

Structure Data of Free Polyatomic Molecules

142	Cl₂Cu	Copper dichloride	D_{∞h}
LIF		Copper(II) chloride	CuCl ₂

State	$\tilde{X}^2\Pi_{g(3/2)}$
Energy [eV]	0.00
$r_e(\text{Cu-Cl})$ [Å]	2.0353(2)

CuCl₂ molecules were produced in a free-jet expansion through a heated nozzle and excited using a CW tunable dye laser. In addition spectra were obtained from a hot cell with excitation of a selected rovibronic transition and recording the laser-induced fluorescence spectrum with a Fourier transform spectrometer. By analyzing the data from three isotopomers, ⁶³Cu³⁵Cl₂, ⁶³Cu³⁷Cl₂ and ⁶⁵Cu³⁷Cl₂, extensive rotational and vibrational data for the ground state were obtained. The equilibrium value for the ground state bond length is given above.

Beattie, I.R., Brown, J.M., Crozet, P., Ross, A.J., Yiannopoulou, A.: Inorg. Chem. **36** (1997) 3207.