



XI'AN FUNCTION MATERIAL GROUP CO., LTD
Material Safety Data Sheet

Ruthenium Oxide

1. Product and Company Identification

Trade Name:	Ruthenium oxide
Chemical Formula:	RuO ₂
Recommended Use:	Scientific research and development
Manufacturer/Supplier:	XI'AN FUNCTION MATERIAL GROUP CO., LTD
Street:	No. 69, Gazelle Valley, High-Tech Zone
City:	XI'AN
State:	Shannxi
Zip Code:	710077
Country:	China
Tel #:	+86-29-88993870/+86-13519132051

2. Hazards Identification

Signal Word: Danger



Hazard Statements: H271: May cause fire or explosion; strong oxidizer

Precautionary Statements: P221: Take any precaution to avoid mixing with combustibles
P283: Wear fire/flame resistant/retardant clothing
P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
P306+P360: IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes
P371+P380+P375: In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion
P501: Dispose of contents/container in accordance with local/regional/national/international regulations

HMIS Health Ratings (0-4):

Health:	1
Flammability:	3
Physical:	2

3. Composition

Chemical Family:	Ceramic
Additional Names:	Ruthenium(IV) Oxide

Ruthenium oxide (RuO ₂):	
Percentage:	100 wt%
CAS #:	12036-10-1
EC #:	234-840-6

4. First Aid Procedures

General Treatment:	Seek medical attention if symptoms persist.
Special Treatment:	None
Important Symptoms:	None
Inhalation:	Remove victim to fresh air. Supply oxygen if breathing is difficult.
Ingestion:	Seek medical attention.
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

5. Firefighting Measures

Flammability:	Oxidizer – may cause fire in contact with other materials
Extinguishing Media:	Do not use water for metal fires – use CO ₂ , sand, extinguishing powder.
Spec. Fire Fighting Procedure:	Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

6. Accidental Release Measures

If Material Is Released/Spilled:	Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.
Environmental Precautions:	Isolate runoff to prevent environmental pollution.

7. Handling and Storage

Handling Conditions:	Handle under dry protective gas. Wash thoroughly after handling.
Storage Conditions:	Store in a cool dry place in a tightly sealed container. Store under dry inert gas. Store apart from materials and conditions listed in section 10.
Work/Hygienic Maintenance:	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.
Ventilation:	Provide sufficient ventilation to maintain concentration at or below threshold limit.

8. Exposure Controls and Personal Protection

Permissible Exposure Limits:	N/A
Threshold Limit Value:	N/A
Special Equipment:	None
Respiratory Protection:	Dust Respirator
Protective Gloves:	Rubber gloves
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

9. Physical and Chemical Characteristics

Color	Black
Form:	Powder
Odor:	Odorless
Water Solubility:	Insoluble
Boiling Point:	N/A
Melting Point:	1200 °C
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	6.97 g/cc
Molecular weight:	N/A

10. Reactivity

Stability:	Stable under recommended storage conditions
Reacts With:	Reducing agents, Flammable substances, Organic materials, Metal powders, Oxidizing agents
Incompatible Conditions:	Water/moisture
Hazardous Decomposition Products:	Metal oxide fume

11. Toxicological Information

Potential Health Effects:	
Eyes:	May cause irritation
Skin:	May cause irritation
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	N/A
Signs & Symptoms:	N/A
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	4580 mg/kg for rat by mouth
Carcinogen:	N/A

12. Ecological Information

Aquatic Toxicity:	Low
Persistent Bioaccumulation Toxicity:	No
Very Persistent, Very Bioaccumulative:	No
Notes:	N/A

13. Disposal Considerations

Dispose of in accordance with local, state, national, and international regulations.

14. Transportation Data

Hazardous: Hazardous as powder only.



Hazard Class: 5.1 Oxidizing substance
Packing Group: II
UN Number: UN1479
Proper Shipping Name: Oxidizing solid, n.o.s. (Ruthenium oxide)

15. Regulatory Information

Sec 302 Extremely Hazardous: No
Sec 304 Reportable Quantities: N/A
Sec 313 Toxic Chemicals: No

16. Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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