



>>Entry Name: Tantalum carbides

CAS Registry Number: 51680-51-4

Molecular Formula: [CTa]

Physical Description: Does not react with H₂O

>>Variant: Tantalum carbide (Ta₂C), 11Cl

CAS Registry Number: 12070-07-4

Molecular Formula: CTa₂

Molecular Weight: 373.907

Accurate Mass: 373.895984

Percentage Composition: C 3.21%; Ta 96.79%

Source/Synthesis: Synth. by arc-melting the components

>>Variant: Tantalum carbide (Ta₄C₃)

CAS Registry Number: 12076-61-8

Molecular Formula: C₃Ta₄

Molecular Weight: 759.825

Accurate Mass: 759.791968

Percentage Composition: C 4.74%; Ta 95.26%

Source/Synthesis: Synth. by reducing a TaCl₅/Ar vapour on graphite at 2000-2500°

>>Variant: Tantalum carbide (TaC), 11Cl

CAS Registry Number: 12070-06-3

Molecular Formula: CTa

Molecular Weight: 192.959

Accurate Mass: 192.947992

Percentage Composition: C 6.22%; Ta 93.78%

Source/Synthesis: Synth. from the elements, or by heating Ta in HCN or by electrolysis of an Na₂B₄O₇/Na₂CO₃/NaF/KF/Ta₂O₅ melt at 700° with a graphite cathode

Use/Importance: Used in cutting tools, in the formulation of ceramics and cermets and a number of catalytic processes

Physical Description: Not hydrol.; v. hard

Aldrich: 28080-1

References:

Kebler, R.W., *NASA Tech. Rep.*, 1965, No. AD468830, (*synth, purif, TaC*)

Yvon, K. *et al.*, *Acta Cryst. B*, 1970, **26**, 149, (*cryst struct, Ta₄C₃*)

Caillet, M. *et al.*, *C. R. Hebd. Seances Acad. Sci. Ser. C*, 1970, **270**, 1867, (*synth, TaC*)

Terao, N., *Jpn. J. Appl. Phys.*, 1970, **9**, 1263, (*cryst struct, TaC*)

Hochman, A.J. *et al.*, *J. Electrochem. Soc.*, 1983, **130**, 221, (*electrochem, synth, TaO*)

Demyashev, G.M. *et al.*, *Izv. Akad. Nauk SSSR, Ser. Fiz.*, 1984, **48**, 1693, (*synth, Ta₄C₃*)

Loennberg, B. *et al.*, *J. Less-Common Met.*, 1986, **120**, 239, (*synth, cryst struct, Ta₂C*)