

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date: 06.07.2018

Version number 5

Revision: \_\_\_\_\_ 06.07.2018

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

· **1.1 Product identifier**

· **Trade name:** Black ruthenium concentrate Ru1

Schwarzrutheniumkonzentrat Ru1

· **Article number:**

81011007 = 5gRu/100 ml

81011008 = 50g Ru/l

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

Not approved for private consumers.

· **Application of the substance / the mixture** Galvanic bath

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Heimerle + Meule GmbH  
Dennigstrasse 16  
D-75179 Pforzheim

Telefon +49 (0) 7231 940-0  
Telefax +49 (0) 7231 940-2199

www.heimerle-meule.com

· **Further information obtainable from:**

Abteilung BASU - Bau/Arbeitssicherheit/Umwelt  
sds@heimerle-meule.com

IATA - 24h Emergency Contact -  
(Gefahrgut-Notrufnummer)  
+49 172 739 6970

· **1.4 Emergency telephone number:**

Vergiftungs-Informations-Zentrale Freiburg, ++49 761 19240 (24 h)

## SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**



GHS05 corrosion

Met. Corr.1 H290 May be corrosive to metals.

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

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· **Hazard pictograms**

GHS05

· **Signal word** *Danger*· **Hazard-determining components of labelling:**

*Sulphuric acid*  
*Ruthenium trichloride*

· **Hazard statements**

*H290 May be corrosive to metals.*  
*H314 Causes severe skin burns and eye damage.*

· **Precautionary statements**

*P260 Do not breathe dusts or mists.*  
*P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].*  
*P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*  
*P310 Immediately call a POISON CENTER/doctor.*  
*P321 Specific treatment (see on this label).*  
*P405 Store locked up.*  
*P501 Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Labelling of packages where the contents do not exceed 125 ml**· **Hazard pictograms**

GHS05

· **Signal word** *Danger*· **Hazard-determining components of labelling:**

*Sulphuric acid*  
*Ruthenium trichloride*

· **Hazard statements**

*H314 Causes severe skin burns and eye damage.*

· **Precautionary statements**

*P260 Do not breathe dusts or mists.*  
*P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.*  
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- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT: Not applicable.**
- **vPvB: Not applicable.**

### SECTION 3: Composition/information on ingredients

- **3.2 Chemical characterisation: Mixtures**
- **Description: Mixture of substances listed below with nonhazardous additions.**

· **Dangerous components / Information on ingredients:**

CAS: 7664-93-9 EINECS: 231-639-5 Index number: 016-020-00-8	Sulphuric acid	⚠ Skin Corr. 1A, H314	<20%
CAS: 10049-08-8 EINECS: 233-167-5	Ruthenium trichloride	⚠ Skin Corr. 1B, H314	8.6%

- **Additional information: For the wording of the listed hazard phrases refer to section 16.**

### SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:**
  - Immediately remove any clothing soiled by the product.
  - Personal protection for the First Aider.
  - Take affected persons out of danger area and lay down.
  - Involve doctor immediately after an accident or unwell.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**
  - Immediately wash with water and soap and rinse thoroughly.
  - If skin irritation continues, consult a doctor.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
  - Rinse out mouth and then drink plenty of water.
  - Drink plenty of water and provide fresh air. Call for a doctor immediately.
  - A person vomiting while laying on their back should be turned onto their side.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Hazards** Danger of gastric perforation.
- **4.3 Indication of any immediate medical attention and special treatment needed**
  - No further relevant information available.

### SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
  - CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture**
  - In case of fire, the following can be released:
  - Sulphuric acid aerosol - sulfur oxides

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- **5.3 Advice for firefighters**
- **Protective equipment:**



Wear self-contained respiratory protective device.

*Beware: Filter masks provide protection for a short period of time only. They should only be used in exceptional cases, that is if a small amount of the substance has spilled out or in order to fight spillages and fire*

- **Additional information**

*Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.*

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**

*Mount respiratory protective device.*

*Wear protective equipment. Keep unprotected persons away.*

*Use respiratory protective device against the effects of fumes/dust/aerosol.*

*Only handle and refill product in closed systems.*

- **6.2 Environmental precautions:** *Do not allow to enter sewers/ surface or ground water.*

- **6.3 Methods and material for containment and cleaning up:**

*Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).*

*Dispose contaminated material as waste according to item 13.*

*Ensure adequate ventilation.*

- **6.4 Reference to other sections**

*See Section 7 for information on safe handling.*

*See Section 8 for information on personal protection equipment.*

*See Section 13 for disposal information.*

### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**

*Keep receptacles tightly sealed.*

*Ensure good ventilation/exhaustion at the workplace.*

*The usual precautionary measures are to be adhered to when handling chemicals.*

*Prevent formation of aerosols.*

*Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.*

*Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.*

- **Information about fire - and explosion protection:** *Keep respiratory protective device available.*

- **7.2 Conditions for safe storage, including any incompatibilities**

- **Storage:**

- **Requirements to be met by storerooms and receptacles:**

*Observe official regulations on storing packagings .*

*Observe official regulations on storing packagings .*

*Prevent any seepage into the ground.*

- **Information about storage in one common storage facility:** *Store away from foodstuffs.*

- **Further information about storage conditions:**

*Keep container tightly sealed.*

*Store under lock and key and out of the reach of children.*

- **Storage class:** 8 B

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· 7.3 **Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

**CAS: 7664-93-9 Sulphuric acid**

WEL (Great Britain)	Long-term value: 0.05* mg/m <sup>3</sup> *mist: defined as thoracic fraction
IOELV (European Union)	Long-term value: 0.05 mg/m <sup>3</sup>
AGW (Germany)	Long-term value: 0.1 E mg/m <sup>3</sup> I(I);DFG, EU, Y

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

According to EC Directive 89/686/EEC

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Beware: Filter masks provide protection for a short period of time only. They should only be used in exceptional cases, that is if a small amount of the substance has spilled out or in order to fight spillages and fire.

according to EN 14387

according to EN 143

· **Recommended filter device for short term use:** Combination filter B-P2

· **Protection of hands:**



Protective gloves

according to EN 374

To avoid skin problems reduce the wearing of gloves to the required minimum.

Only use chemical-protective gloves with CE-labelling of category III.

Sensibilisation by the components in the glove materials is possible.

Check the permeability prior to each renewed use of the glove.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Prior to working with gloves the rubbing in with tanniferous skin-protecting agents for the avoidance of skin softening due to perspiration is recommended.

· **Material of gloves**

Chloroprene rubber, CR

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Recommended thickness of the material:  $\geq 0.65$  mm

Nitrile rubber, NBR

Recommended thickness of the material:  $\geq 0.65$  mm

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

The determined penetration times according to EN 374 part III are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.

For the mixture of chemicals mentioned below the penetration time has to be at least 480 minutes (Permeation according to EN 374 Part 3: Level 3).

Value for the permeation: Level  $\leq 3$

· **Not suitable are gloves made of the following materials:**

Leather gloves

Strong material gloves

· **Eye protection:**



Tightly sealed goggles

according to EN 166

· **Body protection:** Protective work clothing

**SECTION 9: Physical and chemical properties**

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Fluid

Colour: Brown

· **Odour:** Irritant

· **Odour threshold:** Not determined.

· **pH-value at 20°C (68°F):** 1

· **Change in condition**

Melting point/freezing point: Undetermined.

Initial boiling point and boiling range: 100°C (212°F)

· **Flash point:** Not applicable.

· **Flammability (solid, gas):** Not applicable.

· **Decomposition temperature:** Not determined.

· **Auto-ignition temperature:** Product is not selfigniting.

· **Explosive properties:** Product does not present an explosion hazard.

· **Explosion limits:**

Lower: Not determined.

Upper: Not determined.

· **Vapour pressure at 20°C (68°F):** 23 hPa (17.3 mm Hg)

· **Density at 20°C (68°F):** 1.2 g/cm<sup>3</sup> (10.01 lbs/gal)

· **Relative density** Not determined.

· **Vapour density** Not determined.

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- |  |   |
|--|---|
| · <b>Evaporation rate</b>                        | <i>Not determined.</i>                            |
| · <b>Solubility in / Miscibility with water:</b> | <i>Not miscible or difficult to mix.</i>          |
| · <b>Partition coefficient: n-octanol/water:</b> | <i>Not determined.</i>                            |
| · <b>Viscosity:</b>                              |   |
| <b>Dynamic:</b>                                  | <i>Not determined.</i>                            |
| <b>Kinematic:</b>                                | <i>Not determined.</i>                            |
| · <b>9.2 Other information</b>                   | <i>No further relevant information available.</i> |

### SECTION 10: Stability and reactivity

- **10.1 Reactivity** *No further relevant information available.*
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.*
- **10.3 Possibility of hazardous reactions** *Reacts with acids, alkalis and oxidising agents.*
- **10.4 Conditions to avoid** *No further relevant information available.*
- **10.5 Incompatible materials:** *Reaktionen with metall*
- **10.6 Hazardous decomposition products:** *No dangerous decomposition products known.*

### SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** *Based on available data, the classification criteria are not met.*
- **Primary irritant effect:**
- **Skin corrosion/irritation**  
*Causes severe skin burns and eye damage.*
- **Serious eye damage/irritation**  
*Causes serious eye damage.*
- **Respiratory or skin sensitisation** *Based on available data, the classification criteria are not met.*
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** *Based on available data, the classification criteria are not met.*
- **Carcinogenicity** *Based on available data, the classification criteria are not met.*
- **Reproductive toxicity** *Based on available data, the classification criteria are not met.*
- **STOT-single exposure** *Based on available data, the classification criteria are not met.*
- **STOT-repeated exposure** *Based on available data, the classification criteria are not met.*
- **Aspiration hazard** *Based on available data, the classification criteria are not met.*

### SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** *No further relevant information available.*
- **12.2 Persistence and degradability** *No further relevant information available.*
- **12.3 Bioaccumulative potential** *No further relevant information available.*
- **12.4 Mobility in soil** *No further relevant information available.*
- **Additional ecological information:**
- **General notes:**  
*Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water  
Do not allow product to reach ground water, water course or sewage system.  
Danger to drinking water if even small quantities leak into the ground.*
- **12.5 Results of PBT and vPvB assessment** *Not applicable.*

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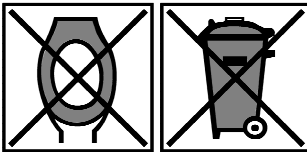
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- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**



Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Contact manufacturer for recycling information.

- **Waste disposal key:**  
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.
- **European waste catalogue**  
There are no uniform EC regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste

11 00 00	WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY
11 01 00	wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising)
11 01 98*	other wastes containing hazardous substances
HP 8	Corrosive

- **Uncleaned packaging:**
- **Recommendation:**  
Packaging which is uncleaned or soiled with product remains is to be treated like the product itself  
Packaging free of product remains is to be supplied refuse for recycling. Only if no adequate collecting system is available, they may be disposed of through the domestic rubbish  
Disposal must be made according to official regulations.

### SECTION 14: Transport information

- **14.1 UN-Number**
- **ADR, IMDG, IATA** UN3264
- **14.2 UN proper shipping name**
- **ADR** UN3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID, Ruthenium trichloride)
- **IMDG, IATA** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID, Ruthenium trichloride)

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· **14.3 Transport hazard class(es)**

· **ADR, IMDG, IATA**



· **Class** 8 Corrosive substances.  
· **Label** 8

· **14.4 Packing group**

· **ADR, IMDG, IATA** II

· **14.5 Environmental hazards:**

· **Marine pollutant:** No

· **14.6 Special precautions for user**

· **Danger code (Kemler):** Warning: Corrosive substances.  
80  
· **EMS Number:** F-A,S-B  
· **Segregation groups** Acids  
· **Stowage Category** B

· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable.

· **Transport/Additional information:**

· **ADR**

· **Limited quantities (LQ)** 1L  
· **Excepted quantities (EQ)** Code: E2  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 500 ml  
· **Transport category** 2  
· **Tunnel restriction code** E

· **IMDG**

· **Limited quantities (LQ)** 1L  
· **Excepted quantities (EQ)** Code: E2  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 500 ml

· **IATA**

· **Remarks:**

24h Emergency Contact -  
(Gefahrgut-Notrufnummer)

+49 172 739 6970

· **UN "Model Regulation":**

UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC,  
N. O. S. (SULPHURIC ACID, RUTHENIUM  
TRICHLORIDE), 8, II

**SECTION 15: Regulatory information**

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

COUNCIL DIRECTIVE 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from

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the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)

*DIRECTIVE 2012/18/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC*

- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3
- **National regulations:**
- **Waterhazard class:** Water hazard class 2 (Self-assessment): hazardous for water.
- **Other regulations, limitations and prohibitive regulations -**
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### **SECTION 16: Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Reasons for revise**

If necessary, this safety data sheet can be revised according to legal guidelines.

Our current version for your reference is available on our website  
[www.heimerle-meule.com](http://www.heimerle-meule.com)

- **Date from last issue :** 06.10.2014

· **Relevant phrases**

H314 Causes severe skin burns and eye damage.

· **Department issuing SDS:**

Department BASU - Bau/Arbeitssicherheit/Umwelt

[sds@heimerle-meule.com](mailto:sds@heimerle-meule.com)

· **Contact:**

Herr Thomas Knuth

[Knuth@heimerle-meule.com](mailto:Knuth@heimerle-meule.com)

[sds@heimerle-meule.com](mailto:sds@heimerle-meule.com)

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Met. Corr. 1: Corrosive to metals – Category 1

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

- **\* Data compared to the previous version altered.**