



>>Entry Name: Tetramethyldiarsine, 9Cl

Synonym(s): Cacodyl. Dicacodyl

CAS Registry Number: 471-35-2

$\text{Me}_2\text{AsAsMe}_2$

Molecular Formula: $\text{C}_4\text{H}_{12}\text{As}_2$

Molecular Weight: 209.982

Accurate Mass: 209.937088

Percentage Composition: C 22.88%; H 5.76%; As 71.36%

Source/Synthesis: Synth. from $\text{Me}_2\text{AsI} + \text{Me}_2\text{AsNa}$, or from $\text{Me}_2\text{AsSiMe}_3 + \text{AsCl}_3$ or Me_2AsCl

Physical Description: Oily liq. with nauseating garlic odour

Melting Point: Mp 0°

Boiling Point: Bp 158°. Bp₄₆ 74°. Bp₁₀ 39-40°

Solubility: Spar. sol. H_2O

Other Data: Undergoes exchange reactions with diphosphines and other diarsines. AsbAs bond broken in other reactions with alkyl halides, disulfides, diselenides

Hazard & Toxicity: Inflames spontaneously in air. Highly toxic

>>Derivative: BH_3 complex (1:1)

CAS Registry Number: 57044-75-4

Molecular Formula: $\text{C}_4\text{H}_{15}\text{As}_2\text{B}$

Molecular Weight: 223.817

Accurate Mass: 223.969868

Percentage Composition: C 21.47%; H 6.75%; As 66.95%; B 4.83%

Physical Description: Oil

>>Derivative: BBr_3 complex (1:1)

CAS Registry Number: 57044-71-0

Molecular Formula: $\text{C}_4\text{H}_{12}\text{As}_2\text{BBr}_3$

Molecular Weight: 460.505

Accurate Mass: 457.761401

Percentage Composition: C 10.43%; H 2.63%; As 32.54%; B 2.35%; Br 52.05%

Physical Description: Oil

>>Derivative: BBr_3 complex (1:2)

CAS Registry Number: 57044-69-6

Molecular Formula: $\text{C}_4\text{H}_{12}\text{As}_2\text{B}_2\text{Br}_6$

Molecular Weight: 711.028

Accurate Mass: 705.585714

Percentage Composition: C 6.76%; H 1.70%; As 21.07%; B 3.04%; Br 67.43%

Physical Description: Colourless needles

Melting Point: Mp 139-143°

References:

- Cadet de Gassicourt, L.C., *Mem. Maths. Phys.*, 1760, **3**, 623
Auger, U., *C. R. Hebd. Seances Acad. Sci.*, 1906, **142**, 1151-1153, (synth)
Phillips, J.R. *et al.*, *Can. J. Chem.*, 1967, **45**, 675, (synth, pmr)
Abel, E.W. *et al.*, *J.C.S.(A)*, 1969, 1094, (synth, pmr)
Durig, J.R. *et al.*, *J. Chem. Phys.*, 1971, **55**, 198, (Raman, ir)
Cowley, A.H. *et al.*, *J.A.C.S.*, 1974, **96**, 2648, (pe)
Goetz, G. *et al.*, *Z. Naturforsch., B*, 1975, **30**, 343, (complexes, synth, ir, pmr, B-11 nmr)
Ashe, A.J. *et al.*, *J. Organomet. Chem.*, 1986, **303**, 197; **308**, 289, (reactions)
Gupta, V.K. *et al.*, *Inorg. Chim. Acta*, 1987, **126**, 173; **132**, 163; **134**, 197; 1988, **150**, 51, (synth, pmr, cmr, reactions)
Mundt, O. *et al.*, *Z. Naturforsch., B*, 1988, **43**, 952, (cryst struct)
Downs, A.J. *et al.*, *J. Mol. Struct.*, 1991, **248**, 393-406, (ed)
Sztáray, B. *et al.*, *J.A.C.S.*, 1997, **119**, 11926-11932, (theory)
Bretherick, L., *Handbook of Reactive Chemical Hazards*, 4th edn., Butterworths, 1990, 1631
Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, TDP250