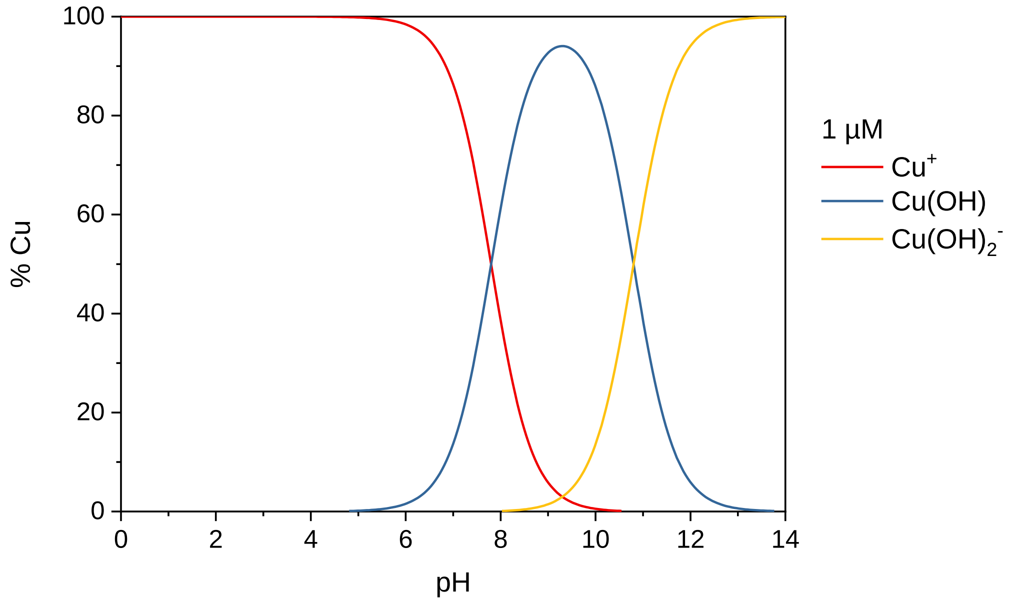
Equilibrium reactions	lg*K* at infinite dilution and *T* = 298 K
	Brown and Ekberg, 2016
$Cu^+ + H_2O \rightleftharpoons CuOH + H^+$	–7.8 ± 0.4
$Cu^+ + 2\ H_2O \rightleftharpoons Cu(OH)_2^- + 2\ H^+$	–18.6 ± 0.6

P.L. Brown and C. Ekberg, Hydrolysis of Metal Ions. Wiley, 2016, pp. 650–702.

Distribution diagrams

These diagrams have been computed at two Cu(I) concentrations (1 mM = 1x10^{-3} mol L^{-1} and 1 μM = 1x10^{-6} mol L^{-1}) with the 'best' equilibrium constants above. Calculations assume T = 298 K for the limiting case of zero ionic strength (*i.e.*, even neglecting plotted ions).





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Copper(II)

Equilibrium reactions	lg*K* at infinite dilution and *T* = 298 K				
	Baes and Mesmer, 1976	NIST46	Plyasunova et al., 1997	Powell et al., 2007	Brown and Ekberg, 2016
$Cu^{2+} + H_2O \rightleftharpoons CuOH^+ + H^+$	< −8	−7.7	−7.97 ± 0.09	−7.95 ± 0.16	−7.64 ± 0.17
$Cu^{2+} + 2\ H_2O \rightleftharpoons Cu(OH)_2 + 2\ H^+$	(< −17.3)	−17.3	−16.23 ± 0.15	−16.2 ± 0.2	−16.24 ± 0.03
$Cu^{2+} + 3\ H_2O \rightleftharpoons Cu(OH)_3^- + 3\ H^+$	(< −27.8)	−27.8	−26.63 ± 0.40	−26.60 ± 0.09	−26.65 ± 0.13
$Cu^{2+} + 4\ H_2O \rightleftharpoons Cu(OH)_4^{2-} + 4\ H^+$	−39.6	−39.6	−39.73 ± 0.17	−39.74 ± 0.18	−39.70 ± 0.19
$2\ Cu^{2+} + H_2O \rightleftharpoons Cu_2(OH)^{3+} + H^+$			−6.71 ± 0.30	−6.40 ± 0.12	−6.41 ± 0.17
$2\ Cu^{2+} + 2\ H_2O \rightleftharpoons Cu_2(OH)_2^{2+} + 2\ H^+$	−10.36	−10.3	−10.55 ± 0.17	−10.43 ± 0.07	−10.55 ± 0.02

Contributors: Clemente Bretti, Elvira Bura Nakić, Montserrat Filella, Josep Galceran, Sofia Gama, Elżbieta Gumienna- Kontecka, Lucija Knežević, Gabriele Lando, Přemysl Lubal, Demetrio Milea, Andrzej Mular, Bartosz Orzeł, Michaela Rendošová, Matteo Savastano, Vladimir Sladkov, Kamila Stokowa-Sołtys, Yuliya Toporivska, Zuzana Vargová, Emanuele Zanda, Veronika Zinovyeva

$3\ Cu^{2+} + 4\ H_2O \rightleftharpoons Cu_3(OH)_4^{2+} + 4\ H^+$			–20.95 ± 0.30	–21.1 ± 0.2	–21.2 ± 0.4
$CuO(s) + 2\ H^+ \rightleftharpoons Cu^{2+} + H_2O$	7.62		7.64 ± 0.06	7.64 ± 0.06	7.63 ± 0.05
$Cu(OH)_2(s) + 2\ H^+ \rightleftharpoons Cu^{2+} + 2\ H_2O$				8.67 ± 0.05	8.68 ± 0.10

C.F. Baes and R.E. Mesmer, The Hydrolysis of Cations. Wiley, New York, 1976, p. 274.

P.L. Brown and C. Ekberg, Hydrolysis of Metal Ions. Wiley, 2016, pp. 650–702.

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

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Distribution diagrams

These diagrams have been computed at two Cu(II) concentrations (1 mM = $1x10^{-3}$ mol L^{-1} and 1 μM = $1x10^{-6}$ mol L^{-1}) with the 'best' equilibrium constants above (in green). Calculations assume *T* = 298 K for the limiting case of zero ionic strength (*i.e.*, even neglecting plotted ions).