



>>Entry Name: Uranyl(VI) nitrate

Synonym(s): Uranium(VI) nitrate oxide. Bis(nitrato-*O,O'*)dioxouranium(VI)

CAS Registry Number: 10102-06-4

Related CAS Registry Numbers(s): 36478-76-9

$\text{UO}_2(\text{NO}_3)_2$

Molecular Formula: $\text{N}_2\text{O}_8\text{U}$

Molecular Weight: 394.038

Accurate Mass: 394.016252

Percentage Composition: N 7.11%; O 32.48%; U 60.41%

Source/Synthesis: Anhydrous nitrate obt. only from $\text{UO}_3 + \text{N}_2\text{O}_4/\text{N}_2\text{O}_5$; hydrate hydrol. on attempted thermal dehydration

Solubility: Sol. H_2O , Et_2O , many org. solvs.

Other Data: Forms 3 hydrates, depending on acidity of soln.

Hazard & Toxicity: Toxic, radioactive

>>Derivative: Dihydrate

CAS Registry Number: 16071-05-9

Molecular Formula: $\text{H}_4\text{N}_2\text{O}_{10}\text{U}$

Molecular Weight: 430.068

Accurate Mass: 430.037382

Percentage Composition: H 0.94%; N 6.51%; O 37.20%; U 55.35%

Source/Synthesis: Obt. on cryst. from fuming HNO_3 . Also formed by drying higher hydrates over H_2SO_4 at 60-65° /122 mm

Physical Description: Yellow cryst.

Other Data: Hexagonal bipyramidal U. Ir $\nu_{\text{U=O}}$ 949 cm^{-1}

>>Derivative: Trihydrate

CAS Registry Number: 20651-50-7

Molecular Formula: $\text{H}_6\text{N}_2\text{O}_{11}\text{U}$

Molecular Weight: 448.083

Accurate Mass: 448.047947

Percentage Composition: H 1.35%; N 6.25%; O 39.28%; U 53.12%

Source/Synthesis: Synth. from hexahydrate by drying over H_2SO_4 at 40-50°/100 mm or cryst. from conc. HNO_3

Physical Description: Yellow cryst.

Other Data: Hexagonal bipyramidal U. Ir $\nu_{\text{U-O}}$ 952 cm^{-1}

>>Derivative: Hexahydrate

CAS Registry Number: 13520-83-7

Molecular Formula: $\text{H}_{12}\text{N}_2\text{O}_{14}\text{U}$

Molecular Weight: 502.129

Accurate Mass: 502.079642

Percentage Composition: H 2.41%; N 5.58%; O 44.61%; U 47.40%

Source/Synthesis: Obt. on cryst. from aq. HNO_3

Physical Description: Deliquescent yellow cryst.

Melting Point: Mp 60.2° (100°)

Boiling Point: Bp 118°

Solubility: Sol. H_2O and common org. solvs. forming range of 1:1 and 1:2 complexes

Other Data: Hexagonal bipyramidal U. Ir $\nu_{\text{U-O}}$ 959 cm^{-1} . Complex with tributyl phosphate important in extraction

Fluka: 94270

Sigma: U6379

>>Derivative: Diaqua(18-crown-6) complex

Synonym(s): Diaqua(18-crown-6)bis(nitrato)dioxouranium

CAS Registry Number: 60134-61-4

Physical Description: Yellow solid

Melting Point: Mp 137-139° (148-154°) (155°)

Solubility: Sol. THF

Other Data: 8-Coord.; does not contain direct U-crown ether bonding