



>>Entry Name: Xenon fluoride (XeF₆)

Synonym(s): Xenon hexafluoride

CAS Registry Number: 13693-09-9

XeF₆

Molecular Formula: F₆Xe

Molecular Weight: 245.28

Accurate Mass: 245.894562

Percentage Composition: F 46.47%; Xe 53.53%

(⁺)F(⁻) in the solid phase, forming tetrameric and hexameric units

Source/Synthesis: Synth. from Xe and 3F₂ as for XeF₄ but at higher temp. and pressure

Use/Importance: Strong fluorinating agent

Physical Description: Colourless cryst., greenish-yellow vapour

Melting Point: Mp 49.6°

Other Data: ΔH_f° -402 kJ mol⁻¹

Hazard & Toxicity: Rapidly hydrol. to explosive XeO₃ in H₂O or dil. acid

References:

Appelman, E.H. *et al.*, *J.A.C.S.*, 1964, **86**, 2141, (*hydrol*)

Inorg. Synth., 1966, **8**, 258; 1968, **11**, 205, (*synth, hydrol*)

Burbank, R.D. *et al.*, *J.A.C.S.*, 1974, **96**, 43, (*cryst struct*)

De Waard, H. *et al.*, *J. Chem. Phys.*, 1979, **70**, 3247, (*Mössbauer*)

Nielsen, J.B. *et al.*, *Inorg. Chem.*, 1990, **29**, 1779, (*synth*)

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, XEJ300