

Structure Data of Free Polyatomic Molecules

143 LIF	Cl₂Fe	Iron dichloride Iron(II) chloride	D_{∞h} FeCl ₂
-------------------	-------------------------	---	--

State	$\tilde{X}^5\Delta_g ?$	$^5\Phi_u ?$
Energy [eV]	0.00	
$r_0(\text{Fe-Cl}) [\text{\AA}]$	2.13205(38)	2.25756(38)

FeCl₂ molecules were produced in a free-jet expansion through a supersonic nozzle of the products of the high temperature reaction between iron and HCl entrained in argon. Spectra were excited using a CW tunable dye laser. Rotational analysis has been carried out for one band system and bond lengths deduced from the rotational constants (Brown, J.M., private communication).

Ashworth, S.H., Hodges, P.J., Brown, J.M.: Phys. Chem. Chem. Phys. **4** (2002) 5923.

[II/25A\(2, 315\)](#)