

## Chemical Safety Data Sheet MSDS / SDS

## Potassium chlorate

Revision Date:2026-05-31 Revision Number:1

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

## Product identifier

Product name : Potassium chlorate  
CBnumber : CB7853577  
CAS : 3811-04-9  
EINECS Number : 223-289-7  
Synonyms : POTASSIUM CHLORATE,potassium salt

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

P301+P312 IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell.

P273 Avoid release to the environment.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P220 Keep/Store away from clothing/.../combustible materials.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

## Hazard statements

H271 May cause fire or explosion; strong oxidiser

H411 Toxic to aquatic life with long lasting effects

## SECTION 3: Composition/information on ingredients

## Substance

|              |                                     |
|--------------|-------------------------------------|
| Product name | : Potassium chlorate                |
| Synonyms     | : POTASSIUM CHLORATE,potassium salt |
| CAS          | : 3811-04-9                         |
| EC number    | : 223-289-7                         |
| MF           | : CIK03                             |
| MW           | : 122.549                           |

---

## SECTION 4: First aid measures

### General advice

Show this material safety data sheet to the doctor in attendance.

### If inhaled

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

### In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

### If swallowed

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

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

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

### Protection of first-aiders

For personal protection see section 8.

### Notes to physician

No data available

---

## SECTION 5: Firefighting measures

### Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

## Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

## Specific hazards during fire fighting

Not combustible. Avoid shock and friction. Fire may cause evolution of: Hydrogen chloride gas Has a fire-promoting effect due to release of oxygen. Ambient fire may liberate hazardous vapours.

## Hazardous combustion products

Hydrogen chloride gas Potassium oxides

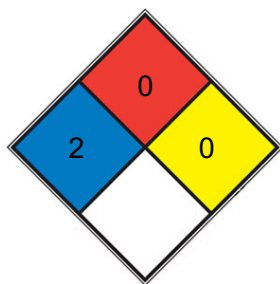
## Specific extinguishing methods

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

## NFPA 704



**HEALTH 2** Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. [diethyl ether](#), ammonium phosphate, iodine)

**FIRE 0** Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

**REACT 0** Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,[N2](#))

**SPEC.**  
**HAZ.**

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.

### Environmental precautions

Do not let product enter drains.

## Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

---

## SECTION 7: Handling and storage

### Handling

#### Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.

#### Advice on safe handling

Work under hood. Do not inhale substance/mixture.

### Storage

#### Further information on storage conditions

Tightly closed. Keep locked up or in an area accessible only to qualified or authorized persons. Separately or together with other oxidising substances only and away from sources of ignition and heat. Because of their oxidation potential these products can raise the burning rate of combustible substances substantially or ignite combustible substances on contact with them.

#### Storage class

5.1A, Strongly oxidizing hazardous materials

#### Recommended storage temperature

Recommended storage temperature see product label.

#### Further information on storage stability

Recommended storage temperature see product label.

---

## SECTION 8: Exposure controls/personal protection

### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### Engineering measures

No data available

### Personal protective equipment

#### Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

#### Recommended Filter type

Filter B-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Safety glasses

**Skin and body protection**

protective clothing

**Hand protection****Material**

Nitrile rubber

**Break through time**

480 min

**Glove thickness**

0.11 mm

**Protective index**

Full contact

**Manufacturer**

KCL 741 L

**Material**

Nitrile rubber

**Break through time**

480 min

**Glove thickness**

0.11 mm

**Protective index**

Splash contact

**Manufacturer**

KCL 741 L

**Remarks**

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D- 36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

**Hygiene measures**

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

---

## SECTION 9: Physical and chemical properties

**Information on basic physicochemical properties**

solid

---

**Color**

white

**Odor**

odorless

**Odor Threshold**

Not applicable

**pH**

5.0 - 6.5 (25 °C)

Concentration: 61.3 g/l

**pH**

7

Method: OECD Test Guideline 105

**Melting point/ range**

356 °C

Method: OECD Test Guideline 102

**Boiling point/boiling range**

400 °C (decomposition)

**Flash point**

Not applicable

**Evaporation rate**

No data available

**Burning rate**

No data available

Self-ignition : Method: Relative self-ignition temperature for solids does not ignite

**Upper explosion limit / Upper flammability limit**

No data available

**Lower explosion limit / Lower flammability limit**

No data available

**Vapor pressure**

0Pa at 20°C

**Relative vapor density**

No data available

**Relative density**

2.34 (23 °C)

Method: OECD Test Guideline 109

**Density**

2.32 g/cm<sup>3</sup>

**Water solubility**

69.9 g/l completely soluble (20 °C)

**Partition coefficient: n-octanol/water**

No data available

**Autoignition temperature**

No data available

**Decomposition temperature**

No data available

**Viscosity, dynamic**

No data available

**Viscosity, kinematic**

No data available

**Flow time**

No data available

Explosive properties : Method: Explosive properties Not classified as explosive.

**Oxidizing properties**

The substance or mixture is classified as oxidizing with the category 1.

Method: Regulation (EC) No. 440/2008, Annex, A.17

**Molecular weight**

122.55 g/mol

**Particle characteristics Particle size**

No data available

**Bulk density**

ca. 1,200 - 1,400 kg/m<sup>3</sup>

**Solubility**

water: soluble (completely 69.9 g/l at 20 °C (68 °F))

**Physical state**

Powder/Solid

**Dielectric constant**

5.1 (0.0°C)

## SECTION 10: Stability and reactivity

### Reactivity

No data available

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Risk of explosion with: arsenic resins charcoal Powdered metals sulfuric acid nitrates tannin zinc oxide Alcohols organic combustible substances Sulfides Hydrocarbons ammonium compounds Reducing agents phosphorus hydrides Fluorine Alkali metals Cyanides alkali amides sulfur potassium dichromate powdered aluminium Germanium Potassium copper compounds powdered magnesium Nitric acid Titanium sugars Organic Substances Exothermic reaction with: Ammonia calcium silicide nitrides phosphides chromium Risk of ignition or formation of inflammable gases or vapours with: sulphur dioxide hydrogen iodide

### Conditions to avoid

no information available

### Incompatible materials

No data available

### Hazardous decomposition products

In the event of fire: see section 5

---

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Acute toxicity estimate Oral - 100.1 mg/kg (Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

LC50 Inhalation - Rat - male and female - 4 h - > 5.1 mg/l - dust/mist (OECD Test Guideline 436)

Remarks: (ECHA)

LD50 Dermal - Rat - male and female - > 2,000 mg/kg (OECD Test Guideline 402)

Remarks: (ECHA)

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h (OECD Test Guideline 404)

Remarks: (ECHA)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation (OECD Test Guideline 405)

Remarks: (ECHA)

#### Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative (OECD Test Guideline 406)

Remarks: (ECHA)

### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: unscheduled DNA synthesis assay

Test system: HeLa cell

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 482

Result: negative

Test Type: Micronucleus test

Species: Mouse

Cell type: Red blood cells (erythrocytes)

Application Route: Oral

Method: OECD Test Guideline 474

Result: negative

### **Carcinogenicity**

Classified based on available data. For more details, see section 2

### **Reproductive toxicity**

Classified based on available data. For more details, see section 2

### **Specific target organ toxicity - single exposure**

Classified based on available data. For more details, see section 2

### **Specific target organ toxicity - repeated exposure**

Classified based on available data. For more details, see section 2

### **Aspiration hazard**

Classified based on available data. For more details, see section 2

## **11.2 Additional Information**

Repeated dose toxicity - Rat - male and female - Oral - 13 Weeks - NOAEL (No observed adverse effect level) - 100 mg/kg - LOAEL (Lowest observed adverse effect level) - 1,000 mg/kg anemia, Absorption into the body leads to the formation of methemoglobin which in sufficient

concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer., Nausea, Vomiting, Diarrhea, Hemorrhage., Liver, Convulsions  
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

---

## SECTION 12: Ecological information

### Ecotoxicity

#### Components:

#### Potassium chlorate:

##### Toxicity to fish

LC50 (Oncorhynchus mykiss (rainbow trout)): > 1,000 mg/l Exposure time: 96 h Test Type: flow-through test Method: US-EPA GLP: yes

##### Toxicity to daphnia and other aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 48 h Test Type: flow-through test Method: US-EPA GLP: yes

##### Toxicity to algae/aquatic plants

ErC50 (Nitzschia closterium): 1.9 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes

##### Toxicity to fish (Chronic toxicity)

NOEC (Danio rerio (zebra fish)): >= 500 mg/l Exposure time: 36 d Test Type: flow-through test Analytical monitoring: yes Method: OECD Test Guideline 210 GLP: yes

##### Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

NOEC (Daphnia magna (Water flea)): >= 500 mg/l End point: reproduction rate Exposure time: 21 d Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes

##### Toxicity to microorganisms

EC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 GLP: yes

### Persistence and degradability

#### Components:

#### Potassium chlorate:

##### Biodegradability

anaerobic Concentration: 1,000 mg/l Result: rapidly biodegradable Biodegradation: 100 % Exposure time: 14 d Remarks: (ECHA)

##### Bioaccumulative potential

No data available

##### Mobility in soil

No data available

##### Other adverse effects

##### Additional ecological information

Forms toxic mixtures in water, dilution measures notwithstanding. Discharge into the environment must be avoided.

---

## SECTION 13: Disposal considerations

## Disposal methods

### Waste from residues

Offer surplus and non-recyclable solutions to a licensed disposal company.

---

## SECTION 14: Transport information

### International Regulations

#### IATA-DGR

UN/ID No. : UN 1485

Proper shipping name : Potassium chlorate

Class : 5.1

Packing group : II

Labels : Division 5.1 - Oxidizing substances

Packing instruction (cargo aircraft) : 562

Packing instruction (passenger aircraft) : 558

#### IMDG-Code

UN number : UN 1485

Proper shipping name : POTASSIUM CHLORATE

Class : 5.1

Packing group : II

Labels : 5.1

EmS Code : F-H, S-Q

Marine pollutant : yes

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National regulation GB 6944/12268

UN number : UN 1485

Proper shipping name : POTASSIUM CHLORATE

Class : 5.1

Packing group : II

Labels : 5.1

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

---

## SECTION 15: Regulatory information

## **National regulatory information**

### **Regulations on Safety Management of Hazardous Chemicals**

#### **Catalogue of Hazardous Chemicals**

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)

**No. / Code Chemical name / Category Threshold quantity 78 Potassium chlorate 100 t**

#### **Hazardous Chemicals for Priority Management**

Listed under SAWS

#### **Catalogue of Specially Controlled Hazardous**

Listed Chemicals

#### **List of Explosive Precursors**

Listed

### **Regulations on Occupational Labor Protection in the at workplaces where**

#### **Toxic Substances Are Used**

#### **Catalogue of Highly Toxic Chemicals**

Not listed

### **Regulation of Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

#### **China Severely Restricted Toxic Chemicals for Import and Export**

Not listed

### **Regulation on the Administration of Precursor Chemicals**

#### **Catalogue and Classification of Precursor Chemicals**

Not listed

### **Regulations on the Administration of Controlled Chemicals**

#### **List of Controlled Chemicals**

Not listed

### **Regulations of Ozone Depleting Substances Management**

#### **List of Controlled Ozone Depleting Substances**

Not listed

## List of Controlled Ozone Depleting Substances Import and Export

Not listed

## Environmental Protection Law

### List of Priority Controlled Chemicals

Not listed

### List of Key Controlled New Pollutants

Not listed

---

## SECTION 16: Other information

### Full text of other abbreviations

AIIIC - Australian Inventory of Industrial Chemicals

ANTT - National Agency for Transport by Land of Brazil

ASTM - American Society for the Testing of Materials

bw - Body weight

CMR - Carcinogen, Mutagen or Reproductive Toxicant

DIN - Standard of the German Institute for Standardisation

DSL - Domestic Substances List (Canada)

EC<sub>x</sub> - Concentration associated with x% response

EL<sub>x</sub> - Loading rate associated with x% response

EmS - Emergency Schedule

ENCs - Existing and New Chemical Substances (Japan)

ErC<sub>x</sub> - Concentration associated with x% growth rate response

ERG - Emergency Response Guide

GHS - Globally Harmonized System

GLP - Good Laboratory Practice

IARC - International Agency for Research on Cancer

ATA - International Air Transport Association

IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk

IC<sub>50</sub> - Half maximal inhibitory concentration

ICAO - International Civil Aviation Organization

IECSC - Inventory of Existing Chemical Substances in China

IMDG - International Maritime Dangerous Goods

IMO - International Maritime Organization

ISHL - Industrial Safety and Health Law (Japan)

ISO - International Organisation for Standardization

KECI - Korea Existing Chemicals Inventory

LC<sub>50</sub> - Lethal Concentration to 50% of a test population

LD<sub>50</sub> - Lethal Dose to 50% of a test population (Median Lethal Dose)

MARPOL - International Convention for the Prevention of Pollution from Ships

n.o.s. - Not Otherwise Specified

Nch - Chilean Norm

NO(A)EC -No Observed (Adverse) Effect Concentration

NO(A)EL - No Observed (Adverse) Effect Level

NOELR - No Observable Effect Loading Rate

NOM - Official Mexican Norm

NTP - National Toxicology Program

NZIoC - New Zealand Inventory of Chemicals

OECD - Organization for Economic Co-operation and Development

OPPTS - Office of Chemical Safety and Pollution Prevention

PBT - Persistent, Bioaccumulative and Toxic substance

PICCS - Philippines Inventory of Chemicals and Chemical Substances

(Q)SAR - (Quantitative) Structure Activity Relationship

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

SADT - Self-Accelerating Decomposition Temperature

SDS - Safety Data Sheet

TCSI - Taiwan Chemical Substance Inventory

TDG - Transportation of Dangerous Goods

TECI - Thailand Existing Chemicals Inventory

TSCA - Toxic Substances Control Act (United States)

UN - United Nations

UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods

vPvB - Very Persistent and Very Bioaccumulative

WHMIS - Workplace Hazardous Materials Information System

**Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.