

## SAFETY DATA SHEET

Version 4.5  
Revision Date 06/30/2014  
Print Date 09/10/2014

**1. PRODUCT AND COMPANY IDENTIFICATION****1.1 Product identifiers**

Product name : Potassium chlorate

Product Number : 255572  
Brand : Sigma-Aldrich  
Index-No. : 017-004-00-3

CAS-No. : 3811-04-9

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

Identified uses : Laboratory chemicals, Manufacture of substances

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

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052

**1.4 Emergency telephone number**

Emergency Phone # : (314) 776-6555

**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Oxidizing solids (Category 1), H271  
Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 4), H332  
Acute aquatic toxicity (Category 2), H401  
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word : Danger

Hazard statement(s)

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 statement(s)

P210 : Keep away from heat.  
P220 : Keep/Store away from clothing/ combustible materials.  
P221 : Take any precaution to avoid mixing with combustibles.  
P261 : Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P264 : Wash skin thoroughly after handling.

|                    |  |
|--------------------|--|
| P270               | Do not eat, drink or smoke when using this product.  |
| P271               | Use only outdoors or in a well-ventilated area.  |
| P273               | Avoid release to the environment.  |
| P280               | Wear protective gloves/ protective clothing/ eye protection/ face protection.                                  |
| P283               | Wear fire/ flame resistant/ retardant clothing.  |
| P301 + P312        | IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.                                    |
| P304 + P340        | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.               |
| P306 + P360        | IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes. |
| P312               | Call a POISON CENTER or doctor/ physician if you feel unwell.  |
| P330               | Rinse mouth.   |
| P370 + P378        | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.                          |
| P371 + P380 + P375 | In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.   |
| P391               | Collect spillage.  |
| P501               | Dispose of contents/ container to an approved waste disposal plant.  |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

|                  |                     |
|------------------|---------------------|
| Formula          | : ClKO <sub>3</sub> |
| Molecular Weight | : 122.55 g/mol      |
| CAS-No.          | : 3811-04-9         |
| EC-No.           | : 223-289-7         |
| Index-No.        | : 017-004-00-3      |

#### Hazardous components

| Component                 | Classification  | Concentration |
|---------------------------|---|---------------|
| <b>Potassium chlorate</b> | Ox. Sol. 1; Acute Tox. 4; Aquatic Acute 2; Aquatic Chronic 2; H271, H302 + H332, H411 | 90 - 100 %    |

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Flush eyes with water as a precaution.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

- 4.3 Indication of any immediate medical attention and special treatment needed**  
no data available

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## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### **Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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

Hydrogen chloride gas, Potassium oxides

### 5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

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## 6. ACCIDENTAL RELEASE MEASURES

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

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### 6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

For disposal see section 13.

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## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### **Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### **Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## Personal protective equipment

### Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

#### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- |  |   |
|--|---|
| a) Appearance                              | Form: crystalline<br>Colour: white          |
| b) Odour                                   | odourless                                   |
| c) Odour Threshold                         | no data available                           |
| d) pH                                      | 5.0 - 6.5 at 61.3 g/l at 25 °C (77 °F)      |
| e) Melting point/freezing point            | Melting point/range: 356 °C (673 °F) - lit. |
| f) Initial boiling point and boiling range | no data available                           |
| g) Flash point                             | not applicable                              |
| h) Evaporation rate                        | no data available                           |
| i) Flammability (solid, gas)               | no data available                           |
| j) Upper/lower                             | no data available                           |

flammability or  
explosive limits

- |   |  |
|---|--|
| k) Vapour pressure                        | no data available  |
| l) Vapour density                         | no data available  |
| m) Relative density                       | 2.320 g/cm <sup>3</sup>  |
| n) Water solubility                       | 69.9 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - soluble            |
| o) Partition coefficient: n-octanol/water | no data available  |
| p) Auto-ignition temperature              | no data available  |
| q) Decomposition temperature              | no data available  |
| r) Viscosity                              | no data available  |
| s) Explosive properties                   | no data available  |
| t) Oxidizing properties                   | The substance or mixture is classified as oxidizing with the category 1. |

## 9.2 Other safety information

no data available

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

no data available

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Strong reducing agents, Powdered metals, Strong acids, Alcohols, Organic materials

### 10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - rat - 1,870 mg/kg

LC50 Inhalation - rat - male and female - 4 h - > 5.1 mg/l

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

no data available

#### Skin corrosion/irritation

no data available

#### Serious eye damage/eye irritation

Eyes - rabbit

Result: No eye irritation

(OECD Test Guideline 405)

**Respiratory or skin sensitisation**

no data available

**Germ cell mutagenicity**

Ames test

S. typhimurium

Result: negative

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

no data available

no data available

**Specific target organ toxicity - single exposure**

no data available

**Specific target organ toxicity - repeated exposure**

no data available

**Aspiration hazard**

no data available

**Additional Information**

RTECS: FO0350000

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, Diarrhoea, Hemorrhage., Liver, Convulsions

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

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**12. ECOLOGICAL INFORMATION****12.1 Toxicity**

Toxicity to algae static test EC50 - Nitzschia closterium - 2.8 mg/l - 72 h

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**

no data available

**12.4 Mobility in soil**

no data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life with long lasting effects.

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## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

#### Contaminated packaging

Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 1485      Class: 5.1      Packing group: II  
Proper shipping name: Potassium chlorate  
Reportable Quantity (RQ):  
Marine pollutant: No  
Poison Inhalation Hazard: No

### IMDG

UN number: 1485      Class: 5.1      Packing group: II      EMS-No: F-H, S-Q  
Proper shipping name: POTASSIUM CHLORATE  
Marine pollutant: No

### IATA

UN number: 1485      Class: 5.1      Packing group: II  
Proper shipping name: Potassium chlorate

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## 15. REGULATORY INFORMATION

### SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### SARA 311/312 Hazards

Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

|                    | CAS-No.   | Revision Date |
|--------------------|-----------|---------------|
| Potassium chlorate | 3811-04-9 | 1993-04-24    |

### Pennsylvania Right To Know Components

|                    | CAS-No.   | Revision Date |
|--------------------|-----------|---------------|
| Potassium chlorate | 3811-04-9 | 1993-04-24    |

### New Jersey Right To Know Components

|                    | CAS-No.   | Revision Date |
|--------------------|-----------|---------------|
| Potassium chlorate | 3811-04-9 | 1993-04-24    |

### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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## 16. OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.      Acute toxicity

|                 |   |
|-----------------|---|
| Aquatic Acute   | Acute aquatic toxicity                        |
| Aquatic Chronic | Chronic aquatic toxicity                      |
| H271            | May cause fire or explosion; strong oxidiser. |
| H302            | Harmful if swallowed.                         |
| H302 + H332     | Harmful if swallowed or if inhaled            |
| H332            | Harmful if inhaled.                           |
| H401            | Toxic to aquatic life.                        |

#### HMIS Rating

|                        |   |
|------------------------|---|
| Health hazard:         | 2 |
| Chronic Health Hazard: | * |
| Flammability:          | 0 |
| Physical Hazard        | 2 |

#### NFPA Rating

|                    |    |
|--------------------|----|
| Health hazard:     | 2  |
| Fire Hazard:       | 0  |
| Reactivity Hazard: | 2  |
| Special hazard.I:  | OX |

#### Further information

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#### Preparation Information

Sigma-Aldrich Corporation  
 Product Safety – Americas Region  
 1-800-521-8956

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