

SAFETY DATA SHEET

Version: v1

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name	: Ruthenium
Product Number	: R105898
Brand	: aladdin
CAS-No.	: 7440-18-8(powder)

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	: Laboratory chemicals, Manufacture of substances.
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1.3 Company

Company	: ALADDIN SCIENTIFIC CORPORATION
Address	: 14078 Meridian Parkway, Riverside, CA. 92518
Telephone	: +1 (833) 552-7181
Fax	: no data available

1.4 Emergency telephone number

CHEMTREC®, Inside the USA	: 1-800-424-9300
CHEMTREC®, Outside the USA	:

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H228

Flammable solid

H413

May cause long lasting harmful effects to aquatic life

Precautionary statement(s)

P210

Keep away from heat, hot surface, sparks, open flames and other ignition sources. -
No smoking.

P240

Ground/bond container and receiving equipment.

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P241	Use explosion-proof [electrical/ventilating/lighting/.../] equipment.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P370+P378	In case of fire: Use ... to extinguish.
P501	Dispose of contents/container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	: Ru Black;Ruthenium(0) black;Ruthenium element
Formula	: Ru
Molecular weight	: 101.07
CAS No.	: 7440-18-8(powder)
EC-NO.	: 231-127-1

Component	Classification	Concentration
Ruthenium	no data available	PrimorTrace™, ≥99.99% metals basis

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician.Show this safety data sheet to the doctor in attendance.Move out of dangerous area

If inhaled

If breathed in, move person into fresh air.If not breathing, give artificial respiration.Consult a physician.

In case of skin contact

Wash off with soap and plenty of water.Consult a physician

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting.Never give anything by mouth to an unconscious person.Rinse mouth with water.Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

no data available

4.3 Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, Hazardous decomposition products formed under fire conditions.- Ruthenium oxide dry chemical or carbon dioxide

Unsuitable extinguishing media

no data available

5.2 Special hazards arising from the substance or mixture

Wear self contained breathing apparatus for fire fighting if necessary

5.3 Advice for firefighters

Use water spray to cool unopened containers.

5.4 Further information

Cool unopened containers with water spray.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

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7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep in a dry place

7.3 Specific end use(s)

no data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday

Personal protective equipment

Eye/face protection

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday

Skin protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Body Protection

Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

no data available

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	form: powder color: light gray
b) Odour	no data available
c) Odour Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	2310°C
f) Initial boiling point and boiling range	3900°C
g) Flash point	no data available
h) Evaporation rate	no data available

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i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available
l) Vapour density	no data available
m) Relative density	12.45 g/mL
n) Water solubility	no data available
o) Partition coefficient: n-octanol/water	no data available
p) Auto-ignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties N	no data available
t) Oxidizing properties N	no data available

9.2 Other safety information

no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions.- Ruthenium oxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

no data available

Skin corrosion/irritation

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no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

May be harmful if inhaled. May cause respiratory tract irritation

Additional Information

no data available

SECTION 12: Ecological information

12.1 Toxicity

no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

no data available

12.6 Other adverse effects

no data available

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13.1 Disposal considerations

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.Offer surplus and non-recyclable solutions to a licensed disposal company

Contaminated packaging

Dispose of as unused product

SECTION 14: Transport information

DOT (US)

UN number: no data available	Packing group: no data available	Class: no data available
Proper shipping name: UN number: 3089 Class: 4.1 Packing group: II	Reportable Quantity(RQ): no data available	Poison Inhalation Hazard: no data available
shipping name: Metal powders, flammable, n.o.s.Marine pollutant: No		
Poison Inhalation Hazard: No		
Environmental Hazards: no data available		

IMDG

UN number: no data available	Packing group: no data available	EMS-No: no data available
Proper shipping name: UN number: 3089 Class: 4.1 Packing group: II	Proper shipping name: Metal powders, flammable n.o.s.Marine pollutant: No	Poison Inhalation Hazard: No

IATA

UN number: no data available	Packing group: no data available	Class: no data available
Proper shipping name: UN number: 3089 Class: 4.1 Packing group: II	Proper shipping name: Metal powders, flammable n.o.s.Marine pollutant: No	Poison Inhalation Hazard: No

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

SECTION 16: Other information

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