>>**Entry Name: Titanium chloride ($TiCl_2$),** 13Cl
Synonym(s): Titanium dichloride

CAS Registry Number: 10049-06-6

$TiCl_2$

Molecular Formula: Cl_2Ti
Molecular Weight: 118.785
Accurate Mass: 117.885651
Percentage Composition: Cl 59.69%; Ti 40.31%

Source/Synthesis: Synth. by disproportionation of $TiCl_3$ at 475-495°, or by heating $TiCl_4$ and Ti to 1100° in a flow system, or by heating TiO and CCl_4 to 400-700°
Use/Importance: Catalyst component mainly for olefin polym.
Physical Description: Red-brown solid
Melting Point: Mp 1025°
Other Data: ΔH_f° –500 kJ mol^{-1}. Paramagnetic; $\mu_{eff} = 1.08\mu_B$; Néel temp. 85K
Hazard & Toxicity: Reacts violently with water yielding H_2; burns readily in air

Aldrich: 45173-8

>>**Derivative:** Bis-THF complex
Synonym(s): Dichlorobis(tetrahydrofuran)titanium(*II*)

CAS Registry Number: 46142-60-3
Molecular Formula: $C_8H_{16}Cl_2O_2Ti$
Molecular Weight: 262.999
Accurate Mass: 262.000681
Percentage Composition: C 36.54%; H 6.13%; Cl 26.96%; O 12.17%; Ti 18.21%
Source/Synthesis: Synth. from Titanium chloride ($TiCl_4$) JWP10-Q and THF, followed by addn. of BuLi; usually generated and used *in situ*
Use/Importance: Effects reductive coupling of a variety of org. compds.
Physical Description: Black solid
Other Data: Struct. not descr.; analytical data indicate that the compd. exists as the bis-THF form in soln., but one THF unit is labile to dissociation in the solid state

References:

Farber, M. *et al.*, *J. Chem. Phys.*, 1955, **23**, 1556, *(synth)*
Ehrlich, P. *et al.*, *Z. Anorg. Allg. Chem.*, 1957, **292**, 139, *(synth)*
Fowles, G.W.A. *et al.*, *J.C.S.(A)*, 1968, 1081, *(synth)*
Czech. Pat., 1970, 138 155; *CA*, **76**, 5433x, *(synth)*
Eisch, J.J. *et al.*, *Z. Naturforsch., B*, 1995, **50**, 342, *(bis-THF complex, synth, use)*
Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, TGG750