



>>Entry Name: Aluminium perchlorate ($\text{Al}(\text{ClO}_4)_3$)

Synonym(s): Perchloric acid, aluminium salt, 11Cl

CAS Registry Number: 14452-39-2

Related CAS Registry Numbers(s): 81029-06-3

$\text{Al}(\text{ClO}_4)_3$

Molecular Formula: $\text{AlCl}_3\text{O}_{12}$

Molecular Weight: 325.332

Accurate Mass: 323.827075

Percentage Composition: Al 8.29%; Cl 32.69%; O 59.01%

Source/Synthesis: Synth. from AlCl_3 and AgClO_4 in C_6H_6

Use/Importance: Commercially available. Aq. solns. source of Hexaaquaaluminium(3+) [JZF19-W](#). Similar species in DMF, dioxan, etc.

Physical Description: White hygroscopic cryst.

Solubility: Sol. H_2O , Et_2O ; insol. CCl_4 , freons

Other Data: Salts $\text{MAl}(\text{ClO}_4)_4 \cdot 2\text{H}_2\text{O}$ (M = Rb or Cs) also descr. Reacts slowly with paraffin hydrocarbons. Dec. > 150°

Hazard & Toxicity: May explode

>>Derivative: 4.5 Hydrate

Physical Description: Colourless hygroscopic cryst.

>>Derivative: Hexahydrate

Synonym(s): Hexaaquaaluminium(3+) triperchlorate

CAS Registry Number: 22993-14-2

Molecular Formula: $\text{AlCl}_3\text{H}_{12}\text{O}_{18}$

Molecular Weight: 433.424

Accurate Mass: 431.890465

Percentage Composition: Al 6.23%; Cl 24.54%; H 2.79%; O 66.45%

Source/Synthesis: From hydrated alumina and aq. HCl

Physical Description: Colourless cryst. (H_2O)

>>Derivative: Heptahydrate

Source/Synthesis: Synth from $\text{AlCl}_3 \cdot 6\text{H}_2\text{O}$ and HClO_4 followed by addn. of dioxan

Physical Description: Colourless hygroscopic cryst. + 4 dioxan (H_2O)

Solubility: Sol. H_2O , MeOH, Me_2CO , EtOAc; spar. sol. Et_2O ; insol. C_6H_6 , CHCl_3 , CCl_4

Hazard & Toxicity: May explode when dry