



>>Entry Name: Acetylene

Synonym(s): Ethyne, 9CI

CAS Registry Number: 74-86-2

Related CAS Registry Numbers(s): 1066-26-8 1070-74-2 2122-48-7 2210-34-6 12595-78-7 16456-59-0 16753-36-9 29075-95-4

Extra CAS Registry Numbers(s): 25641-79-6

$\text{HC}\equiv\text{CH}$

Molecular Formula: C_2H_2

Molecular Weight: 26.038

Accurate Mass: 26.01565

Percentage Composition: C 92.26%; H 7.74%

Source/Synthesis: Obt. commercially from the cracking of crude oil. For many years a chemical feedstock for the industrial production of Chloroethylene [CXM64-C](#) (for PVC), vinyl acetate (for PVA emulsion paints and adhesives), Acetaldehyde [DFR74-T](#) (for conversion into acetic acid) and 2-Propenoic acid [DFS27-M](#) (for acrylic fibres and adiponitrile used in nylon production). Most of these compounds are now made competitively starting from Ethylene [BGV03-C](#)

Use/Importance: Undergoes Ziegler-Natta polym. to give elec.-conducting polyacetylene. Welding gas

Physical Description: Gas with an unpleasant odour

Melting Point: Mp -80.7°

Boiling Point: Bp -84°

Solubility: Sl. sol. H_2O ; mod. sol. EtOH, AcOH, C_6H_6 ; v. sol. Me_2CO

Density: d^0 0.045175

Other Data: H_2O diss. 1 vol at 18° . Me_2CO diss. 25 vols at $15^\circ/760\text{mm.}$, 300 vols at 12 atm., 2000 vols at -80° . Crit. point $37^\circ/61.5\text{ atm.}$

Hazard & Toxicity: Extremely flammable, may explode on heating, fl. p. -18° , autoignition temp. 305° . Forms many highly explosive metallic derivs. Inhalation may cause dizziness, headache and nausea. High. conc. anaesthetic

Aldrich: 32111-7

>>Derivative: Na deriv.

Use/Importance: Reagent for synth. of polyalkenes

Solubility: Insol. Et_2O , C_6H_6

Other Data: Dec. at $210-20^\circ$

Hazard & Toxicity: Dec. at 150° evolving spont. inflammable gas, reacts violently with Cl_2 and Br_2

>>Derivative: Cu deriv.

Solubility: Insol. H_2O

Hazard & Toxicity: Explodes at 120°