COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Copper(I) Chloride; CuCl; [7758-89-6] (2) Copper(II) Sulfate; $CuSO_4$; [7758-98-7] (3) Sodium Chloride; NaCl; [7647-14-5] (4) Hydrogen Perchlorate; $HClO_4$; [7601-90-3] (5) Water; H_2O; [7732-18-5]	Sosnitskii, V. N.; Fofanov, G. M. *Zh. Neorg. Khim.* 1979, *24*, 1708–1710; *Russ. J. Inorg. Chem. (Engl. Transl.)* 1979, *24 (6)*, 947–949.
VARIABLES: Concentration of NaCl at 298 K	PREPARED BY: J. J. FRITZ and E. KÖNIGSBERGER

EXPERIMENTAL VALUES:

Potentiometric Determination of the Solubility Product of Copper(I) Chloride

ΔE at 25.0 ± 0.3°C of cell

Pt | $CuCl_{(s)}$ | $CuSO_4$ (0.1 mol dm^{-3}), $HClO_4$ (0.1 mol dm^{-3}), NaCl (x mol dm^{-3}) | salt bridge | $CuSO_4$ (0.1 mol dm^{-3}), $HClO_4$ (0.1 mol dm^{-3}), NaCl (x mol dm^{-3}) | $AgCl_{(s)}$ | Ag

as function of NaCl concentration from 0.1 to 10.4 mol dm^{-3}.

Slope of ΔE/mV *vs.* log c_{NaCl}/mol dm^{-3} interpreted to give $K_{S0} = (2.5 \pm 0.77) \cdot 10^{-7}$ mol^2 dm^{-6} at zero ionic strength.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Potential (E_{Cu^{2+}/Cu^+}) of platinum electrode taken to be

$$E_{Cu^{2+}/Cu^+}/V = 0.153 + 0.059 \log \frac{[Cl^-][Cu^{2+}] f_1 f_2}{K_{S0}}$$ [a]

with $[Cl^-]$ taken as

$[Cl^-] = [NaCl]/(1 + \beta_2 K_{S0})$, giving

$$E_{Cu^{2+}/Cu^+}/V = 0.153 + 0.059 \log \frac{[Cu^{2+}][NaCl] f_1 f_2}{K_{S0}(1+\beta_2 K_{S0})}$$

Calculated f_1 and f_2 from Davies equation (Ref. 1).

Does not give standard potential used for Ag/AgCl electrode, nor its use. Salt bridge not specified.

Used values of β_2 from Ref. 2.

[a] Equation corrected by compiler.

SOURCE AND PURITY OF MATERIALS:

Used "chemically pure" materials, source not given.

CuCl purified according to Ref. 3.

ESTIMATED ERROR:

From uncertainty in standard potential of Ag/AgCl electrode (± 3 mV) and estimated uncertainty of 8% in activity coefficients, estimate ± $0.77 \cdot 10^{-7}$ in K_{S0}.

REFERENCES:

1. Butler, J. N. *Ionic Equilibrium*, Addison Wesley, Massachusetts, 1964.
2. Vasil'ev, V. P.; Kunin, B. T. *Zh. Anal. Khim.* 1975, *20*, 1881.
3. Karyakin, Yu. V.; Angelov, I. I. *Pure Chemical Substances*, Moscow, 1974, p. 240.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Copper(I) Chloride; CuCl; [7758-89-6] (2) Water; H_2O; [7732-18-5]	Gavrish, M. L.; Galinker, I. S. *Dokl. Akad. Nauk SSSR* 1955, *102*, 89–91.
VARIABLES: T/K = 433 to 633	PREPARED BY: J. J. FRITZ

EXPERIMENTAL VALUES:

Solubility of CuCl in Water

t/°C	m_1 / mol kg^{-1}	t/°C	m_1 / mol kg^{-1}	t/°C	m_1 / mol kg^{-1}
160	0.431	230	1.55	290	3.36
170	0.44	240	1.6	300	3.55
180	0.61	250	1.73	320	4.7
190	0.67	260	2.3	330	5.4
200	0.96	270	2.7	350	6.32
210	1.27	280	2.99	360	6.93
220	1.43				

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Solutions prepared in 140 cm^3 quartz bomb inside autoclave maintained at desired temperatures. Samples of salt pressed into pellets under 2000 atm, then weighed carefully. Samples put into equilibrium with known mass of water over 2-hour period at selected temperature. Solubility determined by loss of mass of pellet.	Not stated. ESTIMATED ERROR: Not stated. REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Copper(I) Bromide; CuBr; [7787-70-4] (2) Water; H_2O; [7732-18-5]	Gavrish, M. L.; Galinker, I. S. *Dokl. Akad. Nauk SSSR* 1955, *102*, 89–91.
VARIABLES: T/K = 473 to 603	PREPARED BY: J. J. FRITZ

EXPERIMENTAL VALUES:

Solubility of CuBr in Water

t/°C	m_1 / mol kg^{-1}	t/°C	m_1 / mol kg^{-1}	t/°C	m_1 / mol kg^{-1}
200	0.149	260	0.49	300	0.820
220	0.217	270	0.66	310	0.930
230	0.286	280	0.716	320	1.01
240	0.369	290	0.790	330	1.07
250	0.411				

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Solutions prepared in 140 cm^3 quartz bomb inside autoclave maintained at desired temperatures. Samples of salt pressed into pellets under 2000 atm, then weighed carefully. Samples put into equilibrium with known mass of water over 2-hour period at selected temperature. Solubility determined by loss of mass of pellet.	Not given. ESTIMATED ERROR: Not given. REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Copper(I) Iodide; CuI; [7681-65-4] (2) Water; H_2O; [7732-18-5]	Gavrish, M. L.; Galinker, I. S. *Dokl. Akad. Nauk SSSR* 1955, *102*, 89–91.
VARIABLES: T/K = 453 to 613	PREPARED BY: J. J. Fritz

EXPERIMENTAL VALUES:

Solubility of CuI in Water

t/°C	m_1 / mol kg^{-1}	t/°C	m_1 / mol kg^{-1}	t/°C	m_1 / mol kg^{-1}
180	0.003621	240	0.01323	300	0.04945
200	0.0065	260	0.029	320	0.06239
220	0.008299	280	0.040	340	0.08993

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Solutions prepared in 140 cm^3 quartz bomb inside autoclave maintained at desired temperatures. Samples of salt pressed into pellets under 2000 atm, then weighed carefully. Samples put into equilibrium with known mass of water over 2-hour period at selected temperature. Solubility determined by loss of mass of pellet.	Not given. ESTIMATED ERROR: Not given. REFERENCES: