

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product Identifier:

Chemical Name (EINECS): Potassium Nitrate – Crystals

CAS Number: 7757-79-1

EINECS Number: 231-818-8

REACH Registration Number: 01-2119488224-35-XXXX

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

Identified use(s): Industrial use of potassium nitrate for formulation of preparations, intermediate use and end-use in industrial settings Professional use of potassium nitrate for formulation of preparations and end use. Consumer end-use of fertilisers and other products.

Uses advised against: None

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Regulation 1272/2008 (EU-GHS/CLP):

Hazard classes and Hazard Categories: Hazard Statements

Ox. Sol 3: H272

EEC Directive 67/548/EEC & Directive 1999/45/EC:

Categories of danger: R-Phrases

Oxidising: R8

Full text of R-, H- and EUH-phrases: See section 16.

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Label elements:

According to Regulation (EC) No. 1272/2008 (CLP):

Pictogram:



Signal word(s):

Warning

Hazard statement(s):

H272: May intensify fire; oxidiser.

Precautionary statement(s):

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking*.

Keep/store away from clothing/flammable/reducing/combustible materials.

Take precautions to avoid mixing with flammable/reducing/combustible materials.

Wear protective gloves/eye protection/face protection.

In case of fire: use any suitable means for extinguishing surrounding fire.

Spray water for small fires. For large fires flood with abundant water.

Dispose of contents/container according to local/national regulations.

Notes.

*Sentence (P210) does not accurately reflect the risk. Product is not flammable. Those non-crystalline forms that pass UN 0.1 test need not be classified as oxidiser under CLP. Refer to product labelling for the classification of supplied product.

Other hazards:

PBT and vPvB assessment is not applicable to inorganic substances.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances:

Substance Name	CAS No.	EC No.	Weight Content
Potassium Nitrate	7757-79-1	231-818-8	>94%
Sodium Nitrate	7631-99-4	231-554-3	0.01 – 5%

Potassium Nitrate may also contain an organic additive to control dusting/caking.

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

4. FIRST AID MEASURES

Description of first aid measures:

General Advice:

In case of persisting, adverse effects consult a physician. Never give anything by mouth to and unconscious person or a person with cramps.

Inhalation:

Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention for any breathing difficulty.

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Skin contact: Wash with plenty of soap and water. Remove contaminated, saturated clothing immediately. If skin irritation occurs: Get medical advice/attention. 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.

Ingestion: Induce vomiting. 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.

In case of skin contact: May cause redness or irritation In case of eye contact May cause redness or 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 larger fires flood with abundant water.

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

Special hazards arising from the substance or mixture:

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

Thermal decomposition products: refer to section 10.

Advice for fire-fighters: Wear a self-contained breathing apparatus and chemical protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Provide adequate ventilation. Wear personal protective equipment.

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 taking up: Do not absorb in sawdust or other combustible absorbents.

Reference to other sections: Personal protective equipment(exposure scenarios).

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid generation of dust. Provide adequate ventilation. Wear personal protective clothing (recommended but not required to control risk).

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

Keep away from flammable, combustible and reducing substances.

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Conditions for safe storage: 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.

Specific end use(s): Further information concerning special risk management measures: see annex of the data sheet (exposure scenarios).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Contains no substances with occupational exposure limits:

	Dust Inhalable		Dust Respirable	
	Mg/m3	Mg/m3	Mg/m3	Mg/m3
Austria	10	20	5	10
Belgium	10		3	
Denmark	10	20		
France	10		5 (respirable aerosol)	
Germany	10 (AGS)	20 (AGS)	3 (AGS)	6 (AGS)
Germany	4 (DFG)		1,5 (DFG)	
Hungary	10		6	
Spain	10		3	
Sweden	10		5	
Switzerland	10		3	
USA (OSHA)	15		5	

DNEL/DMEL and PNEC Values:

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)

Consumer:

DNEL Human, dermal, long term (repeated)	12.5 mg/kg/day (systemic)
DNEL Human, inhalation, long term (repeated)	10.9 mg/m3 (systemic)
DNEL Human, oral< long term (repeated)	12.5 mg/kg bw/day (systemic)
PNEC environment, freshwater, continuous	0.45 mg/L
PNEC environment, marine water, continuous	0.045 mg/L
PNEC environment, aqua, intermittent	4.5 mg/L
PNEC environment, sewage treatment plant, continuous	18 mg/L

Exposure controls: Further information concerning special risk management measures: see annex of the safety data sheet (exposure scenarios).

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9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties:**

Appearance:	Solid, crystalline
Colour:	White
Odour:	Odourless
Odour threshold:	Not applicable
pH Value:	8 - 10 (5% aqueous solution)
Melting point/melting range:	335°C at 1013 hPa (literature information)
Boiling point/boiling range:	Not applicable
Flash point:	Not applicable
Vaporisation rate:	No data available
Flammable solids:	Not flammable
Explosion limits (LEL, UEL):	Not applicable
Vapour pressure:	Not applicable
Relative vapour Density (air=1):	No data available
Density:	2.1 at 20°C (literature information)
Solubility:	> 100 g/L at 25°C (water) (literature information)
Partition coefficient n-octanol/ water:	Not applicable
Auto ignition temperature (AIT):	Not applicable
Decomposition temperature (°C):	> 600°C (literature information)
Viscosity:	Not applicable
Explosive properties:	Not explosive
Oxidising properties:	Oxidising (literature information)

10. STABILITY AND REACTIVITY

Reactivity:	Stable under normal storage and temperature conditions
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:	See Chapter 7.
Hazardous decomposition products:	Thermal decomposition products: Nitrous oxides (NO _x), potassium nitrite and potassium oxide.

11. TOXICOLOGICAL INFORMATION

Toxicokinetics, metabolism and distribution. Absorption: 50% absorption is estimated for oral, dermal and inhalation exposure. Based on analysis in animals and humans, Nitrate is widely distributed throughout the body. Nitrate is partly reduced by oral bacteria into nitrite. Nitrite is then rapidly converted into nitrate (by oxy haemoglobin). Excretion of nitrate is mainly via urine (60% within 48-h).

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Information on toxicological effects:

Acute Oral Toxicity:

			Species	Method
Acute oral toxicity:	LD50	>2000mg/kg bw	Rat	OECD guideline 405
		Data obtained by analogy conclusion		
Acute dermal toxicity:	LD50	>5000mg/kg bw	Rat	OECD guideline 402
Acute Inhalation toxicity:	LD50	>0.527mg/L (4-h)	Rat	OECD guideline 403
		Maximum achievable concentration.		
Assessment / Classification:		Based on the available date, the classification criteria is not met.		

Irritant and corrosive effects:

	Result	Species
Primary irritation to the skin:		
Equivalent/ similar to OECD Guideline 404:	Non-irritant	Rabbit
	Data obtained by analogy conclusion.	

Irritation to the eyes:

	Result	Species
OECD guideline 437:	Non-irritant	In vitro study
OECD guideline 405/EU B.5:	Non-Irritant	Rabbit
Assessment / classification:	Based on the available date, the classification criteria is not met.	

Respiratory or skin sensitisation:

	Result	Species
OECD guideline 429/EU B.42:	Not sensitising	Mouse
	Data obtained by analogy conclusion.	
Respiratory sensitisation:	No information available.	
Assessment / Classification:	Based on the available date, the classification criteria are not met.	

Germ cell mutagenicity/ Genotoxicity In- vitro mutagenicity:

	Method	Result
Gene-mutations microorganisms:	Bacterial reverse mutation assay.	Negative (literature information).
Gene-mutations Mammalian cells:	OECD Guideline 407/ EU B.17.	Negative.
Chromosome aberr. Mammalian cells:	According to ishida & odashima (1977).	Negative (literature information).
Sister chromatid exchange (SCE):	Equivalent or similar to OECD 479.	Negative (literature information).
Assessment / Classification:	Based on the available date, the classification criteria are not met.	

Carcinogenicity: No substance related neoplastic lesions were observed in chronic toxicity study (literature information).

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

Reproductive toxicity:

Adverse effects on sexual function and fertility/developmental toxicity:

OECD guideline 422:	NOAEL(C): 1500mg/kg/d	Rat
At the highest dose tested, no effects on fertility or development were observed in a repeated dose toxicity study.		
	Data from other nitrate substances are in line with this study.	
Assessment/ Classification:	Based on available data, the classification criteria is not met	

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Specific target organ toxicity (single exposure):

Practical experience/ human evidence

No relevant effects have been observed after single exposure to potassium 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.

OECD guideline 422.

NOAEL(C): effect dose 1500mg/kg bw/day organs effected: None

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

Aspiration Hazard: No information given.

12. ECOLOGICAL INFORMATION

Toxicity:

Aquatic toxicity:

96-h LC50	1378 mg/L	Poe cilia reticulate (freshwater fish (literature information)).
48-h EC50	490 mg/L	Daphnia magna (freshwater flea) (literature information).
10 d EC50	>1700 mg/L	Several algae species (literature information).

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

Persistence and degradability: In principle only abiotic degradation processes are relevant for the substance. In aqueous solutions, the substance will Dissociate into potassium and nitrate ions. Under anoxic conditions, denitrification occurs and nitrate is ultimately converted into molecular nitrogen as part of the Nitrogen cycle.

Bio accumulative potential: Potassium 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.

Results of PBT and vPvB assessment: PBT and vPvB assessment is not applicable to inorganic substances.

Other adverse effects: Excess nitrate leaching may enrich waters leading to eutrophication.

13. DISPOSAL CONSIDERATIONS

The allocation of waste identity numbers/ waste description must be carried out according to the EEC, specific to the industry and process.

Delivery to an approved waste disposal company. Dispose according to legislation.

Do not allow to enter into surface water or drains.

Waste treatment methods: Any suitable waste treatment methods.

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14. TRANSPORT INFORMATION

Land transport (ADR/RID):

UN Number: 1486
Proper shipping name: POTASSIUM NITRATE
Class(es): 5.1
Classification code: 02
Packing group: III
Hazard label(s): 5.1 (oxidising)
Special markings: No

Inland waterway transport (ADN):

UN Number: 1486
Proper shipping name: POTASSIUM NITRATE
Class(es): 5.1
Classification code: 02
Packing group: III
Hazard label(s): 5.1 (oxidising)
Special markings: No

Sea transport (IMDG):

UN Number: 1486
Proper shipping name: POTASSIUM NITRATE
Class(es): 5.1
Packing group: III
Marine pollutant: No
Hazard label(s): 5.1 (oxidising)
Special markings: No

Air transport (ICAO-TI/ IATA-DGR):

UN Number: 1486
Proper shipping name: POTASSIUM NITRATE
Class(es): 5.1
Packing group: III
Hazard label(s): 5.1 (oxidising)
Special markings: No

Special precautions for users: None.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable.

Remark: None.

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15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture: None identified.

Major Accident Hazard Legislation:

Chemical safety assessment: For this substance a chemical safety assessment has been carried out.

Note: The regulatory information given above only indicates the principal regulations specifically Applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Classification according to directive 67/548/EEC or 199/45/EC.

Categories of danger

Oxidising

R8 Contact with combustible material may cause fire.

S- phrases: S16 Keep away from sources of ignition – No smoking.
S41 In case of fire and /or explosion do not breathe fumes.
Data source –Potassium nitrate REACH registration dossier.
This information is based upon the present state of knowledge.

Legal disclaimer: The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.