



>>Entry Name: Rhenium(IV) chloride (ReCl₄)

Synonym(s): Rhenium tetrachloride

CAS Registry Number: 13569-71-6

ReCl₄

Molecular Formula: Cl₄Re

Molecular Weight: 328.018

Accurate Mass: 326.831152

Percentage Composition: Cl 43.23%; Re 56.77%

>>Variant: β-form

CAS Registry Number: 30663-99-1

Molecular Formula: Cl₄Re

Molecular Weight: 328.018

Accurate Mass: 326.831152

Percentage Composition: Cl 43.23%; Re 56.77%

Source/Synthesis: Synth. from (i) Re and SbCl₅, (ii) Re₃Cl₉ and ReCl₅, (iii) ReCl₅ and SbCl₃

Physical Description: Hygroscopic black solid

Melting Point: Mp 350° (incongr.)

Solubility: Sol. (dec.) MeOH, EtOH, Me₂CO, DMSO; insol. MeCN, THF, C₆H₆, CCl₄

Other Data: Dec. >300°

>>Variant: γ-form

Molecular Formula: Cl₄Re

Molecular Weight: 328.018

Accurate Mass: 326.831152

Percentage Composition: Cl 43.23%; Re 56.77%

Source/Synthesis: Synth. from ReCl₅ and C₂Cl₄

Physical Description: Brown powder, poorly cryst.

Other Data: Reversibly forms a hexachloropropane solv.

References:

- Cotton, F.A. *et al.*, *Inorg. Chem.*, 1967, **6**, 223, (β-form, props)
Rinki, K., *J. Less-Common Met.*, 1967, **12**, 497
Anderson, I.R. *et al.*, *Inorg. Chem.*, 1968, **7**, 2602
Canterford, J.M. *et al.*, *Inorg. Nucl. Chem. Lett.*, 1968, **4**, 607, (β-form, synth)
Frais, P.W. *et al.*, *Can. J. Chem.*, 1969, **47**, 1069, (β-form, synth, ir, props)
Drobot, D.V. *et al.*, *Russ. J. Inorg. Chem. (Engl. Transl.)*, 1970, **15**, 584, (β-form, phase studies)
Brignole, A. *et al.*, *Chem. Comm.*, 1971, 706, (γ-form)
Muller, M. *et al.*, *Inorg. Nucl. Chem. Lett.*, 1972, **8**, 413, (γ-form)
Cotton, F.A. *et al.*, *J.A.C.S.*, 1973, **95**, 1159, (β-form, γ-form, cryst struct)
Cotton, F.A. *et al.*, *Multiple Bonds Between Metal Atoms*, Wiley, New York, 1982, 239, (bibl, struct, props)
Herran, J. *et al.*, *Synth. Met.*, 1985, **12**, 493, (graphite compd)
Flandrois, S. *et al.*, *Synth. Met.*, 1986, **14**, 103, (graphite compd)