



>>Entry Name: Sulfuryl fluoride, 11Cl

Synonym(s): Sulfuric oxyfluoride. Difluorodioxosulfur(VI). Vikane

CAS Registry Number: 2699-79-8

S(O)₂F₂

Molecular Formula: F₂O₂S

Molecular Weight: 102.062

Accurate Mass: 101.958706

Percentage Composition: F 37.23%; O 31.35%; S 31.42%

Source/Synthesis: Synth. from SO₂ + AgF₂ or by thermolysis of Ba(SO₃F)₂

Use/Importance: Reacts in base to give F⁽⁻⁾. Reacts with nucleophiles in aq. soln.

Biological Use/Importance: Fumigant. Insecticide

Physical Description: Odourless, colourless, fairly inert gas. Stable to 400°

Melting Point: Mp -136.7° (-135.8°)

Boiling Point: Bp -55.4°

Solubility: Sol. H₂O

Density: d⁻⁵⁵ 0.17

Hazard & Toxicity: Poison by ingestion, mildly toxic by inhalation. Exposure can cause nausea, vomiting, cramps and itching. May be narcotic

>>Derivative: NH₃ complex

Synonym(s): Amminedifluorodioxosulfur(VI)

CAS Registry Number: 94929-60-9

Molecular Formula: F₂H₃NO₂S

Molecular Weight: 119.092

Accurate Mass: 118.985255

Percentage Composition: F 31.91%; H 2.54%; N 11.76%; O 26.87%; S 26.93%

Physical Description: Isol. only in N₂ matrix

Other Data: Weak 1:1 donor-acceptor complex

References:

Lide, D.R. *et al.*, *J. Chem. Phys.*, 1957, **26**, 734, (*struct*)

Inorg. Synth., 1960, **6**, 158; 1967, **9**, 111, (*synth*)

Jolly, W.L., *Prep. Inorg. React.*, 1966, **3**, 35, (*rev, ir, nmr*)

Brauer, G., *Handbuch Prep. Anorg. Chem.*, 3rd edn., Ferdinand Enke Verlag, 1975, **1**, 188, (*synth*)

Holloway, J.H. *et al.*, *Adv. Inorg. Chem. Radiochem.*, 1983, **27**, 168, (*rev*)

Sass, C.S. *et al.*, *J. Phys. Chem.*, 1985, **89**, 1002, (*ammine, ir*)

Merck Index, 11th edn., 1989, No. 8960, (*props*)

Pesticide Manual, 12th edn., 2000, No. 718

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, SOU500