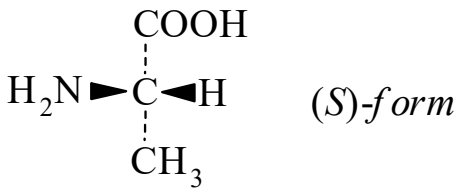
>>**Entry Name: Alanine,** INN, USAN
**Synonym(s):** 2-Aminopropanoic acid, 9CI. α-Alanine. Ala



(*S*)-*form*

**Related CAS Registry Numbers(s):** 2134-48-7 2491-20-5 3082-75-5 17831-01-5 33208-99-0 34404-37-0 95596-57-9 98204-12-7

**Molecular Formula:** $C_3H_7NO_2$
**Molecular Weight:** 89.094
**Accurate Mass:** 89.047679
**Percentage Composition:** C 40.44%; H 7.92%; N 15.72%; O 35.92%

>>**Variant:** (*R*)-form
**Synonym(s):** D-form

**CAS Registry Number:** 338-69-2

**Molecular Formula:** $C_3H_7NO_2$
**Molecular Weight:** 89.094
**Accurate Mass:** 89.047679
**Percentage Composition:** C 40.44%; H 7.92%; N 15.72%; O 35.92%
**Biological Source:** Occurs in the cell walls of bacteria and in some higher plants
**Physical Description:** Prisms (EtOH aq.)
**Melting Point:** Mp 295-297 dec.°
**Optical Rotation:** $[\alpha]_D^{25}$ –1.8 (c, 1 in $H_2O$). $[\alpha]_D$ –14.6 (c, 1 in 5*M* HCl)
**Solubility:** Sol. hot $H_2O$
**Aldrich:** 16265-5
**Fluka:** 5140
**Sigma:** A7377

>>**Derivative:** Hydrochloride

**Optical Rotation:** $[\alpha]_D^{20}$ –10.3 ($H_2O$)
**Solubility:** Sol. $H_2O$

>>**Derivative:** Me ester

**CAS Registry Number:** 21705-13-5
**Extra CAS Registry Numbers(s):** 14316-06-4
**Molecular Formula:** $C_4H_9NO_2$
**Molecular Weight:** 103.121
**Accurate Mass:** 103.063329
**Percentage Composition:** C 46.59%; H 8.80%; N 13.58%; O 31.03%
**Melting Point:** Mp 109-111° (as hydrochloride)

>>**Derivative:** Et ester

**CAS Registry Number:** 30959-96-7
**Molecular Formula:** $C_5H_{11}NO_2$
**Molecular Weight:** 117.147
**Accurate Mass:** 117.078979
**Percentage Composition:** C 51.26%; H 9.46%; N 11.96%; O 27.31%
**Physical Description:** Needles (EtOH aq.)
**Melting Point:** Mp 104-105°
**Optical Rotation:** $[\alpha]_D^{20}$ +6.91 (EtOH)

>>**Derivative:** Benzyl ester

**CAS Registry Number:** 17831-02-6
**Molecular Formula:** $C_{10}H_{13}NO_2$
**Molecular Weight:** 179.218
**Accurate Mass:** 179.094629
**Percentage Composition:** C 67.02%; H 7.31%; N 7.82%; O 17.85%
**Melting Point:** Mp 139-140° (as hydrochloride)
**Optical Rotation:** $[\alpha]_D^{25}$ +10.5 (c, 2 in 0.1*M* HCl)