



>>Entry Name: Methyl fluorosulfate

Synonym(s): Methyl fluorosulfonate. Magic methyl

CAS Registry Number: 421-20-5

MeOS(O)₂F

Molecular Formula: CH₃FO₃S

Molecular Weight: 114.097

Accurate Mass: 113.978693

Percentage Composition: C 10.53%; H 2.65%; F 16.65%; O 42.07%; S 28.10%

Source/Synthesis: Synth. from FSO₃H + CH₂N₂ in SO₂ClF at 85° or from FSO₃H + (MeO)₂SO₂

Use/Importance: Commercially available methylating agent. Good solvent

Physical Description: Volatile colourless liq. Rapidly hydrol. Ethereal odour

Melting Point: Mp -95 approx.°

Boiling Point: Bp 92-94°

Solubility: Sol. most org. solvs.

Density: d¹⁶ 1.427

Refractive Index: n_D²⁰ 1.3326

Hazard & Toxicity: Extremely toxic to humans. V. highly toxic vapours, causing potentially fatal pulmonary oedema. Exposure can be fatal. Skin, eye and mucous membrane irritant. Risk of corneal damage. Reacts with H₂O, steam or acid to give corrosive and toxic fumes. LD₅₀ (mus, orl) 112 mg/kg; LC₅₀ (rat, ihl) 5 ppm (1h exposure)

Sigma: M8881

References:

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Alder, R.G., *Chem. Ind. (London)*, 1973, 983, (use, F-19 nmr, pmr)

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