>>**Entry Name: Tetrachloroaluminate(1–)**

CAS Registry Number: 17611-22-2
$[AlCl_4]^{(-)}$

Molecular Formula: $AlCl_4^{(-)}$
Molecular Weight: 168.792
Accurate Mass: 166.856947
Percentage Composition: Al 15.99%; Cl 84.01%
Other Data: Species $[M(AlCl_4)_3]^{(-)}$, M = Mn, Co or Ni also descr. Species $[AlCl_nBr_{4-n}]^{(-)}$ also descr.

>>**Derivative:** Li salt
Synonym(s): Lithium tetrachloroaluminate ($LiAlCl_4$)

CAS Registry Number: 14024-11-4
Molecular Formula: $AlCl_4Li$
Molecular Weight: 175.733
Accurate Mass: 173.87295
Percentage Composition: Al 15.35%; Cl 80.70%; Li 3.95%
Source/Synthesis: Obt. from LiCl and $AlCl_3$
Use/Importance: Commercially available
Physical Description: White hygroscopic cryst. (melt)
Melting Point: Mp 143.5°
Other Data: High ionic conductivity in solid: $10^{-4}\ \Omega^{-1}\ m^{-1}$
Aldrich: 45114-2

>>**Derivative:** Li salt, tris-SO_2 complex
Synonym(s): Tris(sulfur dioxide-*O*)lithium(1+) tetrachloroaluminate(1–)

CAS Registry Number: 76229-54-4
Source/Synthesis: Obt. from $LiCl/AlCl_3/SO_3$
Physical Description: White moisture sensitive cryst.
Melting Point: Mp 30°

>>**Derivative:** Na salt

>>**Derivative:** K salt
Synonym(s): Potassium tetrachloroaluminate ($KAlCl_4$)

CAS Registry Number: 13821-13-1
Molecular Formula: $AlCl_4K$
Molecular Weight: 207.891
Accurate Mass: 205.820654
Percentage Composition: Al 12.98%; Cl 68.21%; K 18.81%
Source/Synthesis: Obt. from KCl + $AlCl_3$
Physical Description: Colourless moisture sensitive cryst. (melt)
Other Data: Monomers and dimers detected by ms in vapour. $\Delta H^\circ_{f\,298}$ –1196.6 kJ mol^{-1}; S° 196.6 J K^{-1} mol^{-1}
Aldrich: 45120-7

>>**Derivative:** Rb salt
Synonym(s): Rubidium tetrachloroaluminate ($RbAlCl_4$)

CAS Registry Number: 17992-02-8
Molecular Formula: $AlCl_4Rb$
Molecular Weight: 254.26
Accurate Mass: 251.768741
Percentage Composition: Al 10.61%; Cl 55.77%; Rb 33.61%
Source/Synthesis: Obt. from RbCl + $AlCl_3$
Physical Description: Colourless moisture sensitive cryst. (melt)

>>**Derivative:** Cs salt

>>**Derivative:** Ti(*II*) salt