



>>Entry Name: Diazomethane, 9CI, 8CI

Synonym(s): Azimethylene (obsol.)

CAS Registry Number: 334-88-3

H₂CN₂

Molecular Formula: CH₂N₂

Molecular Weight: 42.04

Accurate Mass: 42.021798

Percentage Composition: C 28.57%; H 4.79%; N 66.63%

Use/Importance: Powerful methylating agent and carbene source

Physical Description: Yellow gas

Melting Point: Mp -145°

Boiling Point: Bp -23°

Solubility: Sol. Et₂O

Other Data: Often handled as a soln. in ethereal solvs.

Hazard & Toxicity: Explosive by shock, friction or heat. Inhalation can cause severe irritation and pulmonary oedema and hypersensitivity reactions incl. asthma. Other symptoms are chest pain, headache and weakness. Exp. carcinogen. Various *N*-nitroso compds. used as precursors in early syntheses are carcinogenic

References:

- Org. Synth., Coll. Vol.*, 2, 1943, 165, (synth)
Org. Synth., Coll. Vol., 3, 1955, 244, (synth)
Org. Synth., Coll. Vol., 4, 1963, 250, (synth)
Yoshida, Z. *et al.*, *Bull. Chem. Soc. Jpn.*, 1972, **45**, 742, (uv)
IARC Monog., 1974, **7**, 223; *Suppl.* 7, 61, (rev, tox)
Pizey, J.S., *Synth. Reagents*, Ellis Horwood, 1974, **2**, 65, (rev, bibl)
Freeman, W.J. *et al.*, *Org. Magn. Reson.*, 1977, **9**, 75, (cmr)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1979, **7**, 88
Black, T.H., *Aldrichimica Acta*, 1983, **16**, 3, (rev)
Vogt, J. *et al.*, *Chem. Phys.*, 1984, **83**, 309, (ir)
Doering, W. von E. *et al.*, *J.A.C.S.*, 1987, **109**, 2697, (synth)
Lombardi, P., *Chem. Ind. (London)*, 1990, 708, (synth)
Dangerous Prop. Ind. Mater. Rep., 1992, **12**, 530-536, (haz)
Ghazi, M., *Synth. Commun.*, 1992, **22**, 2853, (synth)
Moss, S., *Chem. Ind. (London)*, 1994, 122, (haz)
Encyclopaedia of Reagents for Organic Synthesis, (ed. Paquette, L.A.), Wiley, 1995, **2**, 1512-1519, (rev, use)
Synthetic Methods of Organometallic and Inorganic Chemistry, (ed. Hermann, W.A.), Thieme, 1996, **1**, 64-65, (synth)
Chemical Hazards of the Workplace, 2nd edn., (eds. Proctor, N.H. *et al.*), J.B. Lippincott, 1988, 180
Bretherick, L., *Handbook of Reactive Chemical Hazards*, 4th edn., Butterworths, 1990, 0388
Luxon, S.G., *Hazards in the Chemical Laboratory*, 5th edn., Royal Society of Chemistry, 1992, 385
Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, DCP800