

**Safety Data Sheet dated 4/10/2023, version 6**

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## **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:

sds@cabro.it

### **1.4. Emergency telephone number**

CABRO SPA

Phone n. +39 0575 984442

Office hours: 9-13 / 14.30-17.30

Single European emergency number: 112

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

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

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## **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.

⚠ 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.

H314 Causes severe skin burns and eye damage.

H411 Toxic to aquatic life with long lasting effects.

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### 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

Ruthenium (III) nitrosyl nitrate  
nitric acid ...%

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

None

### 2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration  $\geq 0.1\%$

### 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
$\geq 60\%$ - $< 70\%$	Ruthenium (III) nitrosyl nitrate	CAS:	34513-98-9	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
		EC:	252-068-8	
$\geq 10\%$ - $< 12,5\%$	nitric acid ...%	Index number:	007-004-00-1	2.13/2 Ox. Liq. 2 H272 2.16/1 Met. Corr. 1 H290 3.2/1A Skin Corr. 1A H314 3.3/1 Eye Dam. 1 H318 3.1/3/Inhal Acute Tox. 3 H331 EUH071 Specific Concentration Limits: C $\geq 99\%$ : Ox. Liq. 2 H272 65% $\leq$ C $< 99\%$ : Ox. Liq. 3 H272 C $\geq 20\%$ : Skin Corr. 1A H314 5% $\leq$ C $< 20\%$ : Skin Corr. 1B
		CAS:	7697-37-2	
		EC:	231-714-2	
		REACH No.:	01-	
			2119487297-23	

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			H314
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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:

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

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### 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.

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### 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.

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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

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## 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

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

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## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

nitric acid ...% - CAS: 7697-37-2

EU - STEL: 2.6 mg/m<sup>3</sup>, 1 ppm

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

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:

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None

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Properties	Value	Method:	Notes
Physical state:	Liquid	--	--
Colour:	Dark brown	--	--
Odour:	odorless	--	--
Melting point/freezing point:	N.A.	--	--
Boiling point or initial boiling point and boiling range:	N.A.	--	--
Flammability:	Non-flammable	--	--
Lower and upper explosion limit:	N.A.	--	--
Flash point:	N.A.	--	--
Auto-ignition temperature:	N.A.	--	--
Decomposition temperature:	N.A.	--	--
pH:	<2	--	--
Kinematic viscosity:	N.A.	--	--
Solubility in water:	Soluble	--	--
Solubility in oil:	N.A.	--	--
Partition coefficient n-octanol/water (log value):	N.A.	--	--
Vapour pressure:	N.A.	--	--
Density and/or relative density:	N.A.	--	--
Relative vapour density:	N.A.	--	--
Particle characteristics:			
Particle size:	N.A.	--	--

#### 9.2. Other information

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Properties	Value	Method:	Notes
Miscibility:	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 hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological information of the product:

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##### a) acute toxicity

Not classified

Based on available data, the classification criteria are not met

##### 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

##### 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:

N.A.

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### 11.2. Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration  $\geq 0.1\%$

## 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

### 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. Endocrine disrupting properties

No endocrine disruptor substances present in concentration  $\geq 0.1\%$

### 12.7. 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 or ID number

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

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#### 14.5. Environmental hazards

ADR-Environmental Pollutant: Yes  
IMDG-Marine pollutant: Marine Pollutant  
IMDG-EmS: F-A,  
S-Q

#### 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-Subsidiary hazards: 5.1  
IMDG-Stowage and handling: Category C  
IMDG-Segregation: -

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

N.A.

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## 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) n. 2020/878  
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)  
Regulation (EU) n. 2020/217 (ATP 14 CLP)  
Regulation (EU) n. 2020/1182 (ATP 15 CLP)  
Regulation (EU) n. 2021/643 (ATP 16 CLP)  
Regulation (EU) n. 2021/849 (ATP 17 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)



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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
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
Aquatic Chronic 2	4.1/C2	Chronic (long term) aquatic hazard, category 2

This safety data sheet has been completely updated in compliance to Regulation 2020/878.  
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
Skin Corr. 1A, H314	Calculation method
Eye Dam. 1, H318	Calculation method
Aquatic Chronic 2, H411	Calculation method

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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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It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

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