



>>Entry Name: Titanium silicides

CAS Registry Number: 12738-91-9

Molecular Formula: [SiTi]

>>Variant: Titanium silicide (Ti₅Si₃), 11Cl

CAS Registry Number: 12067-57-1

Molecular Formula: Si₃Ti₅

Molecular Weight: 323.657

Accurate Mass: 323.670516

Percentage Composition: Si 26.03%; Ti 73.97%

Source/Synthesis: Synth. by heating TiCl₄, SiCl₄ and H₂ or by reaction of Ti and Si in a plasma furnace

>>Variant: Titanium silicide (TiSi), 11Cl

CAS Registry Number: 12039-70-2

Molecular Formula: SiTi

Molecular Weight: 75.966

Accurate Mass: 75.924874

Percentage Composition: Si 36.97%; Ti 63.03%

Source/Synthesis: Synth. e.g. by H₂ reduction of TiCl₄ + SiCl₄ vapours

>>Variant: Titanium silicide (TiSi₂), 11Cl

CAS Registry Number: 12039-83-7

Molecular Formula: Si₂Ti

Molecular Weight: 104.051

Accurate Mass: 103.901801

Percentage Composition: Si 53.98%; Ti 46.02%

Source/Synthesis: High purity manuf. by laser irradiation of SiH₄ and TiCl₄ in Ar. Synth. by H₂ reduction of TiCl₄ and SiCl₄

Use/Importance: Has v. many applications in electronics, esp. as a thin film. Intercalates many spp.

Aldrich: 39946-9

References:

Quakernaat, J. *et al.*, *High Temp. High Pressures*, 1974, **6**, 515, (*synth, cryst struct, Ti₅Si₃*)

DeVynck, Y.A., *Silic. Ind.*, 1974, **39**, 109, (*synth, Ti₅Si₃*)

Jeitschko, W., *Acta Cryst. B*, 1977, **33**, 2347, (*cryst struct, TiSi₂*)

Dietrich, F. *et al.*, *J. Am. Ceram. Soc.*, 1978, **61**, 276, (*synth, cryst struct, TiSi₂*)

Japan. Pat., 1978, 78 58 998; *CA*, **89**, 148825f, (*manuf, TiSi*)

Kato, A. *et al.*, *Kogaku Shuho - Kyushu Daigaku*, 1980, **53**, 33; *CA*, **93**, 228752c, (*synth, TiSi, TiSi₂, Ti₅Si₃*)

U.S. Pat., 1985, 4 558 017; *CA*, **104**, 134881n, (*manuf, high purity TiSi₂*)