

1 Identification

Product identifier

Product name: Potassium chlorate

Stock number: 36494

CAS Number:

3811-04-9

EC number:

223-289-7

Index number:

017-004-00-3

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

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS03 Flame over circle

Ox. Sol. 1 H271 May cause fire or explosion; strong oxidizer.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

Hazards not otherwise classified No information known.

Label elements

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms



GHS03 GHS07

Signal word

Danger

Hazard statements

H271 May cause fire or explosion; strong oxidizer.

H302+H332 Harmful if swallowed or if inhaled.

Precautionary statements

P221 Take any precaution to avoid mixing with combustibles.

P283 Wear fire/flame resistant/retardant clothing.

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

P306+P360 IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

P371+P380+P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

C - Oxidizing materials



Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 2 Health (acute effects) = 2

FIRE 0 Flammability = 0

REACTIVITY 2 Physical Hazard = 2

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

CAS# Description:

3811-04-9 Potassium chlorate

Identification number(s):

EC number: 223-289-7

Index number: 017-004-00-3

Product name: Potassium chlorate

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4 First-aid measures

Description of first aid measures

General information Immediately remove any clothing soiled by the product.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed No further relevant information available.

Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing agents Product is not flammable. Use fire-fighting measures that suit the surrounding fire.

For safety reasons unsuitable extinguishing agents Halocarbon extinguisher

Special hazards arising from the substance or mixture

This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

If this product is involved in a fire, the following can be released:

Hydrogen chloride (HCl)

Potassium oxide

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up:

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Prevention of secondary hazards:

Acts as an oxidizing agent on organic materials such as wood, paper and fats

Keep away from combustible material.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

Handling

Precautions for safe handling

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Substance/product can reduce the ignition temperature of flammable substances.

This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

Conditions for safe storage, including any incompatibilities

Storage

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility:

Store away from flammable substances.

Store away from reducing agents.

Do not store with organic materials.

Do not store together with acids.

Store away from metal powders.

Store away from alcohols.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: No data

Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use suitable respirator when high concentrations are present.

Recommended filter device for short term use:

Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

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USA

Product name: Potassium chlorate

Protection of hands:
Impervious gloves
Check protective gloves prior to each use for their proper condition.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
Material of gloves Nitrile rubber, NBR
Penetration time of glove material (in minutes) Not determined
Eye protection: Safety glasses
Body protection: Protective work clothing.

(Contd. of page 2)

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Crystalline
Color: White
Odor: Odorless
Odor threshold: Not determined.

pH-value: Not applicable.

Change in condition

Melting point/Melting range: 356 °C (673 °F)
Boiling point/Boiling range: 400 °C (752 °F) (dec)
Sublimation temperature / start: Not determined

Flash point: Not applicable
Flammability (solid, gaseous) Contact with combustible material may cause fire.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Auto igniting: Not determined.

Danger of explosion: Explosive when mixed with combustible material.

Explosion limits:

Lower: Not determined
Upper: Not determined
Vapor pressure: Not applicable.
Density at 20 °C (68 °F): 2.33 g/cm³ (19.444 lbs/gal)
Relative density Not determined.
Vapor density Not applicable.
Evaporation rate Not applicable.
Solubility in / Miscibility with
Water at 20 °C (68 °F): 71 g/l
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
dynamic: Not applicable.
kinematic: Not applicable.
Other information No further relevant information available.

10 Stability and reactivity

Reactivity

May intensify fire; oxidizer.
May cause fire or explosion; strong oxidizer.
Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions

Reacts with reducing agents
Reacts with flammable substances
Conditions to avoid No further relevant information available.

Incompatible materials:

Acids
Alcohols
Flammable substances
Reducing agents
Organic materials
Organic materials
Metal powders
Hazardous decomposition products:
Hydrogen chloride (HCl)
Metal oxide fume
Chlorine
Potassium oxide

11 Toxicological information

Information on toxicological effects

Acute toxicity:

Harmful if inhaled.
Harmful if swallowed.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification:

Oral LD50 1870 mg/kg (rat)

Skin irritation or corrosion: Irritant to skin and mucous membranes.

Eye irritation or corrosion: Irritating effect.

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: No effects known.

Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity: No effects known.




Specific target organ system toxicity - repeated exposure: No effects known.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.

Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

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USA

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| Product name: Potassium chlorate | |
| Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. | |
| (Contd. of page 3) | |
| 12 Ecological information | |
| <p>Toxicity Aquatic toxicity: No further relevant information available. Persistence and degradability No further relevant information available. Bioaccumulative potential No further relevant information available. Mobility in soil No further relevant information available. Ecotoxicological effects: Remark: Toxic for aquatic organisms Additional ecological information: General notes: Do not allow material to be released to the environment without proper governmental permits. Toxic for aquatic organisms Do not allow product to reach ground water, water course or sewage system. Danger to drinking water if even small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. Toxic to aquatic life. May cause long lasting harmful effects to aquatic life. Avoid transfer into the environment. Results of PBT and vPvB assessment PBT: Not applicable. vPvB: Not applicable. Other adverse effects No further relevant information available.</p> | |
| 13 Disposal considerations | |
| <p>Waste treatment methods Recommendation Consult state, local or national regulations to ensure proper disposal. Uncleaned packagings: Recommendation: Disposal must be made according to official regulations.</p> | |
| 14 Transport information | |
| UN-Number DOT, IMDG, IATA | UN1485 |
| UN proper shipping name DOT IMDG, IATA | Potassium chlorate POTASSIUM CHLORATE |
| Transport hazard class(es) DOT | |
|  | |
| Class Label Class Label IMDG, IATA | 5.1 Oxidising substances. 5.1 5.1 (O2) Oxidizing substances 5.1 |
|  | |
| Class Label | 5.1 Oxidising substances. 5.1 |
| Packing group DOT, IMDG, IATA | II |
| Environmental hazards: | Environmentally hazardous substance, solid |
| Special precautions for user EMS Number: Segregation groups | Warning: Oxidizing substances F-H,S-Q Chlorates |
| Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| Transport/Additional information: | |
| DOT Marine Pollutant (DOT): | No |
| UN "Model Regulation": | UN1485, Potassium chlorate, 5.1, II |
| 15 Regulatory information | |
| <p>Safety, health and environmental regulations/legislation specific for the substance or mixture GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS) Hazard pictograms</p> | |
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| GHS03 GHS07 | |
| <p>Signal word Danger Hazard statements H271 May cause fire or explosion; strong oxidizer. H302+H332 Harmful if swallowed or if inhaled. Precautionary statements P221 Take any precaution to avoid mixing with combustibles. P283 Wear fire/ flame resistant/retardant clothing. P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking. P306+P360 IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.</p> | |
| (Contd. on page 5) | |
| USA | |

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| Product name: Potassium chlorate | |
| <p>P371+P380+P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. P501 Dispose of contents/container in accordance with local/regional/national/international regulations.</p> <p>National regulations All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory. All components of this product are listed on the Canadian Domestic Substances List (DSL). SARA Section 313 (specific toxic chemical listings) Substance is not listed. California Proposition 65 Prop 65 - Chemicals known to cause cancer Substance is not listed. Prop 65 - Developmental toxicity Substance is not listed. Prop 65 - Developmental toxicity, female Substance is not listed. Prop 65 - Developmental toxicity, male Substance is not listed. Information about limitation of use: For use only by technically qualified individuals. Other regulations, limitations and prohibitive regulations Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed. The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed. Substance is not listed. Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.</p> | (Contd. of page 4) |

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| <p>16 Other information Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.</p> <p>Department issuing SDS: Global Marketing Department Date of preparation / last revision 11/23/2015 / - Abbreviations and acronyms: RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) IATA-DSR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA) ICAO: International Civil Aviation Organization ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO) 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 DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) HMS: Hazardous Materials Identification System (USA) WHMIS: Workplace Hazardous Materials Information System (Canada) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent vPvB: very Persistent and very Bioaccumulative ACGIH: American Conference of Governmental Industrial Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) NTP: National Toxicology Program (USA) IARC: International Agency for Research on Cancer EPA: Environmental Protection Agency (USA)</p> | USA |
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