

Safety Data Sheet

According to article 31 of REACH regulation (EC 1907/2006)
and annex I to regulation EC 453/2010



Zakłady Azotowe Chorzów S.A

POTASSIUM NITRATE

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SECTION 1: Identification of the substance and of the company

1.1. Product identifier

IUPAC name: **Potassium nitrate**

CAS name: **Nitric acid potassium salt (1:1)**

CAS No: **7757-79-1**

EC No: **231-818-8**

Index No: not determined

REACH registration No: **01-2119488224-35-0013**

Catalogue No: **KCH/W1**

1.2. Relevant identified uses of the substance and uses advised against

Identified uses:

Potassium nitrate is used for chemical synthesis and preparation of mixtures, including manufacture of fertilizers, explosives and pyrotechnic materials, laboratory reagents, water treatment chemicals, deicing and antifreeze products, detergents and cleaning agents, cosmetics, food additives.

Potassium nitrate is used as nitrogenous and potassic fertilizer (EC fertilizer type B.3.1).

Potassium nitrate is used as food preservative (food additive E252).

Potassium nitrate is used in glass and frits manufacture.

Molten potassium nitrate is used as heat transferring medium.

Molten potassium nitrate is used to heat treatment and oxidation of metals.

Uses advised against: not determined.

1.3. Details of the supplier of the safety data sheet

Producer: **Zakłady Azotowe Chorzów Spółka Akcyjna**
41-503 Chorzów, ul. Narutowicza 15

phone: **+48 32 7362 000**

fax: **+48 32 7362 037**

e-mail: **azoty@chorzow.pl**

Email address of the person responsible for the SDS: **jolanta.koleczek@azoty.chorzow.pl**

1.4. Emergency telephone number

Producer phone number available around the clock: **+48 32 7362 209**

SECTION 2: Hazards identification

2.1. Classification of the substance

Classification of the substance according to Regulation (EC) No 1272/2008: **Ox. Sol. 3; H272**

Classification of the substance according to Directive 67/548/EEC: **O; R8**

Full text of classification, including hazard statements and R phrases – refer to section 16

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2.2. Label elements

Pictogram:



Signal word: **WARNING**

Hazard Statement: **H272**

Precautionary Statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
No smoking.

P220: Store away from combustible materials.

P221: Take any precaution to avoid mixing with combustibles.

P280: Wear protective gloves and eye protection.

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

P501: Dispose of contents and container to entity authorized to waste reception.

2.3. Other hazards

Potassium nitrate is an inorganic substance, therefore, in accordance with the provisions of Regulation (EC) No. 1907/2006, Annex XIII, PBT and vPvB assessment is not required.

Although potassium nitrate alone does not ignite when coming into contact with an ignition source, as an oxidant may intensify fire. Risk of fire and explosion exist in case of contact with reducing agents.

SECTION 3: Composition / information on ingredients

3.1. Substances

Chemical nature: inorganic.

Name	Identification	Registration No	% w/w.
Potassium nitrate	CAS No: 7757-79-1 EC No: 231-818-8	01-2119488224-35-0013	98.7 – 100.0

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

In case of breathing difficulties move affected person into fresh air. If breathing has stopped give artificial respiration. Call for medical help.

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Skin contact

Remove contaminated clothing and shoes. Wash skin with soap and water. Refer the sufferer to a doctor in case of prolonged skin irritation. Wash clothing and clean thoroughly shoes before reuse.

Eye contact

Rinse cautiously contaminated eyes with clean water. Remove contact lenses if present and easy to do. Continue rinsing for several minutes. Refer the sufferer to a doctor in case of prolonged eye irritation.

Ingestion

Rinse mouth with water. Consider inducing vomiting if person is conscious. Call for medical help if sufferer still feels unwell. Never give anything by mouth to an unconscious person. Get medical attention immediately.

4.2. Most important symptoms and effects, both acute and delayed

Acute symptoms and exposure effects:

Inhalation of potassium nitrate dust may cause respiratory tract irritation with symptoms like coughing and short breath.

Skin exposure to potassium nitrate can cause skin irritation with symptoms of redness, itching and pain.

Eye contamination with potassium nitrate can cause irritation with symptoms of redness and pain.

Ingestion of potassium nitrate can cause poisoning with symptoms of abdominal pain, lividity of lips, nails and skin, dizziness and heavy breathing.

Delayed symptoms and exposure effects:

In the human body potassium nitrate is easily reduced to nitrites. Reduction of nitrate to nitrite in the body may lead to methemoglobinemia. Cause of methemoglobinemia is an oxidation of the divalent hemoglobin iron into trivalent form, which does not have a reversible oxygen binding capacity. Symptoms include tiredness, shortness of breath on exertion, tachycardia, headache, dizziness and drowsiness. Severe effect is manifested by coma and can be fatal. Prolonged oral exposure to potassium nitrate can cause anaemia and kidney damage.

4.3. Indication of any immediate medical attention and special treatment needed

The symptoms and effects of exposure may be delayed in time. It is recommended to provide medical observation and care in each of the following cases:

- Breathing difficulties due to the inhalation of potassium nitrate dust;
- Persisting skin irritation after exposure to potassium nitrate;
- Persisting eye irritation after exposure to potassium nitrate;
- Ingestion of potassium nitrate;
- Symptoms of methemoglobinemia, anaemia or kidney dysfunction in case concerning persons working with potassium nitrate.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Any fire-fighting equipment handheld are suitable to nip fire in the bud, such as: powder-, foam-, CO₂-extinguishers and water from the hydrant.

Water is the most suitable medium to extinguish increasing fire. Large fire has to be extinguished by a strong stream of water. In order to minimize the impact of emitted nitrogen oxides, use curtain of sprayed water or water mist.

Unsuitable extinguishing media: not known.

5.2. Special hazards arising from the substance

Potassium nitrate itself is not flammable substance but has oxidising properties. Combustible materials in the presence of potassium nitrate burn intensely and burn even without air. Potassium nitrate intensifies the fire. During a fire potassium nitrate emits toxic nitrogen oxides.

5.3. Advice for firefighters

Fire-fighters should wear full protective clothing and breathing autonomous apparatus due to risk of intense fire and toxic decomposition products.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Following emergency situations should be taken into account:

- scattering of crystalline potassium nitrate;
- spilling of potassium nitrate solution;
- leakage of melted potassium nitrate;
- fire in the presence of potassium nitrate.

For non-emergency personnel:

In order to avoid contact with the substance, incidental persons should not remain in the place of substance release. To make it happen, should be appoint the area of danger zone and give an order of evacuation non-emergency personnel.

For emergency responders:

Wear suitable personal protective equipment: clothing, gloves, shoes and goggles. In case leakage of melted potassium nitrate or fire, wear the self contained breathing apparatus additionally.

6.2. Environmental precautions

Prevent leakage of released potassium nitrate into drains, surface water, groundwater and soil. In the event of contamination of these elements of the environment inform the relevant authorities.

6.3. Methods and material for containment and cleaning up

Remove flammable materials and sources of ignition (heat sources, hot surfaces, sources of sparks, open flame) from the release place of potassium nitrate. Collect mechanically the product (crystal, solution, alloy of potassium nitrate which was cooled down and solidified) to properly labelled containers with closing, and pass it for recovery or disposal.

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Avoid formation dust of potassium nitrate. Leakages of melted or dissolved potassium nitrate should be surrounded by embanking of earth or clay. Use curtain of sprayed water or water mist in order to minimize the impact of emitted nitrogen oxides during a fire.

6.4. Reference to other sections

Waste recovery or disposal – refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Operate with substance in amount necessary for use in specific application. Store the rest under the conditions specified in Section 7.2. Carefully protect the residue of substance which has been after opening the original packaging (bag) against scattering, preferably by placing in a sealed and labelled container and by protection from access by unauthorized persons. Every disappearances or thefts significant amounts of potassium nitrate, as well as suspicious transactions and attempts illegal acquisition the substance, should be identified and reported in accordance with the provisions on the marketing and use of explosives precursors (Section 15.1, 4).

Do not eat, drink or smoke during use of the substance. Do not ingest the substance.

Potassium nitrate used as a food additive is intended exclusively for professionals. In this application, comply with requirements of the Food Law (Section 15.1, 5).

Crystalline form of the substance use in well ventilated rooms. Avoid formation dust. Avoid inhaling dust and protect eyes from contamination (from sprinkling). In case of dust presence, use anti-dust mask and eye protection.

Avoid contact with skin and eyes. When handling the substance always use gloves and goggles. After handling the substance, remove clothing, wash hands and face.

Do not allow to mixing the substance with combustible materials (e.g. sawdust, waste paper, towels industrial, cleaning cloths, rags, etc.), as well as other organic materials or materials with reducing properties. If mixing potassium nitrate with organic substance or with substance with reducing properties is deliberately intended, for example in the manufacture of pyrotechnics or explosives, follow special procedures developed by the manufacturers of those mixtures.

Molten potassium nitrate should be used only in closed equipment and installations dedicated for this purpose. Be followed specific procedures developed by the suppliers of this equipment and installations.

Do not dispose potassium nitrate and do not pour its solutions into drains. Potassium nitrate not suitable for further use, including leftovers swept away and leftovers of solutions, should be collected as waste and handled in accordance with the applicable provisions on waste (Section 15.1, 7)

Empty packaging that remains from potassium nitrate should be selectively collect and dealt in accordance with the provisions on packaging and packaging waste (Section 15.1, 8).

7.2. Conditions for safe storage, including any incompatibilities

Store in original sealed and labelled packages, in roofed and closed warehouses, away from combustible and reducing materials, also away from heat, hot surfaces, sparks, open flames and other ignition sources. Respect the principle of "no smoking". Do not use an open flame. Store at ambient temperature, protected from sun and rain. Prevent theft and any other unauthorized access to potassium nitrate.

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The industrial plant, where is present a crystalline potassium nitrate in quantities over 1250 tons or a granular potassium nitrate in quantities over 5000 tons, is subject to classification in terms of risk of serious industrial accident. Member States of the European Union shall apply in that regard the provisions implementing the Directive No. 2012/18/EU (Section 15.1, 6).

7.3. Specific end uses

Use of potassium nitrate as nitrogenous and potassic fertilizer (EC fertilizer type B.3.1).

Detailed and practical recommendations for use of potassium nitrate in this application by professionals are defined in the exposure scenario ES3 contained in annex to this safety data sheet.

Detailed and practical recommendations for use of potassium nitrate by consumers of fertilizers – are defined in the exposure scenario ES4 contained in annex to this safety data sheet.

Use of potassium nitrate as food preservative (food additive E252).

Detailed and practical recommendations for use of potassium nitrate in this application by professionals are defined in the exposure scenario ES3 contained in annex to this safety data sheet.

Food categories to which may be used a limited amount of potassium nitrate (food additive E252) as well as the maximum quantities and maximum levels of residue at the end of the food production process are specified in the provisions of the Food Law (Section 15.1, 5).

Use of potassium nitrate in glass and frits manufacture.

Detailed and practical recommendations for use of potassium nitrate in this application in industrial conditions are defined in the exposure scenario ES2 contained in annex to this safety data sheet.

Use of potassium nitrate as molten salt as heat transferring medium as well as use of potassium nitrate to heat treatment and oxidation of metals in molten salt.

Detailed and practical recommendations for use of potassium nitrate in these applications in industrial conditions are defined in the exposure scenario ES2 contained in annex to this safety data sheet.

Molten potassium nitrate should be used only in closed equipment and installations dedicated for this purpose. Be followed specific procedures developed by the suppliers of this equipment and installations.

Mixtures made from potassium nitrate are used as: fertilizers, explosives, pyrotechnics, laboratory reagents, water treatment chemicals, deicing and antifreeze products, detergents, cleaning products, cosmetics, food additives.

Detailed and practical recommendations for end users of mentioned products are defined in the exposure scenarios: ES2 (industrial conditions), ES3 (professional use) and ES4 (consumer use) contained in annex to this safety data sheet.

Detailed and practical recommendations to the formulation of mixtures for these applications are defined in the exposure scenarios: ES2 (industrial conditions) and ES3 (professional use) contained in annex to this safety data sheet.

To manufacturing of pyrotechnics or explosives, be follow special procedures developed by the manufacturers of those mixtures.

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SECTION 8: Exposure controls / personal protection

8.1. Control parameters

The Community legislation (UE) does not specify the value of the maximum permissible concentration of potassium nitrate in the work environment or requirements at biological control of exposed workers.

Threshold limit value - Time weighted average (TLV-TWA) – not determined.

Threshold limit value - Short-term exposure limit (TLV-STEL) – not determined.

Threshold limit value - Ceiling limit (TLV-C) – not determined.

Threshold limit values for dust – not determined.

Biological limit value – not determined.

The following DNELs after exposure on potassium nitrate were determined as result of risks assessment to human health:

Long-term systemic effects for workers:

- through respiratory tract: 36.7 mg/ m³ air inhaled;
- through skin: 20.8 mg/kg body weight/day.

Long-term systemic effects for consumers:

- through respiratory tract: 10.9 mg/m³ air inhaled;
- through skin: 12.5 mg/kg body weight/day.
- through ingestion: 12.5 mg/kg body weight/day.

The following PNECs potassium nitrate were determined as result of risks assessment to environment:

- fresh water: 0.45 mg/dm³;
- water in estuaries: 4.5 mg/dm³;
- marine water: 0.045 mg/dm³;
- sewage treatment plants: 18 mg/dm³.

8.2. Exposure controls

Information on exposure controls for the identified uses of potassium nitrate is given in the exposure scenarios attached to this safety data sheet.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

a) Appearance:	colourless or white crystals, crystalline powder or granules.
b) Odour:	odourless.
c) Odour threshold:	not applicable.
d) pH:	4.5 – 8.5 (5% water solution).
e) Melting point/freezing point:	333 – 337 °C.
f) Initial boiling point and boiling range:	not applicable for substance with melting point above 300 °C.
g) Flash point:	not applicable for not flammable substance.
h) Evaporation rate:	not applicable for substance with melting point above 300 °C.

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i) Flammability:	substance is not flammable, does not emit flammable gases in contact with water, does not self-heating.
j) Upper/ lower flammability or explosive limits:	not applicable for not flammable substance.
k) Vapour pressure:	not applicable for not flammable substance.
l) Vapour density:	not applicable for not flammable substance.
m) Relative density:	2.1 at 20 °C.
n) Solubility:	316 g/L in water at 20 °C.
o) Partition coefficient: n-octanol / water:	not applicable for inorganic substance.
p) Auto-ignition temperature:	not applicable for not flammable substance.
q) Decomposition temperature:	400 °C. ($2 \text{KNO}_3 \rightarrow 2\text{KNO}_2 + \text{O}_2$).
r) Viscosity:	not applicable for substance with melting point above 300 °C.
s) Explosive properties:	substance is not explosive.
t) Oxidising properties:	substance is an oxidiser.

9.2. Other information

	Particle size (µm)	Amount (% w/w)
Granulation of crystalline potassium nitrate specified by the manufacturer:	< 400	< 90
	< 200	< 50
	< 100	< 10
	< 50	< 2

SECTION 10: Stability and reactivity

10.1. Reactivity

Potassium nitrate has oxidising properties.

The test results by the method O.1 in Part III, sub-section 34.4.1 of the UN RTDG decided on the classification of crystalline potassium nitrate as oxidizing solid Category 3 and on including it to the transport of dangerous goods as Class 5.1 oxidizing material.

10.2. Chemical stability

Potassium nitrate is substance stable in recommended condition of usage and storage (see Section 7).

10.3. Possibility of hazardous reactions

Potassium nitrate may cause fire or even an explosion in the presence of the ignition sources during a contact with organic substances or substances with reducing properties.

At temperatures above 400 °C, melted potassium nitrate is converted to potassium nitrite with release of oxygen. Potassium nitrite (CAS 7632-00-0, EC: 231-555-9) may intensify fire (H272), is toxic if swallowed (H301) and very toxic to aquatic organisms (H400). Release of oxygen leads to a rise of pressure in closed compartments.

10.4. Conditions to avoid

Do not mix potassium nitrate with combustible materials or substances with reducing properties. For preparation of pyrotechnics and explosives follow special procedures developed by manufacturers of those mixtures.

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Do not allow to exceed the temperature above 400 °C. Melted potassium nitrate should be operated only in closed equipment and installations dedicated for this purpose, following specific procedures developed by the suppliers of this equipment and installations.

10.5. Incompatible materials

The alkali metals: lithium, sodium, potassium, rubidium, caesium, francium.
The alkaline earth metals: beryllium, magnesium, calcium, strontium, barium, radium.
Metals with properties similar to alkaline metals: yttrium, zirconium.
Saw dust or metal powders: aluminium, iron, lead.
Combustible inorganics: phosphorus, phosphoric acid esters (III), sulphur.
Carbon materials: charcoal, graphite, carbon black.
The organic substances: saccharides, organic acid anhydrides.
Combustible materials: sawdust, waste paper, towels industrial, cleaning cloths, rags.

10.6. Hazardous decomposition products

Potassium nitrite, oxygen, nitrogen oxides (NO, NO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

a) Acute toxicity

Exposure:	Oral
Method:	OECD 425; species: rat
Result:	LD ₅₀ > 2000 mg/kg body weight
Exposure:	Inhalation
Method:	OECD 403; species: rat
Result:	LC ₅₀ (4 h) > 0.527 mg/L
Exposure:	Skin
Method:	OECD 402; species: rat
Result:	LD ₅₀ > 5000 mg/kg body weight

Based on available data, potassium nitrate does not meet the criteria for classification for acute toxicity.

b) Skin corrosion / irritation

Method:	OECD 404; species: rabbit; read-across approach: study for NH ₄ NO ₃
Result:	No observed symptoms of skin irritation.

Based on available data, potassium nitrate does not meet the criteria for classification for skin corrosion / irritation.

c) Serious eye damage / irritation

Method:	OECD 437; in vitro: bovine eye
Result:	No observed symptoms of eye irritation

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Method:	OECD 405; species: rabbit
Result:	It has been observed moderate irritation conjunctiva of two rabbits. Symptoms subsided after 72 hours for first rabbit and after 7 days for second.

Based on available data, potassium nitrate does not meet the criteria for classification for eye irritation nor for irreversible effects on the eye.

d) Respiratory or skin sensitisation

Method:	OECD 429; species: mouse; read-across approach: study for NaNO ₃
Result:	Local lymph node assay showed not sensitisation effects.

There is not any evidence that potassium nitrate can cause a specific hypersensitivity of respiratory in humans.

Based on available data, potassium nitrate does not meet the criteria for classification for respiratory or skin sensitisation.

e) Germ cell mutagenicity

Method:	OECD 471; test on bacteria
Result:	It was not observed reverse mutation bacterial strains.

Method:	OECD 476; in vitro: mammalian cells
Result:	It has not observed any mutagenicity for mouse lymphoma cells. Chromosomal aberrations were not induced in fibroblast cell lines of chinese hamster.

Method:	OECD 479; in vitro: Chinese hamsters cells.
Result:	Cytotoxicity was not found in a study of exchange of sister chromatid at ovary cells of chinese hamster.

Based on available data, potassium nitrate does not meet the criteria for classification for germ cell mutagenicity.

f) Carcinogenicity

There was no correlation between consumption of nitrates in food and the occurrence of cancer. During toxicity test on potassium nitrate no mutagenic effects or neoplastic (carcinogenic) lesions were observed. According to section 8.9.1 of Annex X of the REACH Regulation, proposal for carcinogenicity study of potassium nitrate was not submitted.

Based on available data, potassium nitrate does not meet the criteria for classification for carcinogenicity.

g) Reproductive toxicity

Method:	OECD 422; species: rat
Result:	The screening test regarding reproductive toxicology has not showed neither effects on impaired fertility, nor harmful effects for embryos or of their development, nor harmful effects on reproductive organs - up to doses (oral, repeated) of 1500 mg/ kg body weight/ day.

Based on available data, potassium nitrate does not meet the criteria for classification for reproductive toxicity.

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h) **Specific target organ toxicity – single exposure**, and

i) **Specific target organ toxicity– repeated exposure**

The screening test regarding reproductive toxicology has not showed harmful effects potassium nitrate on reproductive organs of rat (see subsection g). Through a 28-day test there was no sign of: mortality, toxicity symptoms, decrease in food consumption, effects on body weight, behaviour changes, disruption in motor activity and histopathological changes.

Based on available data, potassium nitrate does not meet the criteria for classification for specific target organ toxicity – repeated exposure, and hence, specific target organ toxicity – single exposure.

j) **Aspiration hazard.**

No data

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Inhalation of potassium nitrate dust may cause respiratory tract irritation.

Skin exposure to potassium nitrate can cause skin irritation.

Eye contamination with potassium nitrate can cause irritation of eye.

Ingestion of potassium nitrate can cause poisoning. In the human body potassium nitrate is easily reduced to nitrites. Reduction of nitrate to nitrite in the body may lead to methemoglobinemia. Cause of methemoglobinemia is an oxidation of the divalent hemoglobin iron into trivalent form, which does not have a reversible oxygen binding capacity.

Prolonged oral exposure to potassium nitrate can cause anaemia and kidney damage.

Symptoms of exposure are described in section 4.2 of this safety data sheet.

SECTION 12: Ecological information

12.1. Toxicity

Acute toxicity to fish

Method:	equivalent to OECD 203; freshwater species: <i>Poecilia reticulata</i>
Result:	LC ₅₀ (96 h) = 1378 mg/L
Method:	OECD 203; freshwater species: <i>Oncorhynchus mykiss</i>
Result:	LC ₅₀ (96 h) > 98.9 mg/L

Acute toxicity to invertebrates

Method:	Toxicity determination of industrial waste by Anderson, B. G and all, freshwater species <i>Daphnia magna</i>
Result:	LC ₅₀ (48 h) = 490 mg/L

Chronic toxicity to invertebrates

Method:	unspecified; species: <i>Hydra attenuata</i>
Result:	NOEC (12 days) > 245 mg/L
Method:	unspecified; species: <i>Nereis grubei</i> , <i>Neanthes arenaceodentata</i> , <i>Dorvilliea articulata</i> , <i>Capitella capita</i>
Result:	TLm (28 days) = 534 mg/L

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Toxicity to algae and water plants

Method:	unspecified; species: ten diatoms cultures isolated from Eems Dollards estuary (Netherlands)
Result:	EC ₅₀ (10 days) > 1700 mg/L
Method:	unspecified; species: <i>Potamogeton lucens</i>
Result:	Damage to the leaves was observed after 20 days of exposure in concentration above 108 mg/L

Toxicity to the microorganisms of activated sludge

Method:	OECD 209; study on activated sludge from domestic waste sewage treatment plant; read-across approach: study for NaNO ₃
Result:	EC ₅₀ (180 min) > 1000 mg/L; EC ₁₀ (180 min) = 180 mg/L; NOEC = 180 mg/L

Based on available data, potassium nitrate does not meet the criteria for classification for toxicity to aquatic environment.

12.2. Persistence and degradability

Final environment compartment for potassium nitrate is water, in which this substance is very soluble. In aqueous solution, potassium nitrate dissociates completely into ions: nitrate (NO₃⁻) and potassium (K⁺). Potassium nitrate does not undergo hydrolysis and it does not decompose when exposed to light. A natural process of reduction of nitrate to nitrite (partial denitrification) and then to nitrogen (total denitrification) occurs in the watercourses under influence the metabolic activity of bacteria. Denitrification processes are main mechanism of nitrate reduction in sewage treatment plants. Potassium nitrate at the same time is a nutritional substance which stimulates the growth of algae and plankton. Excess of nitrate in the environment is a cause of eutrophication which, as a result of decreasing the oxygen concentration in the water, has a negative effect on the ecosystem biodiversity. The European legislation takes into account the problem of preventing negative effects of eutrophication in the "Nitrates Directive" 91/676/EEC (Section 15.1, 9).

Test susceptibility on biodegradability is not applicable for potassium nitrate which is inorganic.

12.3. Bioaccumulative potential

Both properties: high water solubility and ionic structure determine, that potassium nitrate has not potential for bioaccumulation.

12.4. Mobility in soil

Both properties: high water solubility and ionic structure determine, that potassium nitrate has not potential for absorption. Potassium nitrate translocates with water in the soil.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment of potassium nitrate was not carried out, as in accordance with Annex XIII of the REACH Regulation it is not required for inorganic substances.

12.6. Other adverse effects

There are no specific data of hazards from the potassium nitrate to the ozone layer. Due to its physical and chemical properties, potassium nitrate causes any hazards to the atmosphere. There are no specific data related to the toxicity of potassium nitrate to birds and bees. Toxicological information which were obtained in many studies for mammals and aquatic organisms confirmed a negligible toxicity of potassium nitrate.

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On this basis, studies on chronic toxicity to birds and reproductive toxicity to birds were not conducted in accordance with Annex X of the REACH Regulation, section 9.6.1.

No data available justifying the classification of potassium nitrate in relation to other adverse effects.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Potassium nitrate no useful to use in any of application described in sections 1.2 and 7.3 of this safety data sheet, as well as obtained after incidental release according to recommendations in section 6.3 has to be given to entity authorized to waste reception for recovery or neutralization according to regulations on waste (Section 15.1, 7).

For waste potassium nitrate have been assigned the properties H2 "Oxidizing: substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances". This properties waste potassium nitrate render it hazardous in accordance with waste regulations (Section 15.1, 7).

Potassium nitrate waste packaging has to be labelled with elements given in section 2.2 of this safety data sheet.

During transport the waste potassium nitrate should be taken into account the information set out in section 14 of this safety data sheet.

Handling of potassium nitrate waste has to be conducted according to recommendations given in sections 5, 6 and 7 of this safety data sheet.

Prevent release the waste potassium nitrate, including leftovers swept away and leftovers of solutions, into drains, surface waters, ground waters and soil.

Packaging of potassium nitrate, thoroughly emptied, selectively gathered, must be give to the entity authorized to reception packaging waste for recovery or recycling - in accordance with the applicable regulations (Section 15.1, 8)

SECTION 14: Transport information

14.1. UN number: **UN 1486**

14.2. UN proper shipping name: **Potassium nitrate**

14.3. Transport hazard class(es): **5.1**

14.4. Packing group: **III**

14.5. Environmental hazards: **not determined**

14.6. Special precautions for users (Section 15.1, 10):

Special packing provision: **B3**

"Intermediate bulk container (IBC) has to be dust-proof and water-proof or shall be fitted with dust-proof and water-proof lining."

Provisions for loading, unloading and handling: **CV24**

"Before loading, vehicles and containers should be thoroughly cleaned; in particular, should not contain any flammable wastes (straw, hay, paper, etc.). For stowing packages use flammable materials is forbidden."

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: **not applicable for potassium nitrate**

Safety Data Sheet

According to article 31 of REACH regulation (EC 1907/2006)
and annex I to regulation EC 453/2010



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SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations / legislation specific for the substance

1. Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (...).

2. Regulation (EC) No 1272/2008 of the European parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (...).

3) Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.

4) Regulation (EU) No 98/2013 of the European Parliament and of the Council of 15 January 2013 on the marketing and use of explosives precursors.

5) Regulation (EC) No 1333/2008 of the European Parliament and of the Council of 16 December 2008 on food additives.

6) Directive 2018/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substance.

7) Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste.

8) European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste.

9) Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources.

10) Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods.

15.2. Chemical safety assessment

Provider of this safety data sheet had carried out chemical safety assessment for potassium nitrate.

SECTION 16: Other information

Abbreviations and symbol used in section 2 for substance classification, full text of risk / hazard statements:

R8 – Contact with combustible material may cause fire

O – Oxidizer

H272 – May intensify fire; oxidizer

Full text of CLP classification:

Ox. Sol. 3 – Oxidising solid, category 3

Other abbreviations used in this safety data sheet:

TLV-TWA – Threshold limit value - Time weighted average

TLV-STEL – Threshold limit value - Short-term exposure limit

TLV-C – Threshold limit value - Ceiling limit

NOAEL – No Observed Adverse Effect Level

NOEC – No Observed Effect Concentration

DNEL – Derived No Effect Level

Safety Data Sheet

According to article 31 of REACH regulation (EC 1907/2006)
and annex I to regulation EC 453/2010



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PNEC – Predicted No Effect Concentration

STP – Sewage Treatment Plants

PNEC_{STP} – Predicted No Effect Concentration for microorganisms in Sewage Treatment Plants

LC₅₀ / D₅₀ – Lethal Concentration / Dose: causing 50% mortality of tested population after specific time of exposition

EC₅₀ – Effective Concentration: concentration of substance in the environment causing specific biological effect of 50% of tested population

TLm - median Tolerance Limit: it is a concentration of the substance in the environment which is tolerated by 50% of tested population

Date of actualization: **28.05.2014**.

List of changes upon last actualization:

Editorial changes in section 1.2 related to identified uses.

Statement **P221** added in section 2.2.

Editorial changes in section 4 related to first aid measures.

Editorial changes in section 5 related to firefighting measures.

Editorial changes to section 6 related to proceedings in the case of accidental release into the environment.

Editorial changes in section 7 related to handling and storage of substance. Recommendations related to specific end uses of potassium nitrate were defined in section 7.3.

Editorial changes in section 8.1 related to control parameters.

Editorial changes in section 9 related to physicochemical properties. Granulation of crystalline potassium nitrate according to manufacturer tests was added in section 9.2.

Editorial changes in section 10 related to stability and reactivity. Sections 10.3, 10.4 and 10.6 now include the possibility of dangerous decomposition of potassium nitrate at a temperature > 400 °C.

Editorial changes in section 11 related to toxicological information.

Editorial changes in section 12 related to ecological information. Section 12.2 includes eutrophication of waters and ways to prevent its negative consequences in accordance with Community legislation.

Editorial changes in section 13 related to waste management.

Section 14 specifies precautions for users based on special packing provisions (B3), loading, unloading and handling (CV24) required by the regulations on inland transport of dangerous goods.

Information related to legislation was updated in section 15. In sections 7, 12 and 13 requirements regarding current legal provisions are included with references.

This safety data sheet was created based on data generated and information obtained for the purpose of potassium nitrate registration (CAS 7757-79-1; EC 231-818-8) according to REACH. Information provided are in compliance with Chemical Safety Report attached to registration dossier by the supplier of this safety data sheet.

This safety data sheet is not a specification of the product quality. The information may not be sufficient for the safe use of potassium nitrate in unidentified applications. User of the product is obliged to comply with all current standards and legislations, and bears responsibility due to incorrect implement of this data sheet or to inappropriate usage of the product.

An integral part of this safety data sheet is the attachment "Exposure scenarios".

This document was developed in collaboration with the Chemical Consulting Bureau Grzegorz Żmijowski; ul. Bolesława Śmiałego 1/71; Pszczyna 43-200; email: biuro@bdchem.pl.