

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Potassium chlorate pure

Revision date: 08.12.2023

Product code: 20157

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

1.1. Product identifier

Potassium chlorate pure

REACH Registration Number: 01-2119494917-18-XXXX
CAS No: 3811-04-9
Index No: 017-004-00-3
EC No: 223-289-7

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

Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: AnalytiChem GmbH
Street: Stempelstraße 6
Place: D-47167 Duisburg
Telephone: 0203/5194-0
E-mail: info@analytichem.de
Contact person: Abteilung Produktsicherheit
E-mail: produktsicherheit@analytichem.de
Internet: www.analytichem.de
Responsible Department: Abteilung Produktsicherheit
Telefax: 0203/5194-290
Telephone: 0203/5194-107/117

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Ox. Sol. 1; H271
Acute Tox. 4; H332
Acute Tox. 4; H302
Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Signal word: Danger

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Pictograms:



Hazard statements

H271 May cause fire or explosion; strong oxidiser.
 H302+H332 Harmful if swallowed or if inhaled.
 H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P221 Take any precaution to avoid mixing with combustibles.
 P273 Avoid release to the environment.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula: KClO₃
 Molecular weight: 122,55 g/mol

Relevant ingredients

CAS No	Chemical name	Quantity
	EC No Index No REACH No	
	Classification (Regulation (EC) No 1272/2008)	
3811-04-9	potassium chlorate	100 %
	223-289-7 017-004-00-3 01-2119494917-18-XXXX	
	Ox. Sol. 1, Acute Tox. 4, Acute Tox. 4, Aquatic Chronic 2; H271 H332 H302 H411	

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
3811-04-9	223-289-7	potassium chlorate	100 %
		inhalation: ATE = 11 mg/l (vapours); inhalation: LC50 = > 5,1 mg/l (dusts or mists); dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 5000 mg/kg	

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No data available

After inhalation

Provide fresh air.
 If breathing is irregular or stopped, administer artificial respiration.
 Call a physician immediately.

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After contact with skin

Wash immediately with: Water
Take off immediately all contaminated clothing and wash it before reuse.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water.
In case of eye irritation consult an ophthalmologist.
Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Rinse mouth immediately and drink plenty of water.
Call a physician immediately.

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

Irritant
Cough, Dyspnoea
Cyanosis (blue coloured blood)
Headache
Vomiting
Gastrointestinal complaints

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Non-combustible solids
Decomposition with: Danger of explosion
Oxidizing
Hazardous combustion products
In case of fire may be liberated:
Hydrogen chloride (HCl)
Handle with care - avoid bumps, friction and impact.

5.3. Advice for firefighters

Do not inhale explosion and combustion gases.
Avoid contact with skin, eyes and clothes.
In case of fire: Wear self-contained breathing apparatus.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Move undamaged containers from immediate hazard area if it can be done safely.
Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Provide adequate ventilation.
Use personal protection equipment.
Avoid contact with skin, eyes and clothes.
Remove persons to safety.
Emergency procedures

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Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment

- Cover drains.
- Prevent spread over a wide area (e.g. by containment or oil barriers).
- Collect in closed and suitable containers for disposal.
- Take up carefully when dry. Take up dust-free and set down dust-free.

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

- Provide adequate ventilation.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

- Safe handling: see section 7
- Personal protection equipment: see section 8
- Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

- Handle and open container with care.
- Provide adequate ventilation.
- Avoid contact with skin, eyes and clothes.
- Avoid dust formation. Do not breathe dust.
- Handle with care - avoid bumps, friction and impact.

Advice on protection against fire and explosion

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

Advice on general occupational hygiene

- Take off contaminated clothing.
- Wash hands before breaks and after work.
- When using do not eat or drink.

Further information on handling

- Draw up and observe skin protection programme.
- Take off contaminated clothing and wash it before reuse.
- Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

- Keep container tightly closed and dry.
- Keep away from combustible material.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Further information on storage conditions

storage temperature +5°C - +30°C

7.3. Specific end use(s)

Laboratory chemicals

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
3811-04-9	potassium chlorate			
Consumer DNEL, long-term		inhalation	systemic	0,3 mg/m ³
Consumer DNEL, long-term		dermal	systemic	0,13 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	0,7 mg/m ³
Worker DNEL, long-term		dermal	systemic	5 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	0,05 mg/kg bw/day

PNEC values

CAS No	Substance	Value
3811-04-9	potassium chlorate	
Freshwater		1,15 mg/l
Marine water		1,15 mg/l
Freshwater sediment		4,14 mg/kg
Marine sediment		4,14 mg/kg
Secondary poisoning		12,78 mg/kg
Micro-organisms in sewage treatment plants (STP)		115 mg/l
Soil		3,83 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection

Suitable eye protection: goggles.

Hand protection

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Recommended glove articles KCL 741 Dermatril® L

Suitable material: NBR (Nitrile rubber) 0,11 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Recommended glove articles KCL 741 Dermatril® L

Suitable material: NBR (Nitrile rubber) 0,11 mm

Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data

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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 EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Wear suitable protective clothing.
Take off immediately all contaminated clothing.
Wash hands before breaks and after work.

Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.
Filtering device with filter or ventilator filtering device of type: B-(P2)

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	solid	
Colour:	white	
Odour:	odourless	
Odour threshold:	No data available	
Melting point/freezing point:		356 °C
Boiling point or initial boiling point and boiling range:		400 °C
Flammability:		not determined
Lower explosion limits:		not determined
Upper explosion limits:		not determined
Flash point:		X
Auto-ignition temperature:		No data available
Decomposition temperature:		>400 °C
pH-Value (at 20 °C):		~ 5,6 (73 g/l)
Viscosity / kinematic:		No data available
Water solubility: (at 20 °C)		73 g/L
Solubility in other solvents		not determined
Dissolution rate:		No data available
Partition coefficient n-octanol/water:		not determined
Dispersion stability:		No data available
Vapour pressure:		No data available
Vapour pressure:		No data available
Density:		2,34 g/cm ³
Relative density:		No data available
Bulk density:		~ 1200 - 1400 kg/m ³
Relative vapour density:		not determined
Particle characteristics:		No data available

9.2. Other information

Information with regard to physical hazard classes

Explosive properties	
No data available	
Sustaining combustion:	No data available
Self-ignition temperature	
Solid:	not determined
Gas:	not applicable

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Oxidizing properties

The product is: oxidising, Oxidising.

Other safety characteristics

Evaporation rate:	not determined
Solvent separation test:	No data available
Solvent content:	No data available
Solid content:	100%
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
Viscosity / dynamic:	No data available
Flow time:	No data available

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Possibility of hazardous reactions. oxidising, Oxidising.
Handle with care - avoid bumps, friction and impact.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Metal powder, Combustible substance, arsenic
resin, sulphuric acid, Alcohols
Hydrocarbons, Reducing agent, White/yellow phosphor
Fluorine, Alkali metals, Nitric acid
Ammonia (NH₃), Sulphur dioxide (SO₂), Hydrogen iodide (HI)

10.4. Conditions to avoid

Handle with care - avoid bumps, friction and impact.
Heat

10.5. Incompatible materials

No data available

10.6. Hazardous decomposition products

In case of fire may be liberated:
SECTION 5: Firefighting measures

Further information

No data available

SECTION 11: Toxicological information

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

Toxicokinetics, metabolism and distribution

No data available

Acute toxicity

Harmful if swallowed.
Harmful if inhaled.

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
3811-04-9	potassium chlorate				
	oral	LD50 > 5000 mg/kg	Rat	Study report (1991)	EPA OPP 81-1
	dermal	LD50 > 2000 mg/kg	Rabbit	Study report (1991)	EPA OPP 81-2
	inhalation vapour	ATE 11 mg/l			
	inhalation (4 h) dust/mist	LC50 > 5,1 mg/l	Rat	Study report (2010)	OECD Guideline 436

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on likely routes of exposure

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

11.2. Information on other hazards

Endocrine disrupting properties

No data available

Other information

Liver and kidney damage

Further information

Irritant
Cough, Dyspnoea
Cyanosis (blue coloured blood)
Headache
Vomiting
Gastrointestinal complaints

SECTION 12: Ecological information

12.1. Toxicity

Toxic to aquatic life with long lasting effects.

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
3811-04-9	potassium chlorate					
	Acute fish toxicity	LC50 mg/l	> 1000	96 h	Oncorhynchus mykiss	REACH Registration Dossier EPA OPP 72-1
	Acute algae toxicity	ErC50	1,9 mg/l	72 h	other algae: Nitzschia closterium	REACH Registration Dossier other: Standard 72h growth inhibition bi
	Acute crustacea toxicity	EC50 mg/l	> 1151	48 h	Daphnia magna	REACH Registration Dossier EPA OPP 72-2
	Fish toxicity	NOEC mg/l	>= 500	36 d	Danio rerio	REACH Registration Dossier OECD Guideline 210
	Crustacea toxicity	NOEC mg/l	>= 575	21 d	Daphnia magna	REACH Registration Dossier OECD Guideline 211
	Acute bacteria toxicity	EC50 mg/l ()	> 1151	3 h	activated sludge, domestic	REACH Registration Dossier OECD Guideline 209

12.2. Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

No data available

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
3811-04-9	potassium chlorate	< -2,9

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

No data available

Further information

Avoid release to the environment.
Do not allow to enter into surface water or drains.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
Do not allow to enter into surface water or drains.
Do not mix with other wastes.
Send to a physico-chemical treatment facility under observation of official regulations.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

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

SECTION 14: Transport information

Land transport (ADR/RID)

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
14.4. Packing group:	II
Hazard label:	5.1
Classification code:	O2
Limited quantity:	1 kg
Excepted quantity:	E2
Transport category:	2
Hazard No:	50
Tunnel restriction code:	E

Inland waterways transport (ADN)

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
14.4. Packing group:	II
Hazard label:	5.1
Classification code:	O2
Limited quantity:	1 kg
Excepted quantity:	E2

Marine transport (IMDG)

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
14.4. Packing group:	II
Hazard label:	5.1
Special Provisions:	-
Limited quantity:	1 kg
Excepted quantity:	E2
EmS:	F-H, S-Q

Air transport (ICAO-TI/IATA-DGR)

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
14.4. Packing group:	II
Hazard label:	5.1
Limited quantity Passenger:	2.5 kg
Passenger LQ:	Y544
Excepted quantity:	E2
IATA-packing instructions - Passenger:	558
IATA-max. quantity - Passenger:	5 kg
IATA-packing instructions - Cargo:	562
IATA-max. quantity - Cargo:	25 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:	Yes
Danger releasing substance:	potassium chlorate

14.6. Special precautions for user

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Warning: Oxidising substances.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

EU regulatory information

Information according to Directive 2012/18/EU (SEVESO III): P8 OXIDISING LIQUIDS AND SOLIDS

Additional information: E2

Marketing and use of explosives precursors (Regulation (EU) 2019/1148):

Acquisition, introduction, possession or use of this product by the general public is restricted by Regulation (EU) 2019/1148. All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D): 2 - obviously hazardous to water

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 9,12.

Abbreviations and acronyms

Ox. Sol: Oxidising solid

Acute Tox: Acute toxicity

Aquatic Chronic: Chronic aquatic hazard

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

Relevant H and EUH statements (number and full text)

H271 May cause fire or explosion; strong oxidiser.

H302 Harmful if swallowed.

H302+H332 Harmful if swallowed or if inhaled.

H332 Harmful if inhaled.

H411 Toxic to aquatic life with long lasting effects.