


ELECTRONIC SPACE PRODUCTS INTERNATIONAL

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MATERIAL SAFETY DATA SHEET
I PRODUCT IDENTIFICATION

Trade Name:	Ruthenium Oxide	Formula:	RuO ₂
CAS #:	12036-10-1	Synonyms:	Ruthenium (IV) Oxide

II HAZARDOUS INGREDIENTS

Hazardous Components	%	OSHA/PEL	ACGIH/TLV
Ruthenium Oxide	0-100	N/E	N/E

III PHYSICAL DATA

Boiling Point:	Decomposes	Melting Point:	Decomposes
Specific Gravity:	6.97 g/cc	Vapor Density:	N/A
Vapor Pressure:	N/A	Solubility in H₂O:	Insoluble
Appearance and Odor:	Black powder	% Volatiles:	N/E or N/A

IV FIRE AND EXPLOSION HAZARDS DATA

Flash Point: N/A
Flammable Limits: Upper: N/A Lower: N/A

Autoignition Temperature: No Data

Extinguishing Media: CO₂, foam, dry chemical.

Special Fire Fighting Procedures: Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes.

Unusual Fire and Explosion Hazards: May emit toxic fumes upon decomposition.

V HEALTH HAZARD INFORMATION

Effects of Over Exposure:

To the best of our knowledge the chemical, physical and toxicological properties of ruthenium oxide have not been thoroughly investigated and recorded.

Irritating to skin and mucous membranes. Oxidation of ruthenium/ruthenium compounds may form the volatile, toxic and highly irritating ruthenium (VIII) oxide.

Carcinogenicity: NTP: No IARC: No OSHA: No

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult, seek immediate medical advice.

INGESTION: Seek immediate medical advice.

SKIN: Flush with soap and water for 15 minutes. Seek medical advice.

EYE: Flush with water, including under eyelids, for at least 15 minutes. Consult a physician.

VI REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Extreme heat

Incompatibility (Material to Avoid): Oxidizers, acids, aqua regia, organic solvents.

Hazardous Decomposition Products: RuO₄

Hazardous Polymerization: Will not occur

VII SPILL OR LEAK PROCEDURES

Steps to Be Taken If Spilled or Released: Sweep or vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in an airtight plastic container. Take care not to raise dust.

Waste Disposal Method: Ship to precious metal refiner or dispose of in accordance with Federal, State and Local regulations.

VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection: NIOSH/MSHA approved dust respirator.

Ventilation: Fume hood

Protective Gloves: Rubber for all contact

Eye/Face Protection: Goggles

Other Protective Equipment: Normal Labwear

IX SPECIAL PRECAUTIONS

Precautions to Be Taken in Handling and Storage: Store in cool dry place, keep tightly sealed when not in use, read MSDS before using.

Work Practices: Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air. Maintain eyewash capable of sustained flushing, safety drench shower and facilities for washing.

Labeling: In compliance with OSHA and NFPA requirements.

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI shall not be held liable for any damage resulting from handling or from contact with the above product.

Issued by: S. Dierks
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