

CHEMICAL PRODUCTS CORPORATION

SAFETY DATA SHEET

SDS No. 173

February 21, 2019

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1. PRODUCT IDENTIFIER

1.1 Trade Names: Strontium Nitrate, Pyrotechnic and Electronic Grades

SYNONYMS: Nitric Acid, Strontium Salt.

Molecular formula - $\text{Sr}(\text{NO}_3)_2$
CAS No. 10042-76-9

1.2 Recommended industrial uses:

- - Manufacture of pyrotechnical products
- - Manufacture of other strontium substances
- - Use as reactive processing aid
- - Chemical industry
- - Electronic industry

Industrial uses advised against: None.

1.3 Supplier of this SDS: Chemical Products Corporation
102 Old Mill Road SE
P.O. Box 2470
Cartersville, Georgia 30120-1688
Telephone: 1-770-382-2144

1.4 EMERGENCY PHONE NUMBER: CHEMTREC, 800-424-9300
(24 hours every day)

2. HAZARD IDENTIFICATION

2.1 Classification in accordance with paragraph (d) of §1910.1200
Oxidizing solids (Category 1), H271
Acute toxicity, Oral (Category 4), H302
Serious eye damage (Category 1), H318

2.2 Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200.



Signal Word

DANGER

- Hazard Statements

H271 May cause fire or explosion; strong oxidizer

H302 Harmful if swallowed.

H318 Causes serious eye damage.

- Precautionary Statements

P210 Keep away from heat.

P220 Keep/Store away from clothing/ combustible materials.

P221 Take any precaution to avoid mixing with combustibles.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/ eye protection/ face protection.

P283 Wear fire resistant or flame retardant clothing.

- Response

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

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.

P306 + P360 IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P371 + P380 + P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

- Storage

P420 Store separately.

- Disposal

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards not otherwise classified that have been identified during the classification process

- Harmful if inhaled.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Formula: $\text{Sr}(\text{NO}_3)_2$ Molecular Weight: 211.63 g

COMPONENT	CAS #	EXPOSURE LIMITS	% BY WT
Barium Nitrate	10022-31-8	OSHA PEL: 0.5 mg/cu m as Ba. 0.9 mg/cu m as $\text{Ba}(\text{NO}_3)_2$ ACGIH TLV-TWA: Same	1% - 5%
Strontium Nitrate	10042-76-9	OSHA PEL: Nuisance Dust, 15 mg/cu m	95%-99%

4. FIRST AID MEASURES

4.1 Description of necessary first-aid measures

If swallowed

- Rinse mouth with water.
- Do NOT induce vomiting.

If inhaled

- Move to fresh air.
- If symptoms persist, call a physician.

For eye contact

- Call a physician or poison control center immediately.
- In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).

In case of ingestion

- Rinse mouth with water.
- Do NOT induce vomiting.

For skin contact

- Remove and wash contaminated clothing before re-use.
- Wash off with soap and water.
- If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation

- Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.
Repeated or prolonged exposure
 - Headaches, fatigue and risk of nervous system effects.
 - cardiorespiratory failure
 - Risk of kidney disorders
 - Risk of liver disorders

In case of eye contact

- Severe eye irritation
Symptoms
 - Redness
 - Lachrymation
 - Swelling of tissue

In case of skin contact

- May cause skin irritation and/or dermatitis.

In case of ingestion

- Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
- Risk of abdominal pain

4.3 Indication of any immediate medical attention and special treatment needed, if necessary

- If accidentally swallowed obtain immediate medical attention.

Notes to physician

- For ingestion or inhalation immediate medical attention is required.
 - Provide oxygen or artificial respiration if needed.
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5. FIRE FIGHTING MEASURES

Flash point: Not applicable

Autoignition temperature: Not applicable

Flammability / Explosive limit: No data available

General Hazard: This product is an oxidizer. Spontaneous chemical reaction with low flash point organics or reducing agents may occur.

5.1 Extinguishing media

Suitable extinguishing media

- Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

- Contact with combustible material may cause or enhance fire.
- This product is an oxidizer.
- Hazardous decomposition products can be formed under fire conditions.

Hazardous combustion products:

- Nitrogen oxides (NO_x)

5.3 Advice for firefighters

Special protective equipment for fire-fighters

- Exposure to decomposition products may be a hazard to health.
 - Exposed firefighters must wear NIOSH-approved positive pressure self-contained breathing apparatus with full-face mask and full protective clothing.
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6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Advice for emergency responders

- Keep away from water. Do not flush down sewers or other drainage systems.
- Evacuate personnel to safe areas.
- Avoid dust formation. Avoid breathing dust.

Advice for non-emergency personnel

- Keep away from incompatible products

6.2 Environmental precautions

- Should not be released into the environment.
- Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

- Sweep up and shovel
- Keep in suitable, closed, properly labeled containers.
- Arrange disposal without creating dust.
- Do not mix waste streams during collection.
- Treat recovered material as described in the section "Disposal considerations".
- Never return spills in original containers for re-use.

6.4 Reference to other sections

- Refer to protective measures listed in sections 7 and 8
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7. HANDLING AND STORAGE

7.1 Precautions for safe handling

- Ensure adequate ventilation.
- Keep away from heat and sources of ignition.
- Use only clean and dry utensils.
- Never return unused material to storage receptacle.
- Keep away from water.
- Avoid contact with skin and eyes.
- Keep away from incompatible products

Hygiene measures

- Eye wash bottles or eye wash stations in compliance with applicable standards.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities

- Storage temperature and storage pressure are not critical.
- Keep only in the original container.
- Store in a well-ventilated place. Keep cool.
- Store in a receptacle equipped with a vent.
- Keep in a dry place.
- Keep in properly labeled containers.
- Keep container closed.
- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Avoid dust formation.
- Take measures to prevent the build up of electrostatic charge.
- Ensure all equipment is electrically grounded before beginning transfer operations.
- Keep away from incompatible materials.

7.3 Specific end use(s)

- Apart from the uses mentioned in section 1.2 no other specific uses are stipulated
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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application.

8.1 Control parameters

Components with workplace occupational exposure limits

Nitric acid, barium salt (2:1)

National Institute for Occupational Safety and Health	- TWA 0.5 mg/m ³ Expressed as Barium
Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants	- TWA 0.5 mg/m ³ Expressed as Barium
American Conference of Governmental Industrial Hygienists	- TWA 0.5 mg/m ³ Expressed as Barium

Control measures

- Provide appropriate exhaust ventilation at places where dust is formed.
- Apply technical measures to comply with the occupational exposure limits.

Individual protection measures

Respiratory protection

- Use a NIOSH-approved dust mask if excessive dust is present.

Hand protection

- Wear suitable gloves.

Suitable material

- PVC
- Neoprene
- Nitrile rubber

Eye protection

- Wear safety glasses. Use chemical goggles if excessive dust is present.

Skin and body protection

- Cover exposed skin areas and wear general-purpose gloves.

Hygiene measures

- Provide eye wash bottles or eye wash stations in compliance with applicable standards.
 - When using do not eat, drink or smoke.
 - Wash hands before breaks and at the end of workday.
 - Handle in accordance with good industrial hygiene and safety practice.
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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.): Solid; white crystalline powder or granules.

Odor: No data available. Expected to be odorless.

Odor Threshold: No data available.

PH: 5 to 7 – saturated solution at 25 °C (77 °F)

Melting point/Freezing point: 1058 °F (570 °C) (759.81 mmHg (1,013 hPa))

Initial boiling point and boiling range: No data available.

Flash point: No data available. Not flammable.

Evaporation rate: No data available.

Flammability (solid, gas): Not flammable.

Upper/lower flammability or explosive limits: No data available - ot flammable.

Vapor pressure: No data available.

Vapor density: No data available.

Relative density – Specific Gravity: 2.98 g/cm³ at 20 °C (68 °F)

Solubility: soluble; 709 g/l at 18 °C. (65 Deg. F.)

Partition coefficient: n-octanol/water: No data available.

Auto-ignition temperature: No data available.

Decomposition temperatures: No data available.

Viscosity: No data available.

9.2 Other information

This product has strong oxidizing properties - May cause fire or explosion.

10. STABILITY AND REACTIVITY

10.1 Reactivity

- Decomposes when moist.
- Decomposes on heating.
- Potential for exothermic hazard

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- No data available
- Contact with combustible material may cause fire.

10.4 Conditions to avoid

- No data available.
- To avoid thermal decomposition, do not overheat.

10.5 Incompatible materials

- Strong reducing agents
- Strong acids
- Organic materials
- Flammable materials
- Combustible material

10.6 Hazardous decomposition products

- Nitrogen oxides (NO_x)

11. TOXICOLOGICAL INFORMATION

11.1 Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact)

Skin corrosion/irritation

- no data available. Not expected to be absorbed through intact skin.

Serious eye damage/eye irritation

- Chemical burns to the eye may occur.

Respiratory or skin sensitization

- no data available – no skin irritation observed in Rabbit

Aspiration hazard

- no data available

11.2 Symptoms related to the physical, chemical and toxicological characteristics

Chemical burns to the eye may occur.

11.3 Delayed and immediate effects and also chronic effects from short- and long-term exposure

Nitric acid, strontium salt (2:1)

Routes of exposure: Ingestion

Not classified as specific target organ toxicant, repeated exposure according to GHS criteria.

Oral Repeated exposure - Rat

NOAEL: 30 mg/kg

Target Organs: Thyroid

Repeated exposure - Rat

LOAEL: 634 mg/kg

Target Organs: Bone, Skeleton

Experience with human exposure - No data available

11.4 Numerical measures of toxicity (such as acute toxicity estimates)

LD50 Oral - Rat - female - > 2,000 mg/kg
(OECD Test Guideline 423)

LC50 Inhalation - Rat - male and female - 4 h - > 4.5 mg/l
(OECD Test Guideline 403)

Skin corrosion/irritation

Skin - In vitro study

Result: No skin irritation - 15 min
(Human Skin Model Test)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irreversible effects on the eye
(OECD Test Guideline 405)

Respiratory or skin sensitisation

Maximisation Test - Guinea pig

Result: Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity

In vitro mammalian cell gene mutation test

Mouse lymphoma test

Result: negative

Mutagenicity (mammal cell test): chromosome aberration.

Human lymphocytes

Result: negative

11.5 Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity (aquatic and terrestrial, where available)

Acute toxicity

- Fishes, *Cyprinus carpio*, LC50, 96 h, > 97.45 mg/l
- Fishes, *Brachydanio rerio*, NOEC, mortality, 34 d, >= 100 mg/l

- Crustaceans, Daphnia magna, LC50, 48 h, 125 mg/l (Strontium chloride anhydrous)
- Crustaceans, Daphnia magna, NOEC, 21 d, 21 mg/l (Strontium chloride anhydrous)
- Pseudokirchneriella subcapitata (green algae), EC50, Growth rate, 72 h, > 104.7 mg/l
- Pseudokirchneriella subcapitata (green algae), NOEC, 72 h, >=104.7 mg/l

Chronic Toxicity to aquatic plants No data available

12.2 Persistence and degradability

- Abiotic degradation - No data available
- Physical- and photo-chemical elimination - No data available
- Biodegradation
 - Biodegradability - The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

- potential accumulation of the cation

12.4 Mobility in soil

- Known distribution to environmental compartments: No data available

12.5 Other adverse effects

- No data available.

13. DISPOSAL CONSIDERATIONS

If disposed of in its purchased form, this product would be classified as a D001 Ignitable waste. If disposed of in its purchased form, this product would also be a hazardous waste based on barium solubility in the RCRA TCLP test – characteristic waste D005. Barium compounds can be rendered non-hazardous by reaction with excess sulfate to form insoluble barium sulfate. Dispose of empty uncleaned packaging as unused product. Any disposal practice must be in compliance with local, state, and federal laws and regulations.

14. TRANSPORT INFORMATION

U.S. DOT

Proper Shipping Name.....: Strontium nitrate.
 Packing Group.....: III
 D.O.T. Hazard Class.....: 5.1 Oxidizer.
 U.N./N.A. Number.....: UN 1507
 Product R.Q. (lbs).....: None.
 Marine pollutant.....: No
 Poison Inhalation Hazard.....: No
 Product Label.....: Strontium Nitrate.

IATA

UN number: 1507 Class: 5.1 Packing group: III

Proper shipping name: Strontium nitrate

IMDG

UN number: 1507 Class: 5.1 Packing group: III EMS-No: F-A, S-Q

Proper shipping name: STRONTIUM NITRATE

Marine pollutant: No

15. REGULATORY INFORMATION

Comprehensive Environmental Response and Liability Act of 1980 (CERCLA):

There is no reportable quantity (RQ) for this material.

Toxic Substances Control Act (TSCA):

All components of this product are included on the TSCA inventory and are listed as ACTIVE.

Superfund Amendments and Reauthorization Act (SARA) Title III Information:

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA Section 311/312 (40 CFR 370) Hazard Categories:

Oxidizer (liquid, solid or gas) - Yes

Acute toxicity (any route of exposure) - Yes

Serious eye damage or eye irritation - Yes

SARA 313 Components

- Ingredients	CAS-No.	Concentration
Strontium nitrate	10042-76-9	95 - 99%
Barium nitrate	10022-31-8	1 - 5%

State Regulations

Massachusetts Right To Know Components

strontium nitrate CAS No. 10042-76-9

Pennsylvania Right To Know Components

strontium nitrate CAS No. 10042-76-9

New Jersey Right To Know Components

strontium nitrate CAS No. 10042-76-9

California Prop. 65 Components

This product does not contain any chemicals known to the state of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

NFPA Rating (National Fire Protection Association):

Health - 2 (Materials which on intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given).

Fire - 0 (Materials which are nonflammable).

Reactivity - 1 (Materials that are normally stable, but become explosive at elevated temperatures and pressure).

Special - NA

Reason for Issue..... : 29 CFR 1910 compliance.

Prepared by.....: Jerry A. Cook.

Title.....: Technical Director.

Approval Date..... : February 21, 2019

Supersedes Date..... May 6, 2015.

MSDS Number.....: 173.

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