



>>Entry Name: Tetrahydroaluminate(1-)

Synonym(s): Aluminohydride

CAS Registry Number: 19469-81-9

$[\text{AlH}_4]^{(-)} (T_d)$

Molecular Formula: $\text{AlH}_4^{(-)}$

Molecular Weight: 31.013

Accurate Mass: 31.012839

Percentage Composition: Al 87.00%; H 13.00%

>>Derivative: Li salt

>>Derivative: Na salt

Synonym(s): Sodium tetrahydroaluminate. Aluminium sodium hydride (AlNaH_4). Lithium alanate

CAS Registry Number: 13770-96-2

Molecular Formula: AlH_4Na

Molecular Weight: 54.003

Accurate Mass: 54.002606

Percentage Composition: Al 49.96%; H 7.47%; Na 42.57%

Source/Synthesis: From Na, Al and H_2 in THF at 150° and 140 atm.

Physical Description: White v. moisture sensitive solid

Melting Point: Mp 174° (185-190°)

Solubility: Insol. Et_2O ; sol. THF, diglyme

Other Data: Dec. rapidly at 185°. $\Delta H_{f298} -113 \text{ kJ mol}^{-1}$

Aldrich: 35747-2

Fluka: 71250

>>Derivative: K salt

Synonym(s): Potassium tetrahydroaluminate. Aluminium potassium hydride

CAS Registry Number: 16903-34-7

Molecular Formula: AlH_4K

Molecular Weight: 70.111

Accurate Mass: 69.976546

Percentage Composition: Al 38.48%; H 5.75%; K 55.77%

Source/Synthesis: From K, Al and H_2 in diglyme at 150° and 140 atm.

Physical Description: White v. hygroscopic solid

Solubility: Insol. Et_2O , C_6H_6 ; sol. THF, diglyme

Other Data: $\Delta H_f -166.5 \text{ kJ mol}^{-1}$

>>Derivative: Cs salt

Synonym(s): Caesium tetrahydroaluminate. Aluminium caesium hydride

CAS Registry Number: 16961-92-5

Molecular Formula: AlCsH_4

Molecular Weight: 163.918

Accurate Mass: 163.918268

Percentage Composition: Al 16.46%; Cs 81.08%; H 2.46%

Source/Synthesis: From Cs, Al and H_2 at 130° and 300 atm.

Physical Description: White v. moisture sensitive solid

Melting Point: Mp 310-314°

Solubility: Sol. diglyme; spar. sol. toluene

Other Data: $\Delta H_f -166.5 \text{ kJ mol}^{-1}$