

# FLINN SCIENTIFIC, INC.

## Safety Data Sheet (SDS)

SDS #: 226.30

Revision Date: March 24, 2014

### SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### Cerium(IV) and Ruthenium(II) in Sulfuric Acid Solution

Flinn Scientific, Inc. P.O. Box 219, Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

Signal Word **DANGER**

Pictograms



### SECTION 2 — HAZARDS IDENTIFICATION

Hazard class: Skin corrosion or irritation (Category 1). Causes severe skin burns and eye damage (H314). Do not breathe mist, vapors or spray (P260).

Hazard class: Acute toxicity, inhalation (Category 5). May be harmful if inhaled (H333).

Hazard class: Hazardous to the aquatic environment, acute toxicity (Category 3). Harmful to aquatic life (H402).

Considerable heat generated when diluted with water.

Industrial exposure to sulfuric acid vapors and mists is listed as a known human carcinogen by IARC (IARC-1).

### SECTION 3 — COMPOSITION, INFORMATION ON INGREDIENTS

Component Name	CAS Number	Formula	Formula Weight	Concentration
Sulfuric acid	7664-93-9	H <sub>2</sub> SO <sub>4</sub>	98.08	8.3%
Cerium(IV) ammonium nitrate	16774-21-3	(NH <sub>4</sub> ) <sub>2</sub> Ce(NO <sub>3</sub> ) <sub>6</sub>	548.23	0.25%
Tris(2,2' bipyridine) ruthenium(II) chloride, hexahydrate	50525-27-4	C <sub>30</sub> H <sub>24</sub> Cl <sub>2</sub> N <sub>6</sub> Ru ·	748.62	0.04%
Water	7732-18-5	6H <sub>2</sub> O H <sub>2</sub> O	18.00	91.4%

### SECTION 4 — FIRST AID MEASURES

Immediately call a POISON CENTER or physician (P310).

**If inhaled:** Call a POISON CENTER or physician if you feel unwell (P304+P312).

**If in eyes:** Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing (P305+P351+P338). **If on skin (or hair):** Immediately remove all contaminated clothing. Rinse skin with water (P303+P361+P353). Wash contaminated clothing before reuse (P363).

**If swallowed:** Rinse mouth. Do NOT induce vomiting (P301+P330+P331).

### SECTION 5 — FIRE FIGHTING MEASURES

Nonflammable, noncombustible solution.

**In case of fire:** Use a tri-class dry chemical fire extinguisher.

**NFPA CODE**  
None  
established

### SECTION 6 — ACCIDENTAL RELEASE MEASURES

Ventilate area. Spilled sulfuric acid is very slippery. Contain spill with sand or other inert absorbent material, neutralize with sodium bicarbonate or calcium hydroxide and deposit in sealed bag or container. See Sections 8 and 13 for further information.

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**SECTION 7 — HANDLING AND STORAGE**

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Flinn Suggested Chemical Storage Pattern: Inorganic #9. Store with acids, except nitric acid. Store in a dedicated acid cabinet and away from any source of water. If an acid cabinet is not available, store in Flinn Saf-Cube™. Use only in a hood or well-ventilated area (P271).

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**SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION**

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Wear protective gloves, protective clothing, and eye protection (P280). Wash hands thoroughly after handling (P264). Use only in a hood or well-ventilated area (P271).

Exposure guidelines: (as sulfuric acid) PEL 1 mg/m<sup>3</sup> (OSHA), TLV 0.2 mg/m<sup>3</sup> (thoracic fraction) (ACGIH), IDLH 15 mg/m<sup>3</sup> (OSHA)

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**SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES**

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Clear, yellow liquid. Sulfurous odor.

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**SECTION 10 — STABILITY AND REACTIVITY**

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Avoid contact with strong bases. Reacts violently with water. Always add acid to water - never the reverse.

Shelf life: Good, if stored properly.

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**SECTION 11 — TOXICOLOGICAL INFORMATION**

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Acute effects: Corrosive to all body tissues, severe respiratory tract irritant. ORL-RAT LD<sub>50</sub>: 2140 mg/kg as sulfuric acid

Chronic effects: Lung, nose and throat damage, cancer, tooth erosion. IHL-RAT LC<sub>50</sub>: 510 mg/m<sup>3</sup>/2 hour as sulfuric acid

SKN-RBT LD<sub>50</sub>: N.A.

Target organs: Eyes, skin, respiratory system, and teeth.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

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**SECTION 12 — ECOLOGICAL INFORMATION**

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Data not yet available.

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**SECTION 13 — DISPOSAL CONSIDERATIONS**

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Please review all federal, state and local regulations that may apply before proceeding.

Flinn Suggested Disposal Method #24b is one option.

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**SECTION 14 — TRANSPORT INFORMATION**

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Shipping name: Sulfuric Acid. Hazard class: 8, Corrosive. UN number: UN2796

N/A = Not applicable

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**SECTION 15 — REGULATORY INFORMATION**

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Not listed.

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**SECTION 16 — OTHER INFORMATION**

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Consult your copy of the *Flinn Science Catalog/Reference Manual* for additional information about laboratory chemicals.

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