



>>Entry Name: Antimony chloride (SbCl₃), 8Cl

ENTRY UNDER REVIEW

Synonym(s): Trichlorostibine, 9Cl. Antimony(*III*) trichloride. Trichloroantimony(*III*). Antimonous chloride

CAS Registry Number: 10025-91-9

SbCl₃

Molecular Formula: Cl₃Sb

Molecular Weight: 228.108

Accurate Mass: 225.810377

Percentage Composition: Cl 46.63%; Sb 53.37%

General Statement: Orthorhombic, discrete pyramidal molecules, with h.c.p. of Cl's in cryst.: Sb-Cl 235 (mean short), 345.7-373.6 (long) pm. In vap., pyramidal molecules having Sb-Cl 233 pm, angle ClSbCl 97.2°

Source/Synthesis: Synth. from Sb₂S₃ + HgCl₂, NaCl, or HCl, also from Sb + Cl₂

Use/Importance: Commercially available. Used as solv. and as a mordant

Physical Description: Colourless, hygroscopic cryst. which fume in air

Boiling Point: Bp 219°. Bp₇₀ 143-144°. Bp₂₃ 113°

Solubility: Sol. cold EtOH, CS₂, Et₂O, CCl₄ and H₂O (small amounts); insol. Py, quinoline, other org. bases

Other Data: Diln. of aq. soln. → Antimony chloride oxide (SbClO) [HTG60-V](#). Can be distilled (under H₂) without dec. Reacts with Cl₂ → Antimony chloride (SbCl₅)

[HTF88-E](#) and vigorously with F₂ → Antimony fluoride (SbF₃) [HTG03-G](#). A Lewis acid forming adducts with Lewis bases e.g. aromatic hydrocarbons and derivs. Many complexes formed with other Group V halides and metal fluorides e.g. of Group I. $\Delta H_f^\circ -382 \text{ kJ mol}^{-1}$. Reactive to O, S and N nucleophilic compds. → Sb-O, Sb-S, or Sb-N compds. With Grignard reagents or other carbanionic species → organo Sb compds. NH₃ and aromatic amines can also give adducts

Hazard & Toxicity: Highly corrosive. Poisonous. Irritant. Can react violently with Al, K, Na

Aldrich: 31137-5

Fluka: 10775

Sigma: A4461

>>Derivative: 12-Crown-4-complex (1:1)

Molecular Formula: C₈H₁₆Cl₃O₄Sb

Molecular Weight: 404.32

Accurate Mass: 401.915237

Percentage Composition: C 23.77%; H 3.99%; Cl 26.31%; O 15.83%; Sb 30.11%

Physical Description: Cryst.

>>Derivative: Mesitylene complex (1:1)

Synonym(s): Trichloro(1,3,5-trimethylbenzene)antimony(*III*)

CAS Registry Number: 13049-05-3

Molecular Formula: C₉H₁₂Cl₃Sb

Molecular Weight: 348.302

Accurate Mass: 345.904277

Percentage Composition: C 31.04%; H 3.47%; Cl 30.54%; Sb 34.96%

Physical Description: Colourless cryst.

Melting Point: Mp 40-41°

>>Derivative: Mesitylene complex (2:1)

Synonym(s): (1,3,5-Trimethylbenzene)bis[trichloroantimony(*III*)]

Molecular Formula: C₉H₁₂Cl₆Sb₂

Molecular Weight: 576.41

Accurate Mass: 571.714654

Percentage Composition: C 18.75%; H 2.10%; Cl 36.90%; Sb 42.24%

Physical Description: Cryst.

Melting Point: Mp 75°

>>Derivative: Hexamethylbenzene complex (2:1)

Synonym(s): (Hexamethylbenzene)bis[trichloroantimony(*III*)]

CAS Registry Number: 59652-04-9

Molecular Formula: C₁₂H₁₈Cl₆Sb₂

Molecular Weight: 618.49

Accurate Mass: 613.761604

Percentage Composition: C 23.30%; H 2.93%; Cl 34.39%; Sb 39.37%

Physical Description: Tetragonal colourless cryst.

Melting Point: Mp 185°