



# SAFETY DATA SHEET

## PRODUCT NAME

**SODIUM NITRATE**

Product Code:

002/07-US

Date of issue:

January 2014

Supersedes: October 2012

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product identifier** Sodium Nitrate / Niterox  
Q Sodium Nitrate  
Sodium Nitrate Technical Grade  
Sodium Nitrate Industrial Grade  
Sodium Nitrate Standard Grade  
Sodium nitrate Refined Grade - Thermosolar - Crystals

#### Recommended uses:

Industrial use in formulation of preparations, intermediate use and end-use in industrial settings.  
Industrial end-use as energy storage salt.

#### Restrictions on uses:

Food additive, reagent in water treatment, ingredient in drain cleaners, professional and consumer end-use as fertilizer, formulation of preparations with an end-use as fertilizer.

#### Supplier

SQM North America  
2727 Paces Ferry Rd, Building Two, Suite 1425  
Atlanta, GA 30339

#### Company Telephone/Fax

(770) 916 9400 / (770) 916 9404

#### Emergency Telephone Number

(800) 424 9300 (CHEMTREC)

Distributed by:

  
Rocky Mountain Reagents  
SCIENTIFIC SOLUTIONS SINCE 1991  
4621 Technology Drive, Golden, CO 80403  
ph: (303) 762-0800 fax: (303) 762-1240  
Part #: S1153

### 2. HAZARDS IDENTIFICATION

#### Classification of the substance or mixture

Classification of the chemical in accordance with 29CFR §1910.1200

Hazard classes and Hazard categories	Hazard statements
Oxidizing solid, Cat. 3	May intensify fire; oxidizer
Midly irritating to eyes, cat. 2B	Causes eye irritation.

#### Label elements

##### Hazard pictograms



##### Signal word

Warning

##### Hazard Statements

May intensify fire; oxidizer  
Causes eye irritation.

#### Precautionary Statements

Keep away from flammable / combustible / reducing materials.  
Wear eye protection. Wash hands thoroughly after handling.  
In case of fire: use any suitable mean for extinguishing surrounding fire. Spray water for small fires. For large fires flood with abundant water.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/attention.  
Dispose of contents/container according to local/state/federal regulations.

#### Other hazards

None



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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name	CAS No	EC No	Concentration
Sodium nitrate	7631-99-4	231-554-3	> 95 %
Potassium (K <sup>+</sup> )			< 2 %
Chloride (Cl <sup>-</sup> )			< 1 %
Sulphate (SO <sub>4</sub> <sup>+2</sup> )			< 2 %
Magnesium (Mg <sup>+2</sup> )			< 0.5 %
Calcium (Ca <sup>+2</sup> )			< 0.2 %
Perchlorate (ClO <sub>4</sub> <sup>-</sup> )			0.01 -0.5 %
Iodate (IO <sub>3</sub> <sup>-</sup> )			< 0.01 %

For specific details on composition according to the product grade, see product data sheet

### 4. FIRST AID MEASURES

#### Description of first aid measures

#### General information

In case of persisting adverse effects consult a physician.

Never give anything by mouth to an unconscious person or a person with cramps.

#### In case of inhalation

Remove to fresh air and keep at rest in a position comfortable for breathing.

Get medical attention for any breathing difficulty.

#### In case of skin contact

Wash with plenty of soap and water. Remove contaminated, saturated clothing immediately.

If skin irritation occurs: Get medical advice/attention.

#### In case of eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

#### In case of ingestion

Rinse mouth immediately and drink plenty of water.

#### Most important symptoms and effects, both acute and delayed

The following symptoms may occur:

In case of inhalation	Irritation to respiratory tract
	Delayed lung effects after short term exposure to thermal degradation products
In case of skin contact	May cause redness or irritation
In case of eye contact	Causes serious eye irritation.
In case of ingestion	Ingestion of large amounts may cause:                      Gastrointestinal disturbances

#### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

### 5. FIRE FIGHTING MEASURES

#### Extinguishing media

Suitable extinguishing media:                      Use any suitable mean for extinguishing surrounding fire. Spray water for small fires. For large fires flood with abundant water.

Unsuitable material:                                      None, but attention should be paid to compatibility with chemicals surrounding.

#### Specific hazards arising from the chemical

Oxidizer. Contact with combustible materials will not cause spontaneous ignition, however, sodium nitrate will enhance an existing fire.

Thermal decomposition can lead to the escape of toxic/corrosive gases and vapours.

Thermal decomposition products: Nitrous oxides (NO<sub>x</sub>), sodium nitrite and sodium oxide.



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### Protective equipment and precautions for firefighters

Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (self contained breathing apparatus (SCBA)).

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Provide adequate ventilation. Wear personal protection equipment (Section 8).

### Environmental precautions

Do not allow to enter into surface water or drains. Ensure waste is collected and contained.

### Methods and material for containment and cleaning up

Take up mechanically, placing in appropriate containers for disposal or recovery.

Unsuitable material for containment/taking up: Do not absorb in saw-dust or other combustible absorbents.

### Other information

None

## 7. HANDLING AND STORAGE

### Precautions for Safe Handling

Avoid generation of dust. Provide adequate ventilation. Wear personal protective equipment. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Keep away from flammable, combustible and reducing substances.

### Conditions for safe storage, including any incompatibilities

Keep/store only in original container. Store in a well-ventilated place. Keep container tightly closed.

Do not store together with: Combustible substance, reducing agents

Perchlorate containing product - Special handling may apply. See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate) and Section 15 for more information regarding California State regulations.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines

#### Occupational exposure limits

Sodium nitrate:

OSHA	PEL	Not Established	
	STEL/ceiling	Not Established	
ACGIH	TWA	Not Established	(2012 TLVs® and BEIs®)
	STEL/ceiling	Not Established	(2012 TLVs® and BEIs®)

### Derived No-Effect Level (DNEL) suggested by the manufacturer

Workers (industrial/professional):	
DNEL Human, dermal, long term (repeated):	20.8 mg/kg/day (systemic)
DNEL Human, inhalation, long term (repeated):	36.7 mg/m3 (systemic)

Derived No-Effect Level (DNEL) is the level of exposure to the substance above which humans should not be exposed.

### Engineering controls

Use exhaust ventilation to keep airborne concentrations below exposure limits.

### Personal Protective Equipment

Eye/face protection	Chemical goggles required all the time.
Skin Protection	Nitrile rubber gloves, over 0.11 mm thickness, > 480 min breakthrough time, recommended.
Respiratory Protection	Wear respiratory protection, where airborne concentrations are expected to exceed exposure limits

### General Hygiene Considerations

Avoid contact with eyes and skin. Wash hands thoroughly after handling. Have eye-wash facilities immediately available.



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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Solid, prilled or crystalline
Colour	White
Odour	Odourless
Odour Threshold	No applicable
pH value	8-10 (5% aqueous solution)
Melting point / freezing range	307°C/584°F at 1013 hPa
Boiling temperature / boiling range	Not applicable
Flash point	Not applicable
Vapourisation rate / Evaporation rate	No data available
Flammable solids	Not flammable
Explosion limits (LEL, UEL)	Not applicable
Vapour pressure	Considered negligible (based on melting point)
Vapour density	No data available
Density	2.26 at 20°C/68°F
Solubility	> 100 g/L at 20°C/68°F (water)
Partition coefficient n-octanol /water	Not applicable
Auto Ignition temperature (AIT)	Not applicable
Decomposition temperature	> 550°C/1022°F
Viscosity	Not applicable
Explosive properties	Not explosive
Oxidising properties	Oxidizer

### Other information

None

## 10. STABILITY AND REACTIVITY

### Reactivity

No hazardous reaction when handled and stored according to provisions.

### Chemical stability

Stable under normal storage and temperature conditions.

### Possibility of hazardous reactions

None identified

### Conditions to avoid

Keep away from flammable, combustible and reducing substances.

### Incompatible materials

Flammable, combustible and reducing substances under specific conditions.

### Hazardous decomposition products

Thermal decomposition products: Nitrous oxides (NO<sub>x</sub>), sodium nitrite and sodium oxide.

## 11. TOXICOLOGICAL INFORMATION

The following information mostly refers to the major component of the product.

### Likely routes of exposure (inhalation, ingestion, skin and eye contact)

Eye contact, skin contact and inhalation. Exposure by ingestion is not expected to occur through normal industrial use.

### Symptoms related to the physical, chemical and toxicological characteristics

May be irritant to the respiratory tract. Causes serious eye irritation. May cause redness or irritation to the skin. Ingestion of large amounts may cause gastrointestinal disturbances. May cause delayed lung effects after short term exposure to thermal degradation products.



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#### Information on toxicological effects from short and long term exposure

##### Acute toxicity

			Species:	Method:
Acute oral toxicity	LD50:	> 2000 mg/kg bw	Rat.	OECD Guideline 425
		Data obtained by analogy conclusion		
Acute dermal toxicity	LD50:	> 5000 mg/kg bw	Rat.	OECD Guideline 402
		Data obtained by analogy conclusion		
Acute inhalation toxicity	LC50:	> 0.527 mg/L (4-h)	Rat.	OECD Guideline 403
		(maximum achievable concentration)		
		Data obtained by analogy conclusion		

Assessment / classification:

Based on available data, the classification criteria are not met

##### Irritant and corrosive effects

	Result	Species:	
Irritation to the skin			
Equivalent/similar to OECD guideline 404	non-irritant.	Rabbit.	Data obtained by analogy conclusion
Primary dermal irritation index (PDII): 0 of max. 5 (mean) (Time point: 1, 24, 48, 72h)			
Irritation to eyes	Result	Species:	
OECD Guideline 437	non-irritant.	In vitro study	
OECD Guideline 405	Irritant	Rabbit.	
Assessment / classification:	Mildly irritating to eyes, category 2B: Causes eye irritation.		

##### Respiratory or skin sensitisation

	Result	Species:	
Skin sensitization			
OECD Guideline 429	not sensitising.	Mouse.	
Respiratory sensitisation	No information available.		
Assessment / classification:	Based on available data, the classification criteria are not met		

##### Genetic effects

	Method	Result	
<i>In-vitro</i> genotoxicity			
Gene-mutations microorganisms	Equivalent or similar to OECD 471	negative	(literature information)
Chromosome aberrations mammalian cells	OECD Guideline 473/EU B.10	negative	
<i>In-vivo</i> genotoxicity			
<i>In-vivo</i> unscheduled DNA Synthesis (UDS)	According to Alavantic, D. (1988)	negative	(literature information)
<i>In-vivo</i> micronucleus assay		equivocal	(literature information)
<i>In-vivo</i> chromosome aberrations		equivocal	(literature information)

Assessment / classification:

Overall assessment of data, indicates that sodium nitrate is not genotoxic *in vitro* and *in vivo*.

Based on available data, the classification criteria are not met

##### Reproductive toxicity

No reliable data available for sodium nitrate. Data obtained from chemically related substance.

Adverse effects on sexual function and fertility

OECD guideline 422. NOAEL(C): 1500 mg/kg/d Rat.

Adverse effects on developmental toxicity

OECD guideline 422. NOAEL(C): 1500 mg/kg/d Rat.

At the highest dose tested, no effects on fertility or development were observed in this repeated dose toxicity study. Data from other nitrate substances are in line with this study.

Assessment / classification:

Based on available data, the classification criteria are not met

##### Specific target organ toxicity (single exposure)

Practical experience / human evidence

No relevant effect have been observed after single exposure to sodium nitrate.

Assessment / classification:

Based on available data, the classification criteria are not met

##### Specific target organ toxicity (repeated exposure)

Several oral repeated dose studies with sodium nitrate are available, however, most of them lack of reliability.

A reliable study with potassium nitrate did not show effects at highest dose tested.

OECD guideline 422. Effect dose: Organs affected:

NOAEL(C): 1500 mg/kg bw/day None



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Assessment / classification: Based on available data, the classification criteria are not met

#### Aspiration hazard

Physicochemical data and toxicological information does not indicate an aspiration hazard.

Assessment / classification: Based on available data, the classification criteria are not met

#### Carcinogenicity

No substance related neoplastic lesions were observed in a chronic toxicity study (literature information)

International Agency for Research on Cancer (IARC) Inadequate animals and humans evidence

National Toxicology Program (NTP) Not listed

29 CFR part 1910, subpart Z Not listed

California Proposition 65 Not listed

WHO (2003) Nitrate in drinking water No association between nitrate exposure in humans and the risk of cancer

Assessment / classification: Based on available data, the classification criteria is not met

#### Other Toxicological Information

This product contains trace amounts of naturally-occurring perchlorate and iodate. Like other goitrogenic substances, perchlorate may affect iodine uptake by thyroid under specific conditions.

## 12. ECOLOGICAL INFORMATION

The following information mostly refers to the major component of the product.

#### Ecotoxicity

##### Aquatic Toxicity

Aquatic toxicity (literature information)

96-h LC50 6000 mg/L freshwater fish (literature information)

96-h LC50 4400 mg/L marine water fish (literature information)

24-h EC50 8600 mg/L *Daphnia magna* (fresh water flea). (literature information)

10 d EC50 > 1700 mg/L Several algae species

Data obtained by analogy conclusion

Assessment / classification: Based on available data, the classification criteria are not met

#### Persistence and degradability

In aqueous compartments, the substance will dissociate into sodium and nitrate ions. Other minor compounds are also expected to be dissociated in their corresponding ions. Sodium ions are not subject to further degradation. Under anoxic conditions, nitrate is subjected to denitrification and is ultimately converted into molecular nitrogen as part of the nitrogen cycle. Nitrate and other oxyanions impurities are likely to be found in oxic compartments.

#### Bioaccumulative potential

Sodium nitrate has a low potential for bioaccumulation based on physicochemical properties (high water solubility).

#### Mobility in soil

Nitrate has a low potential for adsorption. Portion not taken up by plants, can leach to groundwater. Sodium can participate in ion exchange processes.

#### Other adverse effects

Excess nitrate leaching may enrich waters leading to eutrophication.

## 13. DISPOSAL CONSIDERATIONS

Disposal should be in accordance with applicable federal and state laws.

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal method in compliance with applicable regulations.

Sodium nitrate waste exhibiting the characteristic of ignitability has the EPA Hazardous Waste Number of D001 according to the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Perchlorate containing product - Special handling may apply. See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate) and Section 15 for more information regarding California State regulations.



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### 14. TRANSPORTATION INFORMATION

#### US DOT (49CFR part 172)

UN-No.	1498
UN Proper Shipping Name	SODIUM NITRATE
Hazard class	5.1
Packing group	III
Hazard label(s)	5.1 (oxidizer)
Special marking	No
Special Provision	A1; A29; IB8; IP3; T1; TP33; W1

#### International Maritime Organization (IMDG Code)

UN-No.	1498
UN Proper Shipping Name	SODIUM NITRATE
Hazard class	5.1
Packing group	III
Marine pollutant	No
Hazard label(s)	5.1 (oxidizer)
Special marking	No
Special Provision	964

#### International Civil Aviation Organization (ICAO) and International Air Transport Association (IATA)

UN-No.	1498
UN Proper Shipping Name	SODIUM NITRATE
Hazard class	5.1
Packing group	III
Hazard label	5.1 (oxidizer)
Special marking	No

#### Special handling procedure

None

#### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

#### Other special precautions

None

### 15. REGULATORY INFORMATION

#### US Federal

##### SARA Title III Rules

##### Section 311/312 Hazard Classes

Acute Health Hazard	Yes (Irritant)
Chronic Health Hazard	No
Fire Hazard	Yes (Oxidizer)
Release of Pressure	No
Reactive Hazard	No

##### Section 313 Toxic Chemicals

N511 Nitrate compounds (water dissociable; reportable only when in aqueous solution)

##### Section 302 Extremely Hazardous Substances (EHS)/CERCLA Hazardous Substances

Sodium nitrate is not listed

##### DHS - Chemical of Interest (Appendix A to 6CFR Part 27)

Sodium nitrate is listed (ACG)



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NFPA 704/2012: National Fire Protection Association

Health	1
Fire	0
Instability	0
Special	OX

### US State Regulations

California Proposition 65

Sodium nitrate is not listed

California Code of Regulations Title 22 (Health & Safety Code), Chapter 33

See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate/>

### Canada

Ingredient Disclosure List:

Sodium nitrate is listed

WHMIS Classification:

Class C (Oxidizer), D2B (Eye irritation)

This product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

### European Union

#### Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Hazard classes and Hazard categories	Hazard statements
Ox. Sol. 3	H272
Eye Irrit. 2	H319

### Chemical Inventories

United States TSCA

Sodium nitrate is listed

Canada DSL

Sodium nitrate is listed

México (INSQ)

Sodium nitrate is listed

European Union (EINECS)

Sodium nitrate is listed

China (IECS)

Sodium nitrate is listed

Japan (METI)

Sodium nitrate is listed

Korea (KECI)

Sodium nitrate is listed

## 16. OTHER INFORMATION

This SDS complies with 29 CFR part 1910 subpart Z (2012), Canada Controlled Products Regulations (2010) and ANSI Standard Z400.1-2004

**Data source** Sodium nitrate REACH (EC) Registration Dossier

**Prepared by** Regulatory Affairs Department, SQM

**E-mail** [product\\_safety@sqm.com](mailto:product_safety@sqm.com)  
[ind-northamerica@sqm.com](mailto:ind-northamerica@sqm.com)

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### Indication of changes

Version 7 (January 2014) Revised version. Section 15: Additional regulatory information. Section 16: Data source was added. (December 2012) New version. All sections were reviewed and modified to comply with 29CFR part 1910 subpart Z (2012).

Version 6 (March 2012) All sections were reviewed, contents were updated and format was changed.