

Safety Data Sheet

F104 - RUTHENIUM CHLORIDE HYDRATE



Safety Data Sheet dated 27/8/2021, version 5

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

1.1. Product identifier

Mixture identification:

Trade name: F104 - RUTHENIUM CHLORIDE HYDRATE

Trade code: F104

CAS number: 14898-67-0

EC number: 604-667-4

REACH: The substance is not subject to registration as it is produced in amounts less than 1 ton/year

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

Recommended use:

Galvanic, base and lab chemistry

1.3. Details of the supplier of the safety data sheet

Company:

CABRO SPA - AREZZO

Road Setteponti 141

52100 - Italy

CABRO SPA

Phone n. +39 0575 984442

Office hours: 9-13 / 14.30-17.30

Competent person responsible for the safety data sheet:

info@cabro.it

1.4. Emergency telephone number

CABRO SPA

Phone n. +39 0575 984442

Office hours: 9-13 / 14.30-17.30

Poison Information Center - 24/24h Careggi Hospital (Florence) - Phone +39 055 7947819

Poison Information Center - 24/24h Foggia Hospital - Phone +39 0881-732326

Poison Information Center - 24/24h Bergamo Hospital - Phone +39 800 883300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP)

⚠ Warning, Met. Corr. 1, May be corrosive to metals.

⚠ Warning, Acute Tox. 4, Harmful if swallowed.

⚠ Danger, Skin Corr. 1B, Causes severe skin burns and eye damage.

⚠ Danger, Eye Dam. 1, Causes serious eye damage.

⚠ Warning, Aquatic Acute 1, Very toxic to aquatic life. M=1.

⚠ Warning, Aquatic Chronic 1, Very toxic to aquatic life with long lasting effects. M=1.

EUH071 Corrosive to the respiratory tract.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Hazard pictograms:



Danger

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Hazard statements:

- H290 May be corrosive to metals.
- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.
- H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

- P264 Wash hands thoroughly after handling.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/clothing and eye/face protection.
- 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.
- P391 Collect spillage.

Special Provisions:

- EUH071 Corrosive to the respiratory tract.

Contains

Ruthenium chloride hydrate

Special provisions according to Annex XVII of REACH and subsequent amendments:

None

2.3. Other hazards

vPvB Substances: None - PBT Substances: None

Other Hazards:

No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

Identification of the substance

Trade code: F104
CAS number: 14898-67-0
EC number: 604-667-4

Qty	Name	Ident. Number	Classification
100 %	Ruthenium chloride hydrate	CAS: 14898-67-0 EC: 604-667-4	⚠ 2.16/1 Met. Corr. 1 H290 ⚠ 3.2/1B Skin Corr. 1B H314 ⚠ 3.1/4/Oral Acute Tox. 4 H302 ⚠ 3.3/1 Eye Dam. 1 H318 ⚠ 4.1/A1 Aquatic Acute 1 H400 M=1. ⚠ 4.1/C1 Aquatic Chronic 1 H410 M=1. EUH071

3.2. Mixtures

N.A.

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

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Immediately take off all contaminated clothing.
OBTAIN IMMEDIATE MEDICAL ATTENTION.
Remove contaminated clothing immediately and dispose off safely.
After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.
Protect uninjured eye.

In case of Ingestion:

Give nothing to eat or drink.
Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

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

None

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

None

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO₂).

Extinguishing media which must not be used for safety reasons:

None in particular.

5.2. Special hazards arising from the substance or mixture

Do not inhale combustion gases

Burning produces heavy smoke.

5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non emergency personnel:

Wear personal protection equipment.

Remove persons to safety.

See protective measures under point 7 and 8.

For emergency responders:

Wear personal protection equipment.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Retain contaminated washing water and dispose it.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up

Wash with plenty of water.

6.4. Reference to other sections

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See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.
Don't use empty container before they have been cleaned.
Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.
See also section 8 for recommended protective equipment.
Advice on general occupational hygiene:
Contaminated clothing should be changed before entering eating areas.
Do not eat or drink while working.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.
Incompatible materials:
None in particular.
Instructions as regards storage premises:
Adequately ventilated premises.

7.3. Specific end use(s)

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No occupational exposure limit available
DNEL Exposure Limit Values
N.A.
PNEC Exposure Limit Values
N.A.

8.2. Exposure controls

Eye protection:

Use close fitting safety goggles, don't use eye lens.

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.

Protection for hands:

Use protective gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber.

Respiratory protection:

Not needed for normal use.

Thermal Hazards:

None

Environmental exposure controls:

None

Appropriate engineering controls:

None

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Method:	Notes
Appearance and colour:	Powder, black	--	--
Odour:	odorless	--	--

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Odour threshold:	N.A.	--	--
pH:	N.A.	--	--
Melting point / freezing point:	N.A.	--	--
Initial boiling point and boiling range:	N.A.	--	--
Flash point:	N.A.	--	--
Evaporation rate:	N.A.	--	--
Solid/gas flammability:	N.A.	--	--
Upper/lower flammability or explosive limits:	N.A.	--	--
Vapour pressure:	N.A.	--	--
Vapour density:	N.A.	--	--
Relative density:	N.A.	--	--
Solubility in water:	Soluble	--	--
Solubility in oil:	N.A.	--	--
Partition coefficient (n-octanol/water):	N.A.	--	--
Auto-ignition temperature:	N.A.	--	--
Decomposition temperature:	N.A.	--	--
Viscosity:	N.A.	--	--
Explosive properties:	N.A.	--	--
Oxidizing properties:	N.A.	--	--

9.2. Other information

Properties	Value	Method:	Notes
Miscibility:	N.A.	--	--
Fat Solubility:	N.A.	--	--
Conductivity:	N.A.	--	--
Substance Groups relevant properties	N.A.	--	--

SECTION 10: Stability and reactivity

- 10.1. Reactivity**
Stable under normal conditions
- 10.2. Chemical stability**
Stable under normal conditions
- 10.3. Possibility of hazardous reactions**
None
- 10.4. Conditions to avoid**
Stable under normal conditions.
- 10.5. Incompatible materials**
None in particular.
- 10.6. Hazardous decomposition products**
None.

SECTION 11: Toxicological information

- 11.1. Information on toxicological effects**
Toxicological information of the substance:
F104 - RUTHENIUM CHLORIDE HYDRATE - CAS: 14898-67-0
- a) acute toxicity
The product is classified: Acute Tox. 4 H302
 - b) skin corrosion/irritation
The product is classified: Skin Corr. 1B H314
 - c) serious eye damage/irritation
The product is classified: Eye Dam. 1 H318
 - d) respiratory or skin sensitisation
Not classified
Based on available data, the classification criteria are not met
 - e) germ cell mutagenicity
Not classified
Based on available data, the classification criteria are not met
 - f) carcinogenicity
Not classified
Based on available data, the classification criteria are not met
 - g) reproductive toxicity
Not classified
Based on available data, the classification criteria are not met
 - h) STOT-single exposure
Not classified
Based on available data, the classification criteria are not met
 - i) STOT-repeated exposure
Not classified
Based on available data, the classification criteria are not met
 - j) aspiration hazard
Not classified
Based on available data, the classification criteria are not met

SECTION 12: Ecological information

- 12.1. Toxicity**
Adopt good working practices, so that the product is not released into the environment.
F104 - RUTHENIUM CHLORIDE HYDRATE - CAS: 14898-67-0
The product is classified: Aquatic Acute 1 - H400; Aquatic Chronic 1 - H410
- 12.2. Persistence and degradability**

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- N.A.
- 12.3. Bioaccumulative potential
N.A.
- 12.4. Mobility in soil
N.A.
- 12.5. Results of PBT and vPvB assessment
vPvB Substances: None - PBT Substances: None
- 12.6. Other adverse effects
None

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

SECTION 14: Transport information



14.1. UN number

ADR-UN Number: 3260
IATA-UN Number: 3260
IMDG-UN Number: 3260

14.2. UN proper shipping name

ADR-Shipping Name: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
(Ruthenium chloride hydrate)
IATA-Shipping Name: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
(Ruthenium chloride hydrate)
IMDG-Shipping Name: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
(Ruthenium chloride hydrate)

14.3. Transport hazard class(es)

ADR-Class: 8
ADR - Hazard identification number: 80
IATA-Class: 8
IATA-Label: 8
IMDG-Class: 8

14.4. Packing group

ADR-Packing Group: II
IATA-Packing group: II
IMDG-Packing group: II

14.5. Environmental hazards

ADR-Environmental Pollutant: Yes
IMDG-Marine pollutant: Marine Pollutant

14.6. Special precautions for user

ADR-Subsidiary hazards: -
ADR-S.P.: 274
ADR-Transport category (Tunnel restriction code): 2 (E)
IATA-Passenger Aircraft: 859
IATA-Subsidiary hazards: -
IATA-Cargo Aircraft: 863
IATA-S.P.: A3 A803
IATA-ERG: 8L

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IMDG-EmS: F-A,
S-B

IMDG-Subsidiary hazards: -

IMDG-Stowage and handling: Category B

IMDG-Segregation: SGG1 SG36 SG49

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
N.A.

SECTION 15: Regulatory information

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

Dir. 98/24/EC (Risks related to chemical agents at work)
Dir. 2000/39/EC (Occupational exposure limit values)
Regulation (EC) n. 1907/2006 (REACH)
Regulation (EC) n. 1272/2008 (CLP)
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
Regulation (EU) 2015/830
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product:

No restriction.

Restrictions related to the substances contained:

No restriction.

Where applicable, refer to the following regulatory provisions :

Directive 2012/18/EU (Seveso III)
Regulation (EC) nr 648/2004 (detergents).
Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1
Product belongs to category: E1

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the substance.

SECTION 16: Other information

Full text of phrases referred to in Section 3:

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H302 Harmful if swallowed.
H318 Causes serious eye damage.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

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EUH071 Corrosive to the respiratory tract.

Hazard class and hazard category	Code	Description
Met. Corr. 1	2.16/1	Substance or mixture corrosive to metals, Category 1
Acute Tox. 4	3.1/4/Oral	Acute toxicity (oral), Category 4
Skin Corr. 1B	3.2/1B	Skin corrosion, Category 1B
Eye Dam. 1	3.3/1	Serious eye damage, Category 1
Aquatic Acute 1	4.1/A1	Acute aquatic hazard, category 1
Aquatic Chronic 1	4.1/C1	Chronic (long term) aquatic hazard, category 1

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre,
Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van
Nostrand Reinold

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