



>>Entry Name: Hexakis(nitrato)cerate(2-)

Synonym(s): Hexanitratocerate(*IV*)(2-)

CAS Registry Number: 17176-35-1

Related CAS Registry Numbers(s): 12125-48-3 34902-07-3

$[\text{Ce}(\text{NO}_3)_6]^{2(-)}$

Molecular Formula: $\text{CeN}_6\text{O}_{18}^{2(-)}$

Molecular Weight: 512.144

Accurate Mass: 511.832347

Percentage Composition: Ce 27.36%; N 16.41%; O 56.23%

Use/Importance: V. widely used as synthetic reagent in org. chem., esp. as oxidising agent. Volumetric standard oxidant. Catalyses iodination at C5 of uracil nucleosides.

Used in oxidative ring closure of allylsilanes, and to selectively nitrate aryl alkyl esters

Hazard & Toxicity: Oxidant, irritant

>>Derivative: Di-K salt

CAS Registry Number: 17126-44-2

Molecular Formula: $\text{CeK}_2\text{N}_6\text{O}_{18}$

Molecular Weight: 590.341

Accurate Mass: 589.759761

Percentage Composition: Ce 23.73%; K 13.25%; N 14.24%; O 48.78%

Source/Synthesis: Obt. by evapn. at 40° of soln. of KNO_3 and $\text{ClO}_2 \cdot 2.4\text{H}_2\text{O}$ in boiled conc. HNO_3 ; monoclinic form predominates on slow cryst., both monoclinic and hexagonal forms obt. on fast cryst.

Physical Description: Orange-red cryst.

Other Data: In hexagonal form, Cl-O 247.9-251.8 pm; in monoclinic form Cl-O 248.1-253.5 pm. Both forms have irregular icosahedral coord. of Ce

>>Derivative: Di-Rb salt

Molecular Formula: $\text{CeN}_6\text{O}_{18}\text{Rb}_2$

Molecular Weight: 683.08

Accurate Mass: 681.655935

Percentage Composition: Ce 20.51%; N 12.30%; O 42.16%; Rb 25.02%

Physical Description: Yellow-red cryst.

Solubility: Sol. H_2O

>>Derivative: Di-Cs salt

Molecular Formula: $\text{CeCs}_2\text{N}_6\text{O}_{18}$

Molecular Weight: 777.955

Accurate Mass: 777.643205

Percentage Composition: Ce 18.01%; Cs 34.17%; N 10.80%; O 37.02%

Physical Description: Yellow cryst.

>>Derivative: Di- NH_4 salt

Synonym(s): Ammonium cerium(*IV*) nitrate. Ceric ammonium nitrate. CAN

CAS Registry Number: 16774-21-3

Extra CAS Registry Numbers(s): 10139-51-2 15078-94-1

Physical Description: Yellow soln. in H_2O

Solubility: Sol. H_2O

Aldrich: 43133-8

Fluka: 22250

Sigma: C5801

>>Derivative: Bis[(PyH) $_2$ NO $_3$] $^{(+)}$ salt

Molecular Formula: $\text{C}_{20}\text{H}_{24}\text{CeN}_{12}\text{O}_{24}$

Molecular Weight: 956.591

Accurate Mass: 956.008081

Percentage Composition: C 25.11%; H 2.53%; Ce 14.65%; N 17.57%; O 40.14%

Source/Synthesis: Obt. by recryst. $(\text{NH}_4)_2\text{Cl}(\text{NO}_3)_6$ from Py

Physical Description: Pale orange prismatic cryst.

Other Data: $\text{Ce}(\text{NO}_3)_6^{2(-)}$ anion has pseudo-icosahedral symmetry with Cl-U 247.7-252.2 pm. Cryst. are stable in stoppered vials but dec. in air

References: