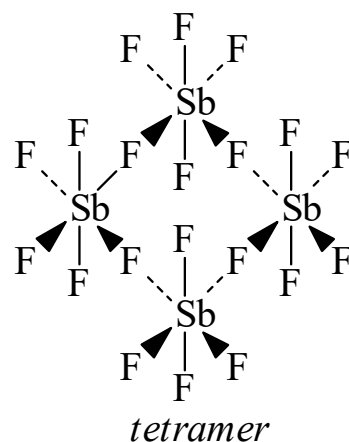




>>Entry Name: Antimony fluoride (SbF₅), 9CI

Synonym(s): Pentafluoroantimony(V). Antimony pentafluoride



CAS Registry Number: 7783-70-2

Molecular Formula: F₅Sb

Molecular Weight: 216.742

Accurate Mass: 215.895836

Percentage Composition: F 43.83%; Sb 56.17%

General Statement: Tetrameric in cryst., but as liq. (viscous) probably polymeric. Vapour probably oligomeric

Source/Synthesis: Synth. from SbF₃ + F₂

Use/Importance: Dissolves in HF to give a super acid: solns. in HSO₃F also are 'weaker super acids' see Hydrogen pentafluoro(fluorosulfato-*O*)antimonate [HTG10-G](#). Both *Magic acids* are useful for the catalysis of carbon skeleton rearrangements of organic compds. through the generation of carbocations. Powerful fluorinating agent.

Other Data: Attacks glass. Sl. corrosive to Cu and Pb. Inert to quartz, Pt and Al. Forms adducts with other halides of Group V

Hazard & Toxicity: Poisonous. Highly reactive when poured into H₂O. Attacks skin. Corrosive

Aldrich: 39990-6

>>Derivative: Tetramer

Synonym(s): Tetra-μ-fluorohexadecafluorotetraantimony(V)

Molecular Formula: F₂₀Sb₄

Molecular Weight: 866.968

Accurate Mass: 863.583344

Percentage Composition: F 43.83%; Sb 56.17%

Physical Description: Cryst.

Melting Point: Mp 8.3° (6°)

Other Data: Monoclinic. Interatomic distances: Sb-F 198-206 (bridge), 179-187 pm (terminal); angles: SbFSb 141°, 170°

>>Derivative: Polymer

Physical Description: Colourless viscous liq. at amb. temps., hygroscopic

Density: d₂₂ 2.99

Other Data: Consists of chains of *cis*-bridged SbF₆ octahedra, Sb-F 182 (terminal), 203 pm (bridging). Viscosity markedly reduced by addition of a trace of SbCl₅

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