# SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

## Potassium chlorate

| | | | |
|---|---|---|---|
| Creation date | 17th July 2018 | | |
| Revision date | 25th April 2025 | Version | 7.0 |

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

**1.1. Product identifier** — Potassium chlorate

| | |
|---|---|
| Substance / mixture | substance |
| Chemical name | potassium chlorate |
| CAS number | 3811-04-9 |
| Index number | 017-004-00-3 |
| EC (EINECS) number | 223-289-7 |
| Registration number | 01-2119494917-18-xxxx |

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

**Substance's intended use**

Chemical production, analytical chemistry, laboratory synthesis, industrial applications.

**Substance uses advised against**

The product should not be used in ways other than those referred in Section 1.

**1.3. Details of the supplier of the safety data sheet**

**Supplier**

| | |
|---|---|
| Name or trade name | Ing. Petr Švec - PENTA s.r.o. |
| Address | Radiová 1122/1, Praha 10, 102 00<br>Czech Republic |
| Identification number (CRN) | 02096013 |
| VAT Reg No | CZ02096013 |
| Phone | +420 226 060 681 |
| E-mail | info@pentachemicals.eu |
| Web address | www.pentachemicals.eu |

**Email address for a competent person responsible for the safety data sheet**

| | |
|---|---|
| Name | Ing. Petr Švec - PENTA s.r.o. |
| E-mail | info@pentachemicals.eu |

**1.4. Emergency telephone number**

European emergency number: 112 112

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**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**

**Classification of the substance in accordance with Regulation (EC) No 1272/2008**

The substance is classified as dangerous.

Ox. Sol. 1, H271
Acute Tox. 3, H301

**Most serious adverse physico-chemical effects**

May cause fire or explosion; strong oxidiser.

**Most serious adverse effects on human health and the environment**

Toxic if swallowed.

**2.2. Label elements**

**Hazard pictogram**

**Signal word**

Danger

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**Dangerous substance**

potassium chlorate
(Index: 017-004-00-3; CAS: 3811-04-9)

**Hazard statements**

| | |
|---|---|
| H271 | May cause fire or explosion; strong oxidiser. |
| H301 | Toxic if swallowed. |

**Precautionary statements**

| | |
|---|---|
| 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/eye protection/face protection. |
| P301+P310 | IF SWALLOWED: Immediately call a doctor. |
| P370+P378 | In case of fire: Use powder extinguisher/sand/carbon dioxide to extinguish. |

### 2.3. Other hazards

The substance does not have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605. Substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of Regulation (EC) No. 1907/2006 (REACH) as amended. Does not contain any PMT or vPvM components. Dust may form explosive mixture with air.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

**Chemical characterization**

The substance specified below.

| Identification numbers | Substance name | Content in % weight | Classification according to Regulation (EC) No 1272/2008 | Note |
|---|---|---|---|---|
| | **substance main component** | | | |
| Index: 017-004-00-3<br>CAS: 3811-04-9<br>EC: 223-289-7<br>Registration number: 01-2119494917-18-xxxx | potassium chlorate | ≥99 | Ox. Sol. 1, H271<br>Acute Tox. 3, H301<br>Specific concentration limit:<br>ATE Oral = 100 mg/kg bw | 1 |

**Notes**

1 *Explosive precursor*

Full text of all classifications and hazard statements is given in the section 16.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

Take care of your own safety. If any health problems are manifested or if in doubt, inform a doctor and show him information from this safety data sheet. If unconscious, put the person in the stabilized (recovery) position on his side with his head slightly bent backwards and make sure that airways are free; never induce vomiting. If the person vomits by himself, make sure that the vomit is not inhaled. In life threatening conditions first of all provide resuscitation of the affected person and ensure medical assistance. Respiratory arrest - provide artificial respiration immediately. Cardiac arrest - provide indirect cardiac massage immediately.

**If inhaled**

Terminate the exposure immediately; move the affected person to fresh air. Take care of your own safety, do not let the affected person walk! Beware of the contaminated clothes. Depending on the situation, call the medical rescue service and ensure medical treatment considering the frequent need of further observation for at least 24 hours.

**If on skin**

Remove contaminated clothes. Take off any rings, watches, bracelets before or during washing if worn in the contaminated areas of the skin. Rinse contaminated areas with a flow of water, lukewarm at best, for 10-30 minutes; do not use any brush, soap or neutralizers. Depending on the situation, call the medical rescue service and always ensure medical treatment. Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

**If in eyes**

Rinse eyes immediately with a flow of running water, open the eyelids (also using force if needed); remove contact lenses immediately if worn by the affected person. No neutralization should be performed in any case! Rinsing should be continued for 10-30 minutes from the inner to the outer eye corner to make sure that the other eye is not involved. Depending on the situation, call medical rescue service or ensure medical treatment as promptly as possible. Everyone must be referred for treatment even if affected only a little.

**If swallowed**

Vomiting should be induced in the person only if conscious, within 1 hour from ingestion. If in doubt whether vomiting should be induced, contact the Toxicological Information Centre and give information about the substances or composition of the product as provided on the original packaging or in the safety data sheet of the product. FOLLOWING INGESTION OF TOXIC OR HIGHLY TOXIC SUBSTANCES, GIVE 10-20 CRUSHED TABLETS OF ACTIVATED CARBON, MIXED IN WATER, WITHIN NO LATER THAN 5 MINUTES - irrespective of whether vomiting could be induced. Call medical rescue service.

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

**If inhaled**

Not expected.

**If on skin**

Not expected.

**If in eyes**

Not expected.

**If swallowed**

Irritation, nausea.

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

Symptomatic treatment.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable extinguishing media**

Alcohol-resistant foam, carbon dioxide, powder, water spray jet, water mist.

**Unsuitable extinguishing media**

Water - full jet.

### 5.2. Special hazards arising from the substance or mixture

In the event of fire, carbon monoxide, carbon dioxide and other toxic gases may arise. Inhalation of hazardous degradation (pyrolysis) products may cause serious health damage.

### 5.3. Advice for firefighters

Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit only where personal (close) contact is likely. Use a self-contained breathing apparatus and full-body protective clothing. Do not allow run-off of contaminated fire extinguishing material to enter drains or surface and ground water. Fight fire remotely due to the risk of explosion. Evacuate area.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Provide sufficient ventilation. May cause fire or explosion; strong oxidiser. The substance is flammable. Remove all ignition sources. Use personal protective equipment for work. Follow the instructions in the Sections 7 and 8. Prevent contact with skin and eyes.

### 6.2. Environmental precautions

Prevent contamination of the soil and entering surface or ground water.

**6.3. Methods and material for containment and cleaning up**

Place the product mechanically in an appropriate manner. Dispose of the collected material according to the instructions in the section 13.

**6.4. Reference to other sections**

See the Section 7, 8 and 13.

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling**

The product should be used only in the areas where it is not in contact with open fire and other ignition sources. Use of antistatic clothes and footwear is recommended. Prevent contact with skin and eyes. No smoking. Wash hands and exposed parts of the body thoroughly after handling. Do not eat, drink or smoke when using this product. Take any precaution to avoid mixing with combustibles. Use personal protective equipment as per Section 8. Observe valid legal regulations on safety and health protection.

**7.2. Conditions for safe storage, including any incompatibilities**

Store in tightly closed containers in cold, dry and well ventilated areas designated for this purpose. Do not expose to sunlight. Store locked up.

**7.3. Specific end use(s)**

not available

## SECTION 8: Exposure controls/personal protection

**8.1. Control parameters**

**DNEL**

| potassium chlorate | | | |
|---|---|---|---|
| Workers / consumers | Route of exposure | Value | Effect |
| Workers | Inhalation | 0.7 mg/m³ | Chronic effects systemic |
| Workers | Dermal | 5 mg/kg bw/day | Chronic effects systemic |

**PNEC**

| potassium chlorate | |
|---|---|
| Route of exposure | Value |
| Drinking water | 1.15 mg/l |
| Marine water | 1.15 mg/l |
| Microorganisms in sewage treatment | 115 mg/l |
| Soil (agricultural) | 3.83 mg/kg of dry substance of soil |

**8.2. Exposure controls**

Follow the usual measures intended for health protection at work and especially for good ventilation. This can be achieved only by local suction or efficient general ventilation. Do not eat, drink and smoke during work. Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

**Eye/face protection**

Safety glasses or protective shield.

**Skin protection**

Hand protection: Protective gloves resistant to the product (nitrile rubber). When choosing appropriate thickness, material and permeability of the gloves, observe recommendations of their particular manufacturer. Contaminated skin should be washed thoroughly. Wear fire resistant or flame retardant clothing.

**Respiratory protection**

Use a mask with anti-dust filter when the exposition limits of the substances are exceeded or at the place with insufficient ventilation.

**Thermal hazard**

Not available.

**Environmental exposure controls**

Observe usual measures for protection of the environment, see Section 6.2. Collect spillage.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

| | |
|---|---|
| Physical state | solid |
| Colour | white |
| Odour | without fragrance |
| Melting point/freezing point | 356 °C |
| Boiling point or initial boiling point and boiling range | data not available |
| Flammability | data not available |
| Lower and upper explosion limit | data not available |
| Flash point | data not available |
| Auto-ignition temperature | data not available |
| Decomposition temperature | data not available |
| pH | 5-6.5 (undiluted) |
| Kinematic viscosity | data not available |
| Solubility in water | soluble |
| Partition coefficient n-octanol/water (log value) | data not available |
| Vapour pressure | data not available |
| Density and/or relative density | |
| Density | 2.32 g/cm³ at 20 °C |
| Relative vapour density | data not available |
| Particle characteristics | data not available |
| Form | powder |

### 9.2. Other information

| | |
|---|---|
| Oxidising properties | The product has an oxidizing properties. |

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The substance is oxidizing.

### 10.2. Chemical stability

The product is stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Unknown.

### 10.4. Conditions to avoid

The product is stable and no degradation occurs under normal use. Protect against flames, sparks, overheating and against frost.

### 10.5. Incompatible materials

Protect against strong acids, bases and oxidizing agents.

### 10.6. Hazardous decomposition products

Not developed under normal uses. Dangerous outcomes such as carbon monoxide and carbon dioxide are formed at high temperature and in fire.

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**SECTION 11: Toxicological information**

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

No toxicological data is available for the substance.

**Acute toxicity**

Toxic if swallowed.

| potassium chlorate | | | | | | |
|---|---|---|---|---|---|---|
| Route of exposure | Parameter | Method | Value | Exposure time | Species | Sex |
| Dermal | $LD_{50}$ | OECD 402 | >2000 mg/kg | | Rat (Rattus norvegicus) | |
| Oral | ATE | | 100 mg/kg bw | | | |

**Skin corrosion/irritation**

No data available for the substance. Based on available data the classification criteria are not met.

**Serious eye damage/irritation**

No data available for the substance. Based on available data the classification criteria are not met.

**Respiratory or skin sensitisation**

No data available for the substance. Based on available data the classification criteria are not met.

**Germ cell mutagenicity**

No data available for the substance. Based on available data the classification criteria are not met.

**Carcinogenicity**

No data available for the substance. Based on available data the classification criteria are not met.

**Reproductive toxicity**

No data available for the substance. Based on available data the classification criteria are not met.

**Toxicity for specific target organ - single exposure**

No data available for the substance. Based on available data the classification criteria are not met.

**Toxicity for specific target organ - repeated exposure**

No data available for the substance. Based on available data the classification criteria are not met.

**Aspiration hazard**

No data available for the substance. Based on available data the classification criteria are not met.

**11.2. Information on other hazards**

**Endocrine disrupting properties**

Based on available data the classification criteria are not met. Does not contain any components that may cause endocrine disruption for humans.

**Other information**

not available

**SECTION 12: Ecological information**

**12.1. Toxicity**

Based on available data the classification criteria are not met.

**Acute toxicity**

| potassium chlorate | | | | |
|---|---|---|---|---|
| Parameter | Value | Exposure time | Species | Environment |
| $EC_{50}$ | >1000 mg/kg | 48 hours | Daphnia (Daphnia magna) | |
| $LC_{50}$ | >1000 mg/l | 96 hours | Fish (Oncorhynchus mykiss) | |

**12.2. Persistence and degradability**
No data available for the substance.

**12.3. Bioaccumulative potential**
No data available for the substance.

**12.4. Mobility in soil**
No data available for the substance.

**12.5. Results of PBT and vPvB assessment**
Based on available data the classification criteria are not met. Does not contain any PBT or vPvB components. Product does not contain any substance meeting the criteria for PBT or vPvB in accordance with the Annex XIII of Regulation (EC) No 1907/2006 (REACH) as amended.

**12.6. Endocrine disrupting properties**
Based on available data the classification criteria are not met. Does not contain any components that may cause endocrine disruption in the environment.

**12.7. Other adverse effects**
Not available.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**
Hazard of environmental contamination; dispose of the waste in accordance with the local and/or national regulations. Any unused product and contaminated packaging should be put in labelled containers for waste collection and submitted for disposal to a person authorised for waste removal (a specialized company) that is entitled for such activity. Do not empty unused product in drainage systems. The product must not be disposed of with municipal waste. Empty containers may be used at waste incinerators to produce energy or deposited in a dump with appropriate classification. Perfectly cleaned containers can be submitted for recycling.

**Waste management legislation**
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste, as amended. Decision 2000/532/EC establishing a list of wastes, as amended.

## SECTION 14: Transport information

**14.1. UN number or ID number**
UN 1485

**14.2. UN proper shipping name**
POTASSIUM CHLORATE

**14.3. Transport hazard class(es)**
5.1 Oxidazing substances

**14.4. Packing group**
II

**14.5. Environmental hazards**
not relevant

**14.6. Special precautions for user**
Reference in the Sections 4 to 8.

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**14.7. Maritime transport in bulk according to IMO instruments**

not relevant

**Additional information**

| | |
|---|---|
| Hazard identification No. | 50 |
| UN number | 1485 |
| Classification code | O2 |
| Safety signs | 5.1 |


| | |
|---|---|
| Tunnel restriction code | (E) |

**Air transport - ICAO/IATA**

| | |
|---|---|
| Packaging instructions passenger | 558 |
| Cargo packaging instructions | 562 |

**Marine transport - IMDG**

| | |
|---|---|
| EmS (emergency plan) | F-H, S-Q |

## SECTION 15: Regulatory information

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

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Product contains restricted explosives precursors: Making available, introduction, possession and use according to Regulation (EU) 2019/1148, Article 5. Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

**15.2. Chemical safety assessment**

No chemical safety assessment has been performed for this substance.

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No chemical safety assessment has been performed for this substance.

**More information**

Restricted explosives precursors shall not be made available to, or introduced, possessed or used by members of the general public (according to the Annex I to the Regulation (EU) 2019/1148 as amended). The supplier is obliged to report suspicious transactions, disappearances and thefts to the relevant state authority.

## SECTION 16: Other information

**A list of standard risk phrases used in the safety data sheet**

| | |
|---|---|
| H271 | May cause fire or explosion; strong oxidiser. |
| H301 | Toxic if swallowed. |

**Guidelines for safe handling used in the safety data sheet**

| | |
|---|---|
| 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/eye protection/face protection. |
| P301+P310 | IF SWALLOWED: Immediately call a doctor. |
| P370+P378 | In case of fire: Use powder extinguisher/sand/carbon dioxide to extinguish. |

**Other important information about human health protection**

The product must not be - unless specifically approved by the manufacturer/importer - used for purposes other than as per the Section 1. The user is responsible for adherence to all related health protection regulations.

**Key to abbreviations and acronyms used in the safety data sheet**

| | |
|---|---|
| Acute Tox. | Acute toxicity |
| ADR | Agreement concerning the international carriage of dangerous goods by road |
| BCF | Bioconcentration Factor |
| CAS | Chemical Abstracts Service |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substance and mixtures |
| EC | Identification code for each substance listed in EINECS |
| $EC_{50}$ | Concentration of a substance when it is affected 50 % of the population |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| EmS | Emergency plan |
| EU | European Union |
| EuPCS | European Product Categorisation System |
| IATA | International Air Transport Association |
| IBC | International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals |
| ICAO | International Civil Aviation Organization |
| IMDG | International Maritime Dangerous Goods |
| IMO | International Maritime Organization |
| INCI | International Nomenclature of Cosmetic Ingredients |
| ISO | International Organization for Standardization |
| IUPAC | International Union of Pure and Applied Chemistry |
| $LC_{50}$ | Lethal concentration of a substance in which it can be expected death of 50% of the population |
| $LD_{50}$ | Lethal dose of a substance in which it can be expected death of 50% of the population |
| log Kow | Octanol-water partition coefficient |
| OEL | Occupational Exposure Limits |

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| | |
|---|---|
| Ox. Sol. | Oxidising solid |
| PBT | Persistent, bioaccumulative and toxic |
| PMT | Persistent, mobile and toxic |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| RID | Agreement on the transport of dangerous goods by rail |
| UN number | Four-figure identification number of the substance or article taken from the UN Model Regulations |
| UVCB | Substances of unknown or variable composition, complex reaction products or biological materials |
| VOC | Volatile organic compounds |
| vPvB | Very persistent and very bioaccumulative |
| vPvM | Very persistent and very mobile |

**Training guidelines**

Inform the personnel about the recommended ways of use, mandatory protective equipment, first aid and prohibited ways of handling the product.

**Recommended restrictions of use**

not available

**Information about data sources used to compile the Safety Data Sheet**

REGULATION (EC) No. 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (REACH) as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Data from the manufacturer of the substance / mixture, if available - information from registration dossiers.

**The changes (which information has been added, deleted or modified)**

The version 7.0 replaces the SDS version from Wednesday, 28 February 2024. Changes were made in sections 2, 11, 12, 13 and 16.

**More information**

Classification procedure - calculation method.

**Statement**

The safety data sheet provides information aimed at ensuring safety and health protection at work and environmental protection. The provided information corresponds to the current status of knowledge and experience and complies with valid legal regulations. The information should not be understood as guaranteeing the suitability and usability of the product for a particular application.