>>**Entry Name: 2-Methyl-2-propenoic acid,** 9CI
Synonym(s): 2-Methylacrylic acid, 8CI. Methacrylic acid

CAS Registry Number: 79-41-4
Related CAS Registry Numbers(s): 5536-61-8 6900-35-2 7095-16-1 13189-00-9 18358-13-9

$H_2C=C(CH_3)COOH$

Molecular Formula: $C_4H_6O_2$
Molecular Weight: 86.09
Accurate Mass: 86.03678
Percentage Composition: C 55.81%; H 7.02%; O 37.17%
Biological Source: Isol. from *Scarites subterraneus*. Defence substance of the caryatid beetle. Manuf. by acetone cyanohydrin route or by oxidation of 2-Methylpropene DDL05-H
Use/Importance: Undergoes free radical polym. and copolym. in aq. soln. Polymers used as synthetic resins. Many esters and other derivs. used as monomers
Physical Description: Long prisms or liq. with a penetrating odour
Melting Point: Mp 15-16°
Boiling Point: Bp 160.5°. Bp_{14} 72°
Solubility: Sol. H_2O, EtOH, Et_2O, $CHCl_3$
Density: d_4^{20}1.02
pKa Value: pK_{a1} 4.65
Refractive Index: n_D^{20} 1.4314
Other Data: Polym. on repeated dist. or on heating under pressure with HCl. Usually contains hydroquinone or hydroquinone monomethyl ether as polym. inhibitor. Q/e values for copolym., Q 0.98, e +0.62. Copolym. with vinyl chloride, r_{MA} 23.8, r_{VC} 0.034 (typical values, 60°), Q 2.34, e 0.65
Hazard & Toxicity: Corrosive and irritating to skin, eyes and mucous membranes. LD_{50} (rbt, skn) 500 mg/kg. LD_{50} (rat, orl) 1060 mg/kg. OES: long-term 20 ppm; short-term 40 ppm

Aldrich: 39537-4
Fluka: 64050
Sigma: M0782

>>**Derivative:** Me ester
Synonym(s): Methyl methacrylate. Pegalan

CAS Registry Number: 80-62-6

Molecular Formula: $C_5H_8O_2$
Molecular Weight: 100.117
Accurate Mass: 100.05243
Percentage Composition: C 59.98%; H 8.05%; O 31.96%
Use/Importance: Monomer for prodn. of synthetic resins (perspex). Used for extraction-separation of Se and Au
Physical Description: Liq.
Melting Point: Mp –48°
Boiling Point: Bp 100-101°
Solubility: Sol. Me_2CO, EtOH, Et_2O, THF; sl. sol. H_2O
Density: d^{20} 0.944
Refractive Index: n_D^{20} 1.4140
Other Data: Vp 320 mmHg (20°). Polym. on exp. to light or on heating in air. Hydroquinone monomethyl ether is often added to coml. products as an inhibitor. Q/e values for copolym., Q 0.78, e +0.40. Rate for radical polym., k_p 143 L mol^{-1} s^{-1}, k_t 1.2 x 10^{-5} L mol^{-1} s^{-1} (30°). Copolym. with vinylidene chloride, r_{VDC} 0.57, r_{MMA} 2.8 (typical values), Q 0.42, e 0.60. Copolym. with vinyl chloride, r_{MMA} 10.0, r_{VC} 0.10 (typical values, 68°), Q 0.74, e 0.40
Hazard & Toxicity: Highly flammable, fl. p. –10°, autoignition temp. 430°. Explosive polym. in presence of air may occur if inhibitor is not present. Skin and eye irritant. Adverse CNS and other effects by inhalation. Low acute tox. Occup. exposure can result in paraesthesia of the fingers. OES: long-term 100 ppm; short-term 125 ppm

Aldrich: M5590-9
Fluka: 64200
Sigma: M1283
Supelco: R47-2125

>>**Derivative:** Et ester
Synonym(s): Ethyl methacrylate