



>>Entry Name: Rhenium(VI) fluoride (ReF₆)

Synonym(s): Rhenium hexafluoride

CAS Registry Number: 10049-17-9

ReF₆ (O_h)

Molecular Formula: F₆Re

Molecular Weight: 300.197

Accurate Mass: 300.946162

Percentage Composition: F 37.97%; Re 62.03%

Source/Synthesis: Synth. from (i) Re and a sl. excess of F₂ or (ii) ReF₇ and Re

Physical Description: Yellow solid and liq., colourless vapour. Extremely hygroscopic

Melting Point: Mp 18.5°

Boiling Point: Bp 33.7°

Solubility: Sol. anhydrous HF, IF₅, SO₂

Other Data: Ir ν 715 cm⁻¹. Raman ν 755 cm⁻¹

Hazard & Toxicity: Reacts violently with H₂O to give first a green soln. (probably ReOF₅⁽⁻⁾) and then ReO₂·2H₂O, ReO₄⁽⁻⁾ and HF aq.

Aldrich: 43561-9

>>Derivative: Compd. with graphite

CAS Registry Number: 101205-61-2

Molecular Formula: C₁₀F₆Re

Molecular Weight: 420.307

Accurate Mass: 420.946162

Percentage Composition: C 28.58%; F 27.12%; Re 44.30%

Source/Synthesis: Synth. from liq. ReF₆ and highly orientated pyrolytic graphite (HOPG)

Physical Description: Pale blue powder (Stage I)

References:

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Frlec, B. *et al.*, *Inorg. Chem.*, 1967, **6**, 1596, (*Raman, props*)

McDiarmid, R., *J. Mol. Spectrosc.*, 1971, **38**, 495, (*ir, Raman*)

Brauer, G., *Handbuch Prap. Anorg. Chem.*, 3rd edn., Ferdinand Enke Verlag, 1975, **1**, 271, (*synth*)

Rakov, E.G. *et al.*, *Russ. Chem. Rev. (Engl. Transl.)*, 1980, **49**, 958, (*rev, bibl*)

Selig, H. *et al.*, *Chem. Comm.*, 1985, 1689, (*synth, props*)

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