



Material Safety Data Sheet / Safety Data Sheet

Potassium nitrate

Section 1. Chemical Product and Company Identification

Product name	: Potassium nitrate	Manufactured/supplied
Trade name	: Potassium nitrate, Multi-K.	Haifa Chemicals Ltd.
Synonym	: Nitric acid, potassium salt; Nitrate of potash	P.O. Box 10809,
Fertilizer formula	: Not applicable.	Haifa Bay 26120, Israel
Chemical formula	: KNO_3	Tel: 972-4-8469961
Material uses	: Fertilizer. Glass (cathodes ray tubes, liquid crystal). Pyrotechnics, propellants (rocket fueloxidizers). Heat treatment salts (steel and rubber manufacture), oxidizing flux (in metallurgy). Heat transfer salts, energy storage. Ceramics (tiles, glazes).	Fax: 972-4-8469955 Email: info@haifachem.co.il
Emergency telephone number	: 972-4-8469603/4	

Section 2. Hazards identification

Physical state	: Solid. (Crystalline./Powder.)
Emergency overview	: Warning! OXIDIZER. MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: MUCOUS MEMBRANES. CONTACT WITH ORGANIC MATERIAL MAY CAUSE FIRE. Store in tightly-closed container. Avoid contact with combustible materials.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects	
Eyes	: No known significant effects or critical hazards.
Skin	: No known significant effects or critical hazards.
Inhalation	: No known significant effects or critical hazards.
Ingestion	: Practically non-toxic if swallowed.
Potential chronic health effects	: Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH. Mutagenic effects: Not applicable. Teratogenic Effects: Not applicable.
Medical conditions aggravated by over-exposure	: Repeated or prolonged exposure to the substance can produce target organs damage.
Over-exposure signs/symptoms	: Ingestion may cause gastrointestinal irritation, vomiting and diarrhea.
See toxicological information (section 11)	

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Section 3. Composition, Information on Ingredients

	CAS number	Concentration
United States		
Potassium nitrate	7757-79-1	94 - 100 (Fertilizer) 99.5 - 100 (Technical)

This material is classified as hazardous under OSHA regulations.
See Sections 8, 11 and 14 for details.

Section 4. First aid measures

- Eye contact** : Check for and remove any contact lenses. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.
- Skin contact** : Wash with soap and water. Get medical attention if symptoms occur.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms appear.
- Ingestion** : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
- Notes to physician** : No specific antidote. Medical staff must contact Poison Control Center.

Section 5. Fire fighting measures

- Flammability of the product** : Non-flammable.
- Products of combustion** : Not combustible. Thermal decomposition products are dependent on temperature conditions. These products are water, oxides of potassium and oxides of nitrogen.
- Fire-fighting media and instructions** : Use an extinguishing agent suitable for the surrounding fire.
- This material increases the risk of fire and may aid combustion. Contact with combustible material may cause fire.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Special remarks on explosion hazards** : Non-explosive under normal conditions.

Section 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment. Do not touch or walk through spilled material.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, carefully scoop up spilled materials and use a non-sparking or explosion-proof means to transfer material to an appropriate container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

Section 7. Handling and storage

- Handling** : Store in tightly-closed container. Avoid contact with combustible materials.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalis, reducing agents and combustibles.

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Section 8. Exposure controls, personal protection

Engineering controls : Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal protection

Eyes

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Recommended: Safety glasses.



Respiratory

: Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Recommended: Dust respirator.



Hands

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
>8 hour/hours (breakthrough time): Natural rubber (latex).



Skin/Body

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Body: Recommended: Lab coat.



Personal protection in case of a large spill : Safety glasses, goggles or face shield. Impervious gloves. Full suit. Boots. Wear NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear.

Product name

Exposure limits

United States

Potassium nitrate

ACGIH TLV (United States).

TWA: 5 mg/m³ 8 hour/hours. Form: Dust

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

Physical state : Solid. (Crystalline./Powder./Prills.)
Color : White.
Odor : Odorless.
Molecular weight : 101.1 g/mole
Molecular formula : KNO₃
pH : 6 to 10.5 (Conc. (% w/w): 10) [Basic.]
Melting/freezing point : 333.85°C (632.9°F)
Bulk density : 1.1 g/cm³
Vapor pressure : <0.1 kPa (<1 mm Hg) (at 20°C)
Vapor density : Non-volatile.
Volatility : Non-volatile.
Odor threshold : Not available.
Evaporation rate : Non-volatile.
VOC : Not an organic solvent.
Viscosity : Non-viscous substance.
LogK_{ow} : The product is more soluble in water; log(octanol/water) <1.
Solubility : 31.6 g/100 ml of water at 20°C (68°F).

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Section 10. Stability and reactivity

- Stability and reactivity** : The product is stable.
- Conditions of instability** : Excessive heating.
- Incompatibility with various substances** : Reactive with reducing agents, organic materials, acids.
Slightly reactive with moisture.
- Hazardous decomposition products** : Under fire - oxides of nitrogen, oxides of potassium.
- Hazardous polymerization** : Will not occur.

Section 11. Toxicological information

Toxicity data

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
Potassium nitrate	LD50	3750 mg/kg	Oral	Rat
	LD50	1901 mg/kg	Oral	Rabbit

Acute Effects

- Eyes** : No known significant effects or critical hazards.
- Skin** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Ingestion** : Practically non-toxic if swallowed.
- Potential chronic health effects** : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
Mutagenic effects: Not applicable.
Teratogenic Effects: Not applicable.
- Target organs** : May cause damage to the following organs: mucous membranes.

- Special remarks on chronic effects on humans** : Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.

Section 12. Ecological information

Ecotoxicity data

<u>Ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
Potassium nitrate	Poecilia reticulata (LC50)	96 hour/hours	180 mg/l
	Poecilia reticulata (LC50)	96 hour/hours	188 mg/l
	Poecilia reticulata (LC50)	96 hour/hours	191 mg/l
	Poecilia reticulata (LC50)	96 hour/hours	200 mg/l

- Biodegradable/OECD** : Not applicable.
- Mobility** : Soluble in cold water, hot water.
- Persistence/degradability** : Not applicable, since inorganic substance.
- Other adverse effects** : Substances, which contribute to eutrophication: Nitrates.

Section 13. Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Consult your local or regional authorities.

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Section 14. Transport information

Classification

DOT/IMDG/IATA:	UN number	Proper shipping name	Class	Packing group
NAERG : 140	UN1486	POTASSIUM NITRATE	5.1	III

Label

UN/Other regulations



DOT



Additional information

DOT

Limited quantity

Yes.

Packaging instruction

Passenger aircraft

Quantity limitation: 25 kg

Cargo aircraft

Quantity limitation: 100 kg

Special provisions

A1, A29, IB8, IP3

IATA

Passenger and Cargo Aircraft

Quantity limitation: 25 kg

Cargo Aircraft Only

Quantity limitation: 100 kg

Limited Quantities - Passenger Aircraft

Quantity limitation: 10 kg

Section 15. Regulatory information

United States

HCS Classification : Oxidizing material
Target organ effects

U.S. Federal regulations : TSCA 8(b) inventory: Potassium nitrate
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Potassium nitrate
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Potassium nitrate: Fire hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

Form R - Reporting requirements

Product name
: Potassium nitrate

CAS number
7757-79-1

Concentration
94 - 100
(Fertilizer)
99.5 - 100
(Technical)

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Supplier notification : Potassium nitrate 7757-79-1 94 - 100
(Fertilizer)
99.5 - 100
(Technical)

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations : Pennsylvania RTK: Potassium nitrate: (generic environmental hazard)
Massachusetts RTK: Potassium nitrate
New Jersey: Potassium nitrate

International regulations

International lists : All components listed are listed on major international inventories or exempted from being listed in Australia (AICS), Europe (EINECS/ELINCS), Korea (TCCL), Japan (METI/MOL), Philippines (RA6969).

Section 16. Other information

Label requirements : OXIDIZER.
MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: MUCOUS MEMBRANES.
CONTACT WITH ORGANIC MATERIAL MAY CAUSE FIRE.

Hazardous Material Information System (U.S.A.) :

Health	1
Fire hazard	0
Reactivity	1
Personal protection	C

National Fire Protection Association (U.S.A.) :



References : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG.

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Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.