

## Chemical Safety Data Sheet MSDS / SDS

## Potassium nitrate SDS

Revision Date:2024-04-25 Revision Number:1

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

Product name: Potassium nitrate

CAS: 7757-79-1

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses: For R&amp;D use only. Not for medicinal, household or other use.

Uses advised against: none

**Company Identification**

Company: Chemicalbook.in

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**SECTION 2: Hazards identification****Classification of the substance or mixture**

Oxidizing solids, Category 3

## GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

### Hazard statement(s)

H272 May intensify fire; oxidizer

### Precautionary statement(s)

### Prevention

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.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

### Response

P370+P378 In case of fire: Use ... to extinguish.

### Storage

none

### Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

### Other hazards which do not result in classification

no data available

## SECTION 3: Composition/information on ingredients

### Substance

Chemical name: Potassium nitrate

Common names and synonyms: Potassium nitrate

CAS number: 7757-79-1  
EC number: 231-818-8  
Concentration: 100%

#### **SECTION 4: First aid measures**

##### **Description of necessary first-aid measures**

###### **If inhaled**

Fresh air, rest. Refer for medical attention.

###### **Following skin contact**

Remove contaminated clothes. Rinse and then wash skin with water and soap.

###### **Following eye contact**

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

###### **Following ingestion**

Rinse mouth. Refer for medical attention .

##### **Most important symptoms/effects, acute and delayed**

Exposure can cause mild irritation of eyes, nose and throat. (USCG, 1999)

##### **Indication of immediate medical attention and special treatment needed, if necessary**

Maintain an open airway and assist ventilation if necessary. Administer supplemental oxygen. Treat hypotension with supine positioning, intravenous crystalloid fluids, and a low dose -pressor if needed. Monitor vital signs and ECG for 4 to 6 hours. Symptomatic methemoglobinemia may be treated with methylene blue. ... Administer activated charcoal. Gastric emptying is not necessary for small ingestions if activated charcoal can be given promptly . Hemodialysis and hemoperfusion are not effective. Severe methemoglobinemia in infants not responsive to methylene blue therapy may require exchange transfusion. Nitrates and Nitrites

#### **SECTION 5: Firefighting measures**

##### **Suitable extinguishing media**

If material on fire or involved in fire: Flood with water. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible.

#### **Specific hazards arising from the chemical**

Special Hazards of Combustion Products: May produce toxic nitrogen oxides upon decomposition. Behavior in Fire: Strong oxidizer which may react explosively when mixed with reducing agents. Mixture may detonate by heat or shock. Increases the flammability of any combustible material. (USCG, 1999)

#### **Special protective actions for fire-fighters**

In case of fire in the surroundings, use appropriate extinguishing media.

### **SECTION 6: Accidental release measures**

#### **Personal precautions, protective equipment and emergency procedures**

Sweep spilled substance into plastic or glass containers. Wash away remainder with plenty of water.

#### **Environmental precautions**

Sweep spilled substance into plastic or glass containers. Wash away remainder with plenty of water.

#### **Methods and materials for containment and cleaning up**

Sweep spilled substance into plastic or glass containers. Wash away remainder with plenty of water.

### **SECTION 7: Handling and storage**

#### **Precautions for safe handling**

NO contact with combustible substances or reducing agents. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

#### **Conditions for safe storage, including any incompatibilities**

Separated from combustible substances and reducing agents. Separated from combustible and reducing substances.

## SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

Component	Potassium nitrate			
CAS No.	7757-79-1			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Latvia	?	5	?	?
	Remarks			

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

## SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Potassium nitrate is a white to dirty gray crystalline solid. Water soluble. Noncombustible, but accelerates the burning of combustible materials. If large quantities are involved in fire or the combustible material is finely divided an explosion may result. May explode under prolonged exposure to heat or fire. Toxic oxides of nitrogen are produced in fires. Used in solid propellants, explosives, fertilizers.
Colour:	Colorless, rhombic or trigonal crystals
Odour:	Odorless
Melting point/freezing point:	334° C
Boiling point or initial boiling point and boiling range:	400° C
Flammability:	Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	400° C
Auto-ignition temperature:	no data available
Decomposition temperature:	400° C
pH:	4,5-8,5 (5% solution)
Kinematic viscosity:	no data available
Solubility:	Sol in water, glycerol; slightly sol in alcohol
Partition coefficient n-octanol/water:	no data available
Vapour pressure:	no data available

Density and/or relative density:	2.109
Relative vapour density:	no data available
Particle characteristics:	no data available

## SECTION 10: Stability and reactivity

### Reactivity

Decomposes on heating. This increases fire hazard. The substance is a strong oxidant. It reacts with combustible and reducing materials.

### Chemical stability

no data available

### Possibility of hazardous reactions

Not combustible but enhances combustion of other substances ... Risk of fire and explosion on contact with reducing agents. POTASSIUM NITRATE mixed with alkyl esters may explode, owing to the formation of alkyl nitrates; mixtures with phosphorus, tin (II) chloride, or other reducing agents may react explosively [Bretherick 1979. p. 108-109]. Powdered antimony mixed with potassium nitrate explodes when heated [Mellor 9:282 1946-47]. A mixture of antimony trisulfide and potassium nitrate explodes at a red heat [Mellor 9:524. 1946-47]. Arsenic disulfide forms explosive mixtures when mixed with potassium nitrate, [Mellor 9:270. 1946-47]. A mixture of sodium acetate and potassium nitrate may cause an explosion [Pieters 1957. p. 30]. A mixture of potassium nitrate and sodium hypophosphite constitutes a powerful explosive [Mellor 8:881. 1946-47]. A mixture of powdered zirconium and potassium nitrate explodes when heated above the melting point [Mellor 7:116. 1946-47].

### Conditions to avoid

no data available

### Incompatible materials

A micro Parr calorimeter exploded when the wrong proportions of these ingredients were used. The intended mixture was 4.0 g sodium peroxide, 0.2 g dextrose, and 0.2 g potassium nitrate; actual proportions were 0.35 g, 2.59 g, and 0.2 g respectively. There was insufficient sodium peroxide to dissolve decomposition gases, hence a rapid temp and pressure build-up caused the Parr bomb

to burst.

#### **Hazardous decomposition products**

When heated to decomp it emits very toxic fumes of /nitrogen oxides & dipotassium oxide/.

### **SECTION 11: Toxicological information**

#### **Acute toxicity**

Oral: LD50 Rabbit oral 1901 mg/kg

Inhalation: no data available

Dermal: no data available

#### **Skin corrosion/irritation**

no data available

#### **Serious eye damage/irritation**

no data available

#### **Respiratory or skin sensitization**

no data available

#### **Germ cell mutagenicity**

no data available

#### **Carcinogenicity**

no data available

#### **Reproductive toxicity**

no data available



**STOT-single exposure**

The substance is irritating to the eyes, skin and respiratory tract. Ingestion could cause effects on the blood. This may result in the formation of methaemoglobin. The effects may be delayed. Medical observation is indicated.

**STOT-repeated exposure**

no data available

**Aspiration hazard**

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

**SECTION 12: Ecological information****Toxicity**

Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill); Conditions: freshwater; static; Concentration: 5500 mg/L for 24 hr /total

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: *Daphnia magna* (Water flea); Conditions: freshwater; static; Concentration: 900 mg/L for 4.2 days /total

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**Other adverse effects**

no data available

## SECTION 13: Disposal considerations

### Disposal methods

### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

## SECTION 14: Transport information

### UN Number

ADR/RID: UN1486 (For reference only, please check.)

IMDG: UN1486 (For reference only, please check.)

IATA: UN1486 (For reference only, please check.)

### UN Proper Shipping Name

ADR/RID: POTASSIUM NITRATE (For reference only, please check.)

IMDG: POTASSIUM NITRATE (For reference only, please check.)

IATA: POTASSIUM NITRATE (For reference only, please check.)

### Transport hazard class(es)

ADR/RID: 5.1 (For reference only, please check.)

IMDG: 5.1 (For reference only, please check.)

IATA: 5.1 (For reference only, please check.)

### Packing group, if applicable

ADR/RID: III (For reference only, please check.)

IMDG: III (For reference only, please check.)

IATA: III (For reference only, please check.)

#### **Environmental hazards**

ADR/RID: No

IMDG: No

IATA: No

#### **Special precautions for user**

no data available

#### **Transport in bulk according to IMO instruments**

no data available

### **SECTION 15: Regulatory information**

**Safety, health and environmental regulations specific for the product in question**

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

**EC Inventory**

Listed.

**United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

**China Catalog of Hazardous chemicals 2015**

Listed.

**New Zealand Inventory of Chemicals (NZIoC)**

Listed.

**(PICCS)**

Listed.

### **Vietnam National Chemical Inventory**

Listed.

### **IECSC)**

Listed.

### **Korea Existing Chemicals List (KECL)**

Listed.

## **SECTION 16: Other information**

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

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

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### **References**

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website:  
<http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### **Other Information**

Rinse contaminated clothing with plenty of water because of fire hazard. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available.

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any