

Safety Data Sheet

F107 - Ruthenium nitrosyl nitrate



Safety Data Sheet dated 24/9/2021, version 5

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

1.1. Product identifier

Mixture identification:

Trade name: F107 - Ruthenium nitrosyl nitrate
Trade code: F107
CAS number: 34513-98-9
EC number: 252-068-8

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, Ox. Liq. 3, May intensify fire; oxidiser.
- ⚠ Warning, Acute Tox. 4, Harmful if inhaled.
- ⚠ Danger, Skin Corr. 1A, Causes severe skin burns and eye damage.
- ⚠ Danger, Eye Dam. 1, Causes serious eye damage.
- ⚠ Aquatic Chronic 2, Toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Hazard pictograms:



Danger

Hazard statements:

H272 May intensify fire; oxidiser.
H332 Harmful if inhaled.

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H314 Causes severe skin burns and eye damage.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from clothing and other combustible materials.

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.

P370+P378 In case of fire, use a dry powder fire extinguisher to extinguish.

P391 Collect spillage.

Special Provisions:

None

Contains

nitric acid

Ruthenium (III) nitrosyl nitrate

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

N.A.

3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Number	Classification
>= 60% - < 70%	Ruthenium (III) nitrosyl nitrate	CAS: 34513-98-9 EC: 252-068-8	⚠ 2.14/1 Ox. Sol. 1 H271 ⚠ 4.1/C2 Aquatic Chronic 2 H411 ⚠ 2.16/1 Met. Corr. 1 H290 ⚠ 3.2/1B Skin Corr. 1B H314 ⚠ 3.3/1 Eye Dam. 1 H318 EUH071
>= 20% - < 25%	nitric acid	Index number: 007-004-00-1 CAS: 7697-37-2 EC: 231-714-2 REACH No.: 01-2119487297-23	⚠ 2.13/2 Ox. Liq. 2 H272 ⚠ 2.16/1 Met. Corr. 1 H290 ⚠ 3.1/3/Inhal Acute Tox. 3 H331 ⚠ 3.2/1A Skin Corr. 1A H314 Specific Concentration Limits: 5% <= C < 20%: Skin Corr. 1B H314 C >= 20%: Skin Corr. 1A H314 65% <= C < 99%: Ox. Liq. 3 H272

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			C >= 99%: Ox. Liq. 2 H272
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SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

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:

Do NOT induce vomiting.
Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.

In case of Inhalation:

If breathing is irregular or stopped, administer artificial respiration.
In case of inhalation, consult a doctor immediately and show him packing or label.

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:
In case of fire, use a dry powder fire extinguisher to extinguish.
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.
Wear breathing apparatus if exposed to vapours/dusts/aerosols.
Provide adequate ventilation.
Use appropriate respiratory protection.
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

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.

Use localized ventilation system.

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

Store at below 20 °C. Keep away from unguarded flame and heat sources. Avoid direct exposure to sunlight.

Keep away from unguarded flame, sparks, and heat sources. Avoid direct exposure to sunlight.

Keep away from food, drink and feed.

Incompatible materials:

Keep away from combustible materials.

Instructions as regards storage premises:

Cool and adequately ventilated.

7.3. Specific end use(s)

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

nitric acid - CAS: 7697-37-2

TLV - STEL: 2.6 mg/m³, 1 ppm

EU - STEL: 2.6 mg/m³, 1 ppm

ACGIH - TWA(8h): 2 ppm - STEL: 4 ppm - Notes: URT and eye irr, dental erosion

DNEL Exposure Limit Values

nitric acid - CAS: 7697-37-2

Worker Industry: 2.6 mg/m³ - Exposure: Human Inhalation - Frequency: Short Term, local effects

Worker Industry: 2.6 mg/m³ - Exposure: Human Inhalation - Frequency: Long Term, local effects

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.

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Protection for hands:

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

Respiratory protection:

Use adequate protective respiratory equipment.

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:	Liquid, Dark brown	--	--
Odour:	odorless	--	--
Odour threshold:	N.A.	--	--
pH:	<2	--	--
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.	--	--

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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

Avoid contact with combustible materials: the product may explode.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological information of the product:

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a) acute toxicity

The product is classified: Acute Tox. 4 H332

ATEmix - Inhalation (Vapours) 13,25 mg/l

b) skin corrosion/irritation

The product is classified: Skin Corr. 1A 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

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- 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

Toxicological information of the main substances found in the product:

nitric acid - CAS: 7697-37-2

a) acute toxicity:

Test: LC50 - Route: Inhalation Vapour - Species: Rat = 2.65 mg/l - Duration: 4h - Source: IUCILID 5

SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

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The product is classified: Aquatic Chronic 2 - H411

nitric acid - CAS: 7697-37-2

g) Acute toxicity seawater:

Endpoint: LC50 - Species: Daphnia = 180 mg/l - Duration h: 48 - Notes: IUCILID 5

12.2. Persistence and degradability

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

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ADR-UN Number:	3093
IATA-UN Number:	3093
IMDG-UN Number:	3093
14.2. UN proper shipping name	
ADR-Shipping Name:	CORROSIVE LIQUID, OXIDIZING, N.O.S.(Ruthenium (III) nitrosyl nitrate, Nitric Acid)
IATA-Shipping Name:	CORROSIVE LIQUID, OXIDIZING, N.O.S.(Ruthenium (III) nitrosyl nitrate, Nitric Acid)
IMDG-Shipping Name:	CORROSIVE LIQUID, OXIDIZING, N.O.S.(Ruthenium (III) nitrosyl nitrate, Nitric Acid)
14.3. Transport hazard class(es)	
ADR-Class:	8
ADR - Hazard identification number:	85
IATA-Class:	8
IATA-Label:	8 + 5.1
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:	No
IMDG-Marine pollutant:	No
14.6. Special precautions for user	
ADR-Subsidiary hazards:	5.1
ADR-S.P.:	274
ADR-Transport category (Tunnel restriction code):	2 (E)
IATA-Passenger Aircraft:	851
IATA-Subsidiary hazards:	5.1
IATA-Cargo Aircraft:	855
IATA-S.P.:	-
IATA-ERG:	8X
IMDG-EmS:	F-A, S-Q
IMDG-Subsidiary hazards:	5.1
IMDG-Stowage and handling:	Category C
IMDG-Segregation:	-
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)

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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:

Restriction 3

Restrictions related to the substances contained:

Restriction 75

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: P8, E2

15.2. Chemical safety assessment

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

SECTION 16: Other information

Full text of phrases referred to in Section 3:

H271 May cause fire or explosion; strong oxidiser.

H411 Toxic to aquatic life with long lasting effects.

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

EUH071 Corrosive to the respiratory tract.

H272 May intensify fire; oxidiser.

H331 Toxic if inhaled.

Hazard class and hazard category	Code	Description
Ox. Liq. 2	2.13/2	Oxidising liquid, Category 2
Ox. Liq. 3	2.13/3	Oxidising liquid, Category 3
Ox. Sol. 1	2.14/1	Oxidising solid, Category 1
Met. Corr. 1	2.16/1	Substance or mixture corrosive to metals, Category 1
Acute Tox. 3	3.1/3/Inhal	Acute toxicity (inhalation), Category 3
Acute Tox. 4	3.1/4/Inhal	Acute toxicity (inhalation), Category 4
Skin Corr. 1A	3.2/1A	Skin corrosion, Category 1A
Skin Corr. 1B	3.2/1B	Skin corrosion, Category 1B
Eye Dam. 1	3.3/1	Serious eye damage, Category 1

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Aquatic Chronic 2	4.1/C2	Chronic (long term) aquatic hazard, category 2
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Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
Ox. Liq. 3, H272	On basis of test data
Acute Tox. 4, H332	Calculation method
Skin Corr. 1A, H314	Calculation method
Eye Dam. 1, H318	Calculation method
Aquatic Chronic 2, H411	Calculation method

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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