



>>Entry Name: Molybdenum(III) chloride (MoCl₃)

Synonym(s): Molybdenum trichloride

CAS Registry Number: 13478-18-7

Related CAS Registry Numbers(s): 11119-46-3

MoCl₃

Molecular Formula: Cl₃Mo

Molecular Weight: 202.298

Accurate Mass: 202.811962

Percentage Composition: Cl 52.57%; Mo 47.43%

Source/Synthesis: Obt. by reduction of MoCl₅ with Mo, or hydrocarbon; oxidation of Mo with Hg₂Cl₂

Use/Importance: Possesses catalytic props.

Physical Description: Brown-red solid. Stable in dry air at r.t., but on warming dec. to give oxychlorides

Solubility: Insol. H₂O, org. solvs.

Other Data: Dec. without melting. Paramagnetic $\mu_{\text{eff}} = 0.49\mu_{\text{B}}$ (295K), much lower than expected for Mo(III), suggesting presence of Mo₂ groups

Aldrich: 33933-4

References:

Compr. Inorg. Chem., Pergamon, Oxford, 1973, **3**, 718, (*props*)

Brauer, G., *Handbuch Prap. Anorg. Chem.*, 3rd edn., Ferdinand Enke Verlag, 1975, **3**, 1532, (*synth*)

Pascal, P., *Nouveau Traite de Chimie Minerale*, 1976, **5**, 52, (*rev*)