

SAFETY DATA SHEET

(in accordance with Regulation (EU) 2015/830)



STRONTIUM NITRATE

Version: 9
Revision date: 10/03/2020

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING.

1.1 Product identifier.

Product Name:	STRONTIUM NITRATE
Chemical Name:	Strontium Nitrate
Synonym:	strontium dinitrate
Chemical formula:	Sr (NO ₃) ₂
EU index number (Annex I):	Not applicable
CAS No:	10042-76-9
EC No:	233-131-9
Registration No:	01-2119615605-42-XXXX

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

In the manufacture of pyrotechnic products and other strontium derivatives; as a reagent I proceed as an auxiliary agent.

Uses advised against:

Uses other than those recommended.

1.3 Details of the supplier of the safety data sheet.

Company:	ALDEBARÁN SISTEMAS SL
Address:	C/Jerónimo Zurita, 10, entlo izda, 50001
City:	Zaragoza
Province:	Zaragoza
Telephone:	0034976796134
E-mail:	aldebaran@aldebaransistemas.com

1.4 Emergency telephone number: 0034915620420 (Available 24 hours)

SECTION 2: HAZARDS IDENTIFICATION.

2.1 Classification of the substance.

In accordance with Regulation (EU) No 1272/2008:

Eye Dam. 1 : Causes serious eye damage.

Ox. Sol. 2 : May intensify fire; oxidizer

2.2 Label elements.

Labelling in accordance with Regulation (EU) No 1272/2008:

Pictograms:



Signal Word:

Danger

H statements:

H272

H318

May intensify fire; oxidiser.

Causes serious eye damage.

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P statements:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220	Keep/Store away from clothing/.../combustible materials
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338+P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor/ ...
P501	Dispose of contents/container of according local/national regulations

Contains:
Strontium Nitrate

2.3 Other hazards.

PBT / vPvB Criterion: According to Annex XIII of Regulation (EC) No. 1907/2006, it is not PBT or vPvB because it is an inorganic substance.
No other danger has been identified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS.

3.1 Substances.

Chemical Name:	Strontium Nitrate
CAS No:	10042-76-9
EC No:	233-131-9
% (p / p):	≥98.4%
IUPAC name:	strontium dinitrate
Classification D.67 / 548 / EEC:	O: R8 Xi: R41
Classification Rgto. 1272/2008:	Oxid.Solid 2 Eye Damage 1
Specific concentration limits:	----

SECTION 4: FIRST AID MEASURES.

4.1 Description of first aid measures.

In all cases, contact a poison control center or doctor immediately, except for minor circumstances.

Inhalation.

Remove from the affected area, take outdoors and keep the injured person incorporated and in rest.
Apply, if necessary, artificial respiration.
Require medical assistance.

Eye contact.

Wash or irrigate the eyes with plenty of water for at least 10 minutes, even behind the eyelids.
Extracting the lenses if you wear them is easy to do.
Obtain medical attention if eye irritation persists.

Skin contact.

Immediately wash the impregnated clothes and the skin, with plenty of water, before removing the clothes.

Ingestion.

If the subject is conscious, rinse the mouth with plenty of water
Ask for medical help or take to a hospital.
Induce vomiting (risk of perforation).

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

Irritation of eyes.

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

In all cases, contact a poison control center or doctor immediately, except for minor circumstances.

SECTION 5: FIREFIGHTING MEASURES.

5.1 Extinguishing media.

Recommended extinguishing methods.

Use extinguishing that are appropriate to local circumstances and the surrounding environment.

Extinguishing media not recommended.

Water is suitable except that the dissolved product could contaminate water and soil.

5.2 Special hazards arising from the substance.

Special risks.

Not combustible, but is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition even in the absence of air.

Potential risk of explosion during a fire when the product is tightly confined and/or contaminated with incompatible materials (i.e. organic matter, halogenated compounds- See section 10).

Prevent the molten product from entering drains.

Hazards from thermal decomposition and combustion products.

Poisonous gases are produced in fire, including oxides of nitrogen.

5.3 Advice for firefighters

Open doors and windows site to ventilate the area as much as possible.

Avoid breathing toxic fumes. Getting downwind in relation to fire.

In case of major fire and large quantities: Evacuate the area. Fight fire remotely due to the risk of explosion

Use a self-contained breathing apparatus in case of existence of smoke.

SECTION 6: ACCIDENTAL RELEASE MEASURES.

6.1 Personal precautions, protective equipment and emergency procedures.

Avoid exposure to dust.

Keep it away from incompatible products.

Keep it away from the water to avoid contamination.

6.2 Precautions concerning the environment.

Take care to avoid contamination of water courses and drains and inform the competent authorities in case of accidental contamination of water courses.

6.3 Methods and material for containment and cleaning.

Pick up and arrange disposal without creating dust. All receiving equipment should be clean, vented, dry, labelled and made of material that is compatible with the product. Treat recovered material as described in section 13 "Disposal considerations"

Do not mix with sawdust or other fuels or organic matter.

Do not add chemical products.

6.4 Reference to other sections.

For contact information, see section 1.

For exposure control and individual protection measures, see section 8.

For waste disposal, follow the recommendations in section 13.

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SECTION 7: HANDLING AND STORAGE.

7.1 Precautions for safe handling.

Keep away from heat, sparks, flame, water, hot surfaces and direct sunlight.
No Smoking.
Keep or store away from clothing, oils ... and combustible materials.
Take the necessary measures to avoid mixing with combustible materials (reducing agents)
Wear gloves and protective clothing for the eyes and face.
Wear flame resistant and fire retardant clothing.
Shower and change clothes in the workplace at the end of the shift.
Do not blow dust with compressed air.
Avoid inhalation or ingestion.

7.2 Conditions for safe storage, including any incompatibilities.

In the storage area, make sure that strict rules of order and cleanliness and good practices are met.
Do not allow smoking or the use of naked portable lamps in the storage area.
Store away from heat, sparks, flames, water, hot surfaces and direct sunlight.

7.3 Specific end use(s).

Not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION.

8.1 Control parameters.

Occupational exposure limit values		Component	CAS				
		Strontium nitrate	10042-76-9	Undefined			
Derivative of the ISQ	DNEL			Worker			Consumer
			systemic	Industrial	Professional		
		Oral	Long term	Not applicable	Not applicable	1,2 mg/kg pc/day	
		Inhalation	Long term	7,9 mg/m ³	7,9 mg/m ³	2,4 mg/m ³	
	dermal	Long term	40,1 mg/kg pc/day	40,1 mg/kg pc/dia	Not applicable		
	PNEC	Water		STP	Sediment	Air	Soil
Fresh water: 2,10 mg/l Seawater: Not relevant		4,2 mg/l	Fresh water: 1811 mg/kg sediment dw Marine water: insufficient data available	No hazard identifies	332mg/kg soil dw	No potential for bioaccumulation	

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8.2 Exposure controls.

Measures of a technical nature:

Ensure adequate ventilation.

Provide adequate ventilation at places where dust is formed

See the protection measures listed in section 7.

Apply technical measures to comply with the occupational exposure limits.

When handling do not eat, do not drink or smoke.

Wash your hands after handling the product and before eating, drinking or smoking.

Wash your hands before the breaks and when finished working.

Individual protection:

Concentration	100 %
Uses:	Pyrotechnic compositions
Respiratory protection:	: If the concentration of dust is high and / or the ventilation is insufficient, use dust mask or respirator with adequate filter.
Hand protection:	Use suitable gloves (eg, thin rubber or canvas) when handling the product for long term
Eye protection:	Use chemical safety goggles with side shields to prevent eye irritation and/or full-face shield where dusting or splashing of solutions possible.
Skin and body protection:	Working clothing.

Control of environmental exposure:

See section 6

Personal protective advice apply to high exposure levels.

Choosing personal protection adapted to the exposure risks

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.

9.1 Information on basic physical and chemical properties.

Appearance: Powder

Colour: White

Odour: unodourless

Odour threshold: N.A./N.A.

pH: 5-6 (10%)

Melting point: 570 °C

Boiling Point: N.A./N.A.

Flash point: N.A./N.A.

Evaporation rate: N.A./N.A.

Inflammability (solid, gas): Not inflammability.

Lower Explosive Limit: Not explosive.

Upper Explosive Limit: Not explosive

Vapour pressure: N.A./N.A.

Vapour density: N.A./N.A.

Relative density: N.A./N.A.

Solubility: 667-802 g/l (25°C)

Liposolubility: N.A./N.A.

Hydrosolubility: N.A./N.A.

Partition coefficient (n-octanol/water): N.A./N.A.

Auto-ignition temperature: Not inflammability

Decomposition temperature: N.A./N.A.

Viscosity: N.A./N.A.

Explosive properties: Not explosive

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Oxidizing properties: Sol. com.Cat 1

N.A./N.A.= Not Available/Not Applicable due to the nature of the product

9.2 Other information.

Pour point: N.A./N.A.

Blink: N.A./N.A.

Kinematic viscosity: N.A./N.A.

N.A./N.A.= Not Available/Not Applicable due to the nature of the product

SECTION 10: STABILITY AND REACTIVITY.

10.1 Reactivity.

Oxidising solid 2

10.2 Chemical stability.

Stable under normal conditions of storage, handling and use

10.3 Possibility of hazardous reactions.

Possibility of hazardous reactions if reacts with the substances listed in "incompatible materials"

10.4 Conditions to avoid.

Exposure to moisture.

To avoid thermal decomposition, do not overheat.

10.5 Incompatible materials.

Acids, reducing agents, flammable materials, combustible material, powdered metal salts, polyvinylchloride.

10.6 Hazardous decomposition products.

Nitrogen oxide (NO_x), SrO.

SECTION 11: TOXICOLOGICAL INFORMATION.

11.1 Information on toxicological effects.

There are no tested data available on the product.

Repeated or prolonged contact with the product can cause the elimination of oil from the skin, giving rise to non-allergic contact dermatitis and absorption of the product through the skin.

a) acute toxicity;

METOD	SPECIES	VIA	RESULT
OECD 423	Rat	Oral	DL50:>2000 mg/kg pc
OECD 423	Rat	Dermal	Not required
OECD 403	Rat	RespiratorY	CL50(4h): >4,5 mg/l

b) skin corrosion/irritation; c) serious eye damage/irritation;

METOD	SPECIES	VIA	RESULT
OECD 404	Rabbit	Skin	Not irritating
OECD 405	Rabbit	Ocular	Irritating

d) respiratory or skin sensitisation;

METOD	SPECIES	VIA	RESULT
OECD 406	Guinea pig	Cutaneous	Not sensitizing

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e) germ cell mutagenicity;

METOD	SPECIES	VIA	RESULT
OECD 471	Bacteria		Negative. Not mutagenic. Test of Ames
OECD 471	Chromosomal aberration		Negative. Not mutagenic.
OECD 471	Mutation in mammalian cells.		Negative. Not mutagenic.

f) carcinogenicity;

METOD	SPECIES	VIA	RESULT
	Rat	Sub skin	Not carcinogenic

g) reproductive toxicity;

METOD	SPECIES	VIA	RESULT
	Rat	Sub skin	Effects on fertility: not available. Developmental toxicity: NOAEL: 200 mg / kg bw / d

h) STOT-single exposure;
Not toxic.

i) STOT-repeated exposure;

METOD	SPECIES	VIA	RESULT
	Rat	Oral subchronic	NOAEL: 30 mg/kg body weight/day
	Rat	Inhalation	Not requerid
	Rat	Dermal	Not requerida

j) aspiration hazard;
No danger is expected.

SECTION 12: ECOLOGICAL INFORMATION.

12.1 Toxicity.

Aquatic toxicity

	FISH	CRUSTACEANS	ALGAE
Short term	CL50(96h) ≥ 97,3 mg/l (Cyprinus carpio)	CE50/CL50 (48h) = 301,9 mg/l (Daphnia magna)	NOEC(72h) ≥ 104,7 mg/l (Pseudokirchneriella subcapitata)
Long term	CL50(7 days) = 20,7mg/l (Carassius auratus)	NOEC(21 days) = 50,7 mg/l (Daphnia magna)	NOEC(72h) ≥ 104,7 mg/l (Pseudokirchneriella subcapitata)

Terrestrial toxicity

MACROORGANISMS	MICROORGANISMS	TERRESTRIAL PLANTS	OTROS ORGANISMS
No reliable data	No reliable data	No reliable data	NOEC = 15000 ppm de Sr (in birds)

Microbiological activity in wastewater treatment plants

PNEC ≥ 100 mg / l

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12.2 Persistence and degradability.

Not relevant in inorganic substances

12.3 Bioaccumulative potencial.

Octanol-water partition coefficient (Kow)
Bioconcentration factor (BCF)

Not applicable. Inorganic substance
<100 l / kg of wet weight

12.4 Mobility in soil.

In strontium nitrate it is soluble in water and therefore has a relatively low partition / distribution coefficient (KD).

12.5 Results of PBT and vPvB assessment.

It is not required. Inorganic substance See Annex XIII of REACH.

12.6 Other adverse effects.

The feeding of hens with a diet containing Sr at a value higher than 1.5% allows Doberaz (in his trial) to set a NOEC of 15000 ppm.

SECTION 13 DISPOSAL CONSIDERATIONS.

13.1 Waste treatment methods.

Disposal must be in accordance with local and national legislation.
The containers must be treated as waste.

SECTION 14: TRANSPORT INFORMATION.

Transport following ADR rules for road transport, RID rules for railway, ADN for inner waterways, IMDG for sea, and ICAO/IATA for air transport.

Land: Transport by road: ADR, Transport by rail: RID.

Transport documentation: Consignment note and written instructions

Sea: Transport by ship: IMDG.

Transport documentation: Bill of lading

Air: Transport by plane: ICAO/IATA.

Transport document: Airway bill.

14.1 UN number.

UN No: UN1507

14.2 UN proper shipping name.

Description:

ADR: UN 1507, STRONTIUM NITRATE, 5.1, PG III, (E)

IMDG: UN 1507, STRONTIUM NITRATE, 5.1, PG III

ICAO: UN 1507, STRONTIUM NITRATE, 5.1, PG III

14.3 Transport hazard class(es).

Class(es): 5.1

14.4 Packing group.

Packing group: III

14.5 Environmental hazards.

Marine pollutant: No

14.6 Special precautions for user.

Labels: 5.1

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Hazard number: 50
ADR LQ: 5 kg
IMDG LQ: 5 kg
ICAO LQ: 10 kg

Provisions concerning carriage in bulk ADR:

VC1 Carriage in bulk in sheeted vehicles, sheeted containers or sheeted bulk containers is permitted.

VC2 Carriage in bulk in closed vehicles, closed containers or closed bulk containers is permitted.

AP6 If the vehicle or container is made of wood or other combustible material, an impermeable surfacing resistant to combustion or a coating of sodium silicate or similar substance shall be provided. Sheeting shall also be impermeable and non-combustible.

AP7 Carriage in bulk shall only be as a full load.

Transport by ship, FEm – Emergency sheets (F – Fire, S - Spills): F-A,S-Q

Proceed in accordance with point 6.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code.

Chemical Safety Assessment carried out for the Strontium Nitrate.

SECTION 15: REGULATORY INFORMATION.

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

Regulation 1907/2006 (REACH).

Regulation 1272/2008 (CLP).

Regulation (EU) 2015/830

Directive 96/82/CE (Directiva Seveso)

15.2 Chemical safety assessment.

A chemical safety assessment has been carried out for this substance.

SECTION 16: OTHER INFORMATION.

Classification codes:

Eye Dam. 1 : Serious eye damage, Category 1

Ox. Sol. 1 : Oxidising solid, Category 1

Sections changed compared with the previous version: 2, 5, 7, 8, 10, 15

Adaptation to Commission Regulation (EU) 2015/830

It is advisable to carry out basic training with regard to health and safety at work in order to handle this product correctly.

Abbreviations and acronyms used:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

CEN: European Committee for Standardization.

D MEL: Derived Minimal Effect Level, exposure level corresponding to a low risk, that risk should be considered a tolerable minimum.

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- DNEL: Derived No Effect Level, level of exposure to the substance below which adverse effects are not anticipated.
- PPE: Personal protection equipment.
- IATA: International Air Transport Association.
- ICAO: International Civil Aviation Organization.
- IMDG: International Maritime Code for Dangerous Goods.
- RID: Regulations Concerning the International Transport of Dangerous Goods by Rail.

Key literature references and sources for data:

<http://eur-lex.europa.eu/homepage.html>

<http://echa.europa.eu/>

Regulation (EU) 2015/830.

Regulation (EC) No 1907/2006.

Regulation (EU) No 1272/2008.

The information given in this Safety Data Sheet has been drafted in accordance with COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

The information in this Safety Data Sheet on the Preparation is based on current knowledge and on current EC and national laws, as far as the working conditions of the users is beyond our knowledge and control. The product must not be used for purposes other than those that are specified without first having written instructions on how to handle. It is always the responsibility of the user to take the appropriate measures in order to comply with the requirements established by current legislation. The information contained in this Safety Sheet only states a description of the safety requirements for the preparation, and it must not be considered as a guarantee of its properties.