

Chemical Safety Data Sheet MSDS / SDS

Potassium perchlorate SDS

Revision Date:2024-04-25 Revision Number:1

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

Product name: Potassium perchlorate

CAS: 7778-74-7

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.in

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SECTION 2: Hazards identification**Classification of the substance or mixture**

Oxidizing solids, Category 1

Acute toxicity - Category 4, Oral

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H271 May cause fire or explosion; strong oxidizer

H302 Harmful if swallowed

Precautionary statement(s)

Prevention

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/protective clothing/eye protection/face protection/hearing protection/...

P283 Wear fire resistant or flame retardant clothing.

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

Response

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.

P370+P378 In case of fire: Use ... to extinguish.

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

Storage

P420 Store separately.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Potassium perchlorate
Common names and synonyms:	Potassium perchlorate
CAS number:	7778-74-7
EC number:	231-912-9
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 140 [Oxidizers]: Inhalation, ingestion or contact (skin, eyes) with vapors or substance may cause severe injury, burns or death. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

Indication of immediate medical attention and special treatment needed, if necessary

For basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 mL/kg up to 200 mL of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool . Chlorates and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Wear positive pressure self-contained breathing apparatus when fighting fires involving this material.

Specific hazards arising from the chemical

Excerpt from ERG Guide 140 [Oxidizers]: These substances will accelerate burning when involved in a fire. Some may decompose explosively when heated or involved in a fire. May explode from heat or contamination. Some will react explosively with hydrocarbons (fuels). May ignite combustibles (wood, paper, oil, clothing, etc.). Containers may explode when heated. Runoff may create fire or explosion hazard. (ERG, 2016)

Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media. In case of fire: keep drums, etc., cool by spraying with water. Combat fire from a sheltered position.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into sealable containers. Wash away remainder with plenty of water. Do NOT absorb in saw-dust or other combustible absorbents.

Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into sealable containers. Wash away remainder with plenty of water. Do NOT absorb in saw-dust or other combustible absorbents.

Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. NO contact with flammables. Do NOT expose to friction or shock. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Separated from combustible substances and reducing agents. See Chemical Dangers. OXIDIZING SUBSTANCES SHOULD...NOT BE STORED ALONGSIDE COMBUSTIBLE SUBSTANCES SUCH AS ORGANIC MATERIALS & METAL POWDERS &...SHOULD NOT BE KEPT NEAR REDUCING AGENTS.../THEY SHOULD BE SEGREGATED/ FROM ALL OTHER MATERIALS IN SUITABLE CONTAINERS IN FIRE-RESISTING STORE WHERE THEY CANNOT ACCIDENTALLY COME IN CONTACT WITH WATER. OXIDIZING SUBSTANCES

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Potassium perchlorate is a white crystalline solid. Forms explosive mixtures with certain combustible materials. Difficult to burn, but will accelerate burning of combustible materials. Prolonged exposure to fire or heat may result in an explosion. Used in explosives, pyrotechnics, photography.
Colour:	COLORLESS CRYSTALS OR WHITE, CRYSTALLINE POWDER
Odour:	no data available
Melting point/freezing point:	400°C
Boiling point or initial boiling point and boiling range:	no data available
Flammability:	Not combustible but enhances combustion of other substances. Many reactions may cause fire or explosion. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	no data available

Auto-ignition temperature:	no data available
Decomposition temperature:	400°C
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	SOL IN 65 PARTS COLD WATER, 15 PARTS BOILING WATER; PRACTICALLY INSOL IN ALCOHOL
Partition coefficient n-octanol/water:	no data available
Vapour pressure:	no data available
Density and/or relative density:	2.52
Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces toxic and corrosive fumes of chlorine and chloroxides. The substance is a strong oxidant. It reacts with combustible and reducing materials. This generates fire and explosion hazard.

Chemical stability

Potassium perchlorate capsules have expiration date of 6 mo following date of manufacture

Possibility of hazardous reactions

PRESENCE OF ALUMINUM FLUORIDE INCR THE EASE OF IGNITION OF ALUMINUM-PERCHLORATE MIXTURES, OWING TO COMPLEX FLUORIDE FORMATION. POTASSIUM PERCHLORATE is a strong oxidizing agent. Explosively decomposes at or over 400°C. Decomposed by organic matter (reducible material) and on concussion [Merck 11th ed. 1989]. Mixture with powdered magnesium is

a friction-sensitive explosive [Safety Eng. Reports 1947]. Incompatible with reducing agents, such as: metal powders, aluminum, titanium, barium, magnesium, nickel, various metal hydrides, and sulfur.

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of K₂O and /hydrogen chloride/.

SECTION 11: Toxicological information

Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract.

STOT-repeated exposure

The substance may have effects on the blood. This may result in the formation of methaemoglobin. See Notes.

Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

SECTION 12: Ecological information**Toxicity**

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN1489 (For reference only, please check.)

IMDG: UN1489 (For reference only, please check.)

IATA: UN1489 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: POTASSIUM PERCHLORATE (For reference only, please check.)

IMDG: POTASSIUM PERCHLORATE (For reference only, please check.)

IATA: POTASSIUM PERCHLORATE (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 5.1 (For reference only, please check.)

IMDG: 5.1 (For reference only, please check.)

IATA: 5.1 (For reference only, please check.)

Packing group, if applicable

ADR/RID: II (For reference only, please check.)

IMDG: II (For reference only, please check.)

IATA: II (For reference only, please check.)

Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:
http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website:
<http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

Will turn shock-sensitive if contaminated with organic substances. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. Rinse contaminated clothing with plenty of water because of fire hazard. Depending on the degree of exposure, periodic medical examination is indicated.

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any