

## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

### Ruthenium Powder / Sponge min. 99.95 %

Version  
2.1

Revision Date:  
31.01.2023

Date of last issue: 17.12.2021  
Date of first issue: 24.03.2021

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

### 1.1 Product identifier

Trade name : Ruthenium Powder / Sponge min. 99.95 %

Product code : 5008180

REACH Registration Number : 01-2120746664-47-0000  
Company : Heraeus Deutschland GmbH & Co. KG

01-2120746664-47-0001  
Company : Heraeus Metals Germany GmbH & Co. KG

Heraeus companies not listed here do not have a REACH registration, because the companies either are located outside the EU or they are not required to register due to the annual amount of produced/imported substance.

Substance name : ruthenium

CAS-No. : 7440-18-8

EC-No. : 231-127-1

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

Use of the Substance/Mixture : Industrial use

### 1.3 Details of the supplier of the safety data sheet

Company : Heraeus Precious Metals GmbH & Co. KG  
Heraeusstrasse 12-14  
63450 Hanau

Telephone : +496181351

E-mail address of person responsible for the SDS : [sds@heraeus.com](mailto:sds@heraeus.com)  
(Heraeus Holding: EHS Chemical Safety)

### 1.4 Emergency telephone number

Emergency telephone number : +49 6132-84463  
International Emergency Number  
This telephone number is available 24 hours per day, 7 days per week.

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---

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical nature : inorganic

Chemical name	CAS-No. EC-No. Index-No.	Concentration (% w/w)	M-Factor, SCL, ATE
ruthenium	7440-18-8 231-127-1	100	

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## SECTION 4: First aid measures

### 4.1 Description of first aid measures

General advice : First aider needs to protect himself.

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---

- Move out of dangerous area.  
Show this safety data sheet to the doctor in attendance.
- If inhaled : Move to fresh air.
- In case of skin contact : Take off all contaminated clothing immediately.  
Wash off with soap and plenty of water.
- In case of eye contact : In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
Keep eye wide open while rinsing.  
Protect unharmed eye.  
Call a physician immediately.
- If swallowed : Immediately give large quantities of water to drink.  
Do NOT induce vomiting.

#### 4.2 Most important symptoms and effects, both acute and delayed

None known.

#### 4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

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### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### 5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Exposure to decomposition products may be a hazard to health.

Hazardous combustion products : Metal oxides

#### 5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

Further information : Use a water spray to cool fully closed containers.  
Prevent fire extinguishing water from contaminating surface water or the ground water system.

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---

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Follow safe handling advice and personal protective equipment recommendations.  
Ensure adequate ventilation.  
Evacuate personnel to safe areas.  
Refer to protective measures listed in sections 7 and 8.  
Avoid dust formation.

### 6.2 Environmental precautions

Environmental precautions : Do not allow contact with soil, surface or ground water.  
Do not let product enter drains.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Pick up and arrange disposal without creating dust.  
Sweep up or vacuum up spillage and collect in suitable container for disposal.

### 6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.  
Wear personal protective equipment.  
Avoid inhalation, ingestion and contact with skin and eyes.  
Smoking, eating and drinking should be prohibited in the application area.

Hygiene measures : Keep away from food and drink. Wash hands before breaks and at the end of workday. Keep working clothes separately.  
Remove and wash contaminated clothing and gloves, including the inside, before re-use.

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep tightly closed in a dry, cool and well-ventilated place.

Storage class (TRGS 510) : 11

### 7.3 Specific end use(s)

Specific use(s) : No data available

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Engineering measures

Provide sufficient air exchange and/or exhaust in work rooms.

#### Personal protective equipment

Eye/face protection : Safety glasses with side-shields

Hand protection

Remarks : Before removing gloves clean them with soap and water. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : No personal respiratory protective equipment normally required. Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : P3 filter

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state : powder  
Colour : grey  
Odour : odourless  
Odour Threshold : No data available

Melting point/range : 2.310 °C (1.013 hPa)

Boiling point/boiling range : 3.900 °C (1.013 hPa)

Flammability : No data available

Upper explosion limit / Upper : No data available

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---

flammability limit

Lower explosion limit / Lower flammability limit : No data available

Flash point : Not applicable

Auto-ignition temperature : Not applicable

Decomposition temperature : No data available

pH : Not applicable

Viscosity

Viscosity, dynamic : Not applicable

Viscosity, kinematic : Not applicable

Solubility(ies)

Water solubility : (20 °C, 1.013 hPa)  
practically insoluble

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : Not applicable

Vapour pressure :  $\leq 1.100$  hPa (50 °C)

Relative density : No data available

Density : 12,45 g/cm<sup>3</sup> (23 °C, 1.013 hPa)

Relative vapour density : Not applicable

Particle characteristics

Particle size : No data available

#### 9.2 Other information

Explosives : No data available

Oxidizing properties : No data available

Self-ignition : No data available

Evaporation rate : Not applicable

Molecular weight : 101,07 g/mol

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No dangerous reaction known under conditions of normal use.

### 10.2 Chemical stability

Stable under normal conditions.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

### 10.4 Conditions to avoid

Conditions to avoid : No data available  
Avoid dust formation.

### 10.5 Incompatible materials

Materials to avoid : No data available

### 10.6 Hazardous decomposition products

No data available

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## SECTION 11: Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

Not classified based on available information.

#### Skin corrosion/irritation

Not classified based on available information.

#### Serious eye damage/eye irritation

Not classified based on available information.

#### Respiratory or skin sensitisation

##### Skin sensitisation

Not classified based on available information.

##### Respiratory sensitisation

Not classified based on available information.

#### Germ cell mutagenicity

Not classified based on available information.

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---

#### **Carcinogenicity**

Not classified based on available information.

#### **Reproductive toxicity**

Not classified based on available information.

#### **STOT - single exposure**

Not classified based on available information.

#### **STOT - repeated exposure**

Not classified based on available information.

#### **Aspiration toxicity**

Not classified based on available information.

### 11.2 Information on other hazards

#### **Endocrine disrupting properties**

##### **Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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## 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

##### **Product:**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.



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#### 12.6 Endocrine disrupting properties

**Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

#### 12.7 Other adverse effects

No data available

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### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

Product : If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Dispose of as unused product.

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### SECTION 14: Transport information

#### 14.1 UN number or ID number

ADN : Not regulated as a dangerous good  
ADR : Not regulated as a dangerous good  
RID : Not regulated as a dangerous good  
IMDG : Not regulated as a dangerous good  
IATA : Not regulated as a dangerous good

#### 14.2 UN proper shipping name

ADN : Not regulated as a dangerous good  
ADR : Not regulated as a dangerous good  
RID : Not regulated as a dangerous good  
IMDG : Not regulated as a dangerous good  
IATA : Not regulated as a dangerous good

#### 14.3 Transport hazard class(es)

ADN : Not regulated as a dangerous good  
ADR : Not regulated as a dangerous good

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**RID** : Not regulated as a dangerous good  
**IMDG** : Not regulated as a dangerous good  
**IATA** : Not regulated as a dangerous good

#### 14.4 Packing group

**ADN** : Not regulated as a dangerous good  
**ADR** : Not regulated as a dangerous good  
**RID** : Not regulated as a dangerous good  
**IMDG** : Not regulated as a dangerous good  
**IATA (Cargo)** : Not regulated as a dangerous good  
**IATA (Passenger)** : Not regulated as a dangerous good

#### 14.5 Environmental hazards

Not regulated as a dangerous good

#### 14.6 Special precautions for user

Remarks : Not classified as dangerous in the meaning of transport regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Not applicable  
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable  
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable  
Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable  
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable  
REACH - List of substances subject to authorisation (Annex XIV) : Not applicable  
Seveso III: Directive 2012/18/EU of the Euro- : Not applicable

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pean Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Water hazard class (Germany) : nwg not water endangering  
Code Number: 1.443  
Classification according to AwSV, Annex 1 (4)

#### Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

#### 15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

#### Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Re-

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---

striction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECl - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

#### Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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