



**>>Entry Name: Ammonium cerium(4+) sulfate (4:1:4)**

**Synonym(s):** Sulfuric acid ammonium cerium(4+) salt (4:4:1), 9Cl. Ammonium tetrasulfatocerate(IV). Ammonium ceric sulfate. Ceric ammonium sulfate

**CAS Registry Number:** 7637-03-8

**Extra CAS Registry Numbers(s):** 13840-04-5 19495-85-3 178178-73-9

$(\text{NH}_4)_4\text{Ce}(\text{SO}_4)_4$

**Molecular Formula:**  $\text{CeH}_{16}\text{N}_4\text{O}_{16}\text{S}_4$

**Molecular Weight:** 596.523

**Accurate Mass:** 595.849849

**Percentage Composition:** Ce 23.49%; H 2.70%; N 9.39%; O 42.91%; S 21.50%

**Source/Synthesis:** Oxidising agent, e.g. for arenes to quinones; catalyst for polym. of acrylic monomers

**>>Derivative:** Dihydrate

**CAS Registry Number:** 10378-47-9

**Molecular Formula:**  $\text{CeH}_{20}\text{N}_4\text{O}_{18}\text{S}_4$

**Molecular Weight:** 632.553

**Accurate Mass:** 631.870979

**Percentage Composition:** Ce 22.15%; H 3.19%; N 8.86%; O 45.53%; S 20.28%

**Source/Synthesis:** Synth. in the  $(\text{NH}_4)_2\text{SO}_4$ - $\text{Ce}(\text{SO}_4)_2$ - $\text{H}_2\text{SO}_4$ - $\text{H}_2\text{O}$  system

**Physical Description:** Cryst. ( $\text{H}_2\text{O}$ )

**Other Data:** Dec. to  $(\text{NH}_4)\text{Ce}(\text{SO}_4)_2$  at 420-530° and  $\text{Ce}_2(\text{SO}_4)_3$  at 600-800°

**References:**

- Golovnya, V.A. *et al.*, *Zh. Neorg. Khim.*, 1961, **6**, 636-640; *CA*, **54**, 4296b, (*synth*)  
Kharzeeva, S.E. *et al.*, *Zh. Neorg. Khim.*, 1967, **12**, 3026-3030; *CA*, **68**, 55087t, (*ir*)  
*Fieser and Fieser's Reagents for Organic Synthesis*, Wiley, 1986, **12**, 107, (*use*)  
Bondar, S.A. *et al.*, *Zh. Neorg. Khim.*, 1986, **31**, 625-627; *CA*, **104**, 198733y, (*synth*, *ir*, *dec*)  
Pokol, G. *et al.*, *J. Therm. Anal.*, 1994, **42**, 343-359, (*dihydrate*, *cryst struct*)