



>>Entry Name: Hexafluoroantimonic(V) acid

Synonym(s): Hydrogen hexafluoroantimonate(1-), 9Cl, 8Cl

CAS Registry Number: 16950-06-4

Related CAS Registry Numbers(s): 72121-43-8

HSbF₆

Molecular Formula: F₆HSb

Molecular Weight: 236.748

Accurate Mass: 235.902064

Percentage Composition: F 48.15%; H 0.43%; Sb 51.43%

Source/Synthesis: Synth. from SbF₅ + HF or HSO₃F; or from SbF₃ + F₂ + HF

Use/Importance: A *'Super' acid*. Causes C migration in org. compds.

Aldrich: 17510-2

>>Derivative: Pentahydrate, hydrofluoride

CAS Registry Number: 77152-87-5

Use/Importance: Commercially available

Other Data: Formally referred to as a hexahydrate. Clathrate-like hydrate. Each SF₆⁽⁻⁾ ion occupies a tetradecehedral cage in fully H-bonded lattice with H₂O, H₃O⁽⁺⁾, and HF randomly distributed. Cubic cell

>>Derivative: Hexahydrate

CAS Registry Number: 72121-43-8

Use/Importance: Commercially available

Other Data: Hexagonal cell. Polyhedral clathrate hydrate

Aldrich: 33917-2

>>Derivative: Py salt

Molecular Formula: C₅H₆F₆NSb

Molecular Weight: 315.849

Accurate Mass: 314.944263

Percentage Composition: C 19.01%; H 1.91%; F 36.09%; N 4.43%; Sb 38.55%

Physical Description: Colourless cryst.

Other Data: Rhombohedral cell. F atoms octahedrally arranged about Sb, with Sb-F 187.1 pm, FSbF 86.2°

>>Derivative: Aniline salt

CAS Registry Number: 23653-46-5

Molecular Formula: C₆H₈F₆NSb

Molecular Weight: 329.876

Accurate Mass: 328.959913

Percentage Composition: C 21.85%; H 2.44%; F 34.56%; N 4.25%; Sb 36.91%

Use/Importance: V. efficient cationic polym. initiator for alkenes

Physical Description: White cryst.

Melting Point: Mp 195-203°

Solubility: Insol. C₆H₆

Other Data: Non-hygroscopic and easily handled in air

References:

- Copeland, R.H. *et al.*, *J. Phys. Chem.*, 1966, **70**, 1288, (*deriv, cryst struct*)
Netherlands Pat., 1966, 6 509 095; *CA*, **66**, 96990, (*manuf*)
Commeyras, A. *et al.*, *J.A.C.S.*, 1969, **91**, 2929, (*synth, F-19 nmr, Raman*)
Harris, J.J. *et al.*, *J. Polym. Sci., Part A*, 1972, **10**, 1165, (*deriv, use*)
Brouwer, D.M. *et al.*, *Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1972, **91**, 895, (*synth, props*)
Davidson, D.W. *et al.*, *Inorg. Chem.*, 1981, **20**, 2013, (*cryst struct*)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1982, **10**, 195, (*use*)
Wiebcke, M. *et al.*, *Z. Kristallogr.*, 1986, **177**, 291; 1988, **183**, 1, (*cryst struct*)