IFA
Institut für Arbeitsschutz der
Deutschen Gesetzlichen Unfallversicherung

Potassium chloride

Identification | Characterisation | Formula | Physical and chemical properties | Toxicology / Ecotoxicology | Safe handling | Regulations | Links | Literature register

IDENTIFICATION

Potassium chloride
Chloride of potassium
E 508

ZVG No:	2200
CAS No:	7447-40-7
EC No:	231-211-8

CHARACTERISATION

SUBSTANCE GROUP CODE

122300 Potassium compounds
133210 Chlorides

STATE OF AGGREGATION

The substance is solid.

PROPERTIES

crystalline
colourless
odourless

CHEMICAL CHARACTERISATION

Non-combustible substance.
Freely soluble in water.
Hygroscopic.

Substance information in Wikipedia

DUST EXPLOSIVENESS

No risk of dust explosion.
Quelle: *99999*

FORMULA

KCl
ClK

K^+ Cl^-

Molar mass: 74,55 g/mol

PHYSICAL AND CHEMICAL PROPERTIES

Melting point | Boiling point | Density | Solubility | pH-value | Hazardous reactions

MELTING POINT

Melting point: 773 °C
Reference: 00131

BOILING POINT

Boiling Point: 1413 °C
Reference: 01211

DENSITY

DENSITY
Value: 1,98 g/cm³
Temperature: 20 °C
Reference: 00131 01211

SOLUBILITY IN WATER

Concentration: 355 g/l
Temperature: 25 °C
Reference: 01221

pH-VALUE

pH-value: 5,5 ... 8,5
Temperature: 20 °C
Concentration: 50 g/l
Reference: 01211

HAZARDOUS REACTIONS

Hazardous chemical reactions

The substance can react dangerously with:
strong oxidizing agents

TOXICOLOGY / ECOTOXICOLOGY

TOXICOLOGICAL DATA

LD50 oral rat
Value: 2600 mg/kg

Unknown

Reference: 02071

ECOTOXICOLOGICAL DATA

LC50 Fish (96 hours)

Minimum:	880 mg/l
Maximum:	880 mg/l
Median:	880 mg/l
Study number:	1

Reference for median:

Mount, D.R., D.D. Gulley, J.R. Hockett, T.D. Garrison, and J.M. Evans 1997. Statistical Models to Predict the Toxicity of Major Ions to Ceriodaphnia dubia, Daphnia magna and Pimephales promelas (Fathead Minnows). Environ.Toxicol.Chem. 16(10):2009-2019

LC50 Crustaceans (48 hours)

Minimum:	21,1 mg/l
Maximum:	660 mg/l
Median:	419 mg/l
Study number:	9

Reference for median:

Mohammed, A. 2007. Comparative Sensitivities of the Tropical Cladoceran, Ceriodaphnia rigaudii and the Temperate Species Daphnia magna to Seven Toxicants. Toxicol.Environ.Chem. 89(2):347-352

EC50 Crustaceans (48 hours)

Minimum:	141 mg/l
Maximum:	141 mg/l
Median:	141 mg/l
Study number:	1

Reference for median:

Khangarot, B.S., and P.K. Ray 1989. Investigation of Correlation Between Physicochemical Properties of Metals and Their Toxicity to the Water Flea Daphnia magna Straus. Ecotoxicol.Environ.Saf. 18(2):109-120

Reference: 02072

SAFE HANDLING

Handling | Storage | Fire and explosion protection | Personal protection | Disposal considerations | Accidental release measures | Fire fighting measures

TECHNICAL MEASURES - HANDLING

Workplace

Select ventilation measures according to the other used substances.

If there is a chance that dusts may be released, then the work room must provide adequate ventilation.

Washing facility at the workplace required.

Equipment

Suction off dust at the point of exit.

Consider emission limit values, a purification of waste gases if necessary.

Containers are to be marked clearly.

Advice on safer handling

Take care to keep workplace clean and dry.
Do not leave container open.
Sufficient ventilation must be guaranteed for refilling, transfer, or open use.
Fill only into clearly marked containers.
Avoid rising dust.

Cleaning and maintenance

Avoid dust formation. Dust formation that cannot be avoided must be collected regularly.
Use a tested industrial vacuum cleaner or suction device.
Do not raise dust while cleaning.
Use of a blower for cleaning is not permitted.

TECHNICAL MEASURES - STORAGE

Storage

Do not use any food containers - risk of mistake.
Containers have to be marked clearly and permanently.
Keep container tightly closed.
Recommended storage at room temperature.
Store in a dry place.
Substance is hygroscopic, protect from moisture.

Conditions of collocated storage

Storage class 10 - 13 (Other liquids and solids)
Only substances of the same storage class should be stored together.
Collocated storage with the following substances is prohibited:
- Pharmaceuticals, foods, and animal feeds including additives.
- Infectious, radioactive und explosive substances.
- Strongly oxidizing substances of storage class 5.1A.

Under certain conditions the collocated storage with the following sub-stances is permitted (For more details see TRGS 510):
- Gases.
- Flammable liquids of storage class 3.
- Other explosive substances of storage class 4.1A.
- Pyrophoric substances.
- Substances liberating flammable gases in contact with water.
- Oxidizing substances of storage class 5.1B.
- Ammonium nitrate and preparations containing ammonium nitrate.
- Organic peroxides and self reactive substances.
- Combustible and non combustible acutely toxic substances of stora-ge classes 6.1A and 6.1B.

The substance should not be stored with substances with which hazardous chemical reactions are possible.

TECHNICAL MEASURES - FIRE AND EXPLOSION PROTECTION

Technical, constructive measures

Substance is non-combustible. Select fire and explosion prevention measures according to the other used substances.

PERSONAL PROTECTION

Body protection

Wear an apron or a lab coat.

Respiratory protection

In an emergency (e.g.: unintentional release of the substance) respiratory protection must be worn. Consider the maximum period for wear.
Respiratory protection: Particle filter P1, colour code white.

Eye protection

Wear glasses with side protection.

Hand protection

If protective gloves are used, the following materials are recommended:
The following information is valid for aqueous, saturated solutions of the salt.
The following materials are suitable for protective gloves (Permeation time >= 8 hours):
Natural rubber/Natural latex - NR (0,5 mm) (use non-powdered and allergen free products)
Polychloroprene - CR (0,5 mm)
Nitrile rubber/Nitrile latex - NBR (0,35 mm)
Butyl rubber - Butyl (0,5 mm)
Fluoro carbon rubber - FKM (0,4 mm)
Polyvinyl chloride - PVC (0,5 mm)

The times listed are suggested by measurements taken at 22 °C and constant contact. Temperatures raised by warmed substances, body heat, etc. and a weakening of the effective layer thickness caused by expansion can lead to a significantly shorter breakthrough time. In case of doubt contact the gloves' manufacturer. A 1.5-times increase / decrease in the layer thickness doubles / halves the breakthrough time. This data only applies to the pure substance. Transferred to mixtures of substances, these figures should only be taken as an aid to orientation.

Occupational hygiene

Take heed of usual occupational hygiene measures when handling chemical substances, espacially wash the skin with soap and water before breaks and at the end of work and apply fatty skin-care products after washing.

DISPOSAL CONSIDERATIONS

Non-hazardous waste according to Waste Catalogue Ordinance (AVV).
If there is no way of recycling it must be disposed of in compliance with the respective national and local regulations.

Collection of small amounts of substance:
Collect in container for inorganic solids.
Neutral solutions (pH-control):
Place in a collection container for salt solutions, adjust for a pH value of 6-8.
Collection vessels must be clearly labelled with a systematic description of their contents. Store the vessels in a well-ventilated location. Entrust them to the appropriate authorities for disposal.

ACCIDENTAL RELEASE MEASURES

Wear a dust mask.
Pick up without creating dust.
Afterwards ventilate area and wash spill site.

Endangerment of watert:
Low hazard to waters. Inform the responsible authorities when very large quantities get into water, drainage, sewer, or the ground.

FIRE FIGHTING MEASURES

Instructions

Substance is incombustible. Select fire fighting measures according to the surrounding conditions.

Special protective equipment

In the case of inclusion in an ambient fire hazardous substances can be released.
Hydrogen chloride
Wear self-contained breathing apparatus and special tightly sealed suit.

REGULATIONS

GHS Classification/Labelling | Water hazard class | Air quality control | Transport Regulations | Technical rules | Regulations of accident insurers

EUROPEAN GHS CLASSIFICATION AND LABELLING

Not a dangerous substance according to GHS.
Manufacturer's specification by Sigma-Aldrich

Reference: 01221
State: 2021
Checked: 2022

GERMAN WATER HAZARD CLASS

Substance No: 230

WGK 1 - low hazard to waters
Classification according to the announcement of the list of substances hazardous to water in the Federal Register of 10.08.2017, last update 24.11.2023

TECHNICAL INSTRUCTIONS ON AIR QUALITY CONTROL (TA LUFT)

Chapter 5.2.1 Overall Dust, including fine dust
The emissions of dust in the exhaust gas are not allowed to exceed the following values:

Mass flow: 0,20 kg/hr

or

Mass conc.: 20 mg/m³

The mass per unit volume of 0,15 g/m3 in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h.

TRANSPORT REGULATIONS

Not subject to transport regulations.

Reference: 01221

TECHNICAL RULES FOR HAZARDOUS SUBSTANCES

TRGS 500
Schutzmaßnahmen; Ausgabe September 2019

TRGS 509
Lagern von flüssigen und festen Gefahrstoffen in ortsfesten Behältern sowie Füll- und Entleerstellen für ortsbewegliche Behälter; Ausgabe Juni 2022

TRGS 510
Lagerung von Gefahrstoffen in ortsbeweglichen Behältern; Ausgabe Januar Dezember 2020

REGULATIONS OF GERMAN ACCIDENT INSURERS

DGUV Regel 112-190
Benutzung von Atemschutzgeräten, Ausgabe November 2021
(in German only)

LINKS

International Limit Values
OECD Screening Information DataSet (SIDS)
DGUV Information 213-098: List of substances - lesson in schools (in German only)

REFERENCES

Quelle: 00001
IFA: Erfassungs- und Pflegehandbuch der GESTIS-Stoffdatenbank (nicht öffentlich)
Data acquisition and maintenance manual of the GESTIS substance database (non-public)

Quelle: 00131
The Merck-Index; 14th Edition 2006

Quelle: 00500
RÖMPP Online ab 2003

Quelle: 01211
GHS-Sicherheitsdatenblatt, Merck
GHS Material Safety Data Sheet, Merck

Quelle: 01221
GHS-Sicherheitsdatenblatt, Sigma-Aldrich
GHS Material Safety Data Sheet, Sigma-Aldrich

Quelle: 02071
Toxicological Data, compiled by the National Institute of Health (NIH), USA, selected and distributed by Technical Database Services (TDS), New York, 2009

Quelle: 02072
Ecotoxicological Data, compiled by the US Environmental Protection Agency (EPA), selected and distributed by Technical Database Services (TDS), New York, 2009

Quelle: 05200
Kühn-Birett "Merkblätter Gefährliche Arbeitsstoffe" Loseblattsammlung mit Ergänzungslieferungen, ecomed Sicherheit, Landsberg

Quelle: 05300
TRGS 510 "Lagerung von Gefahrstoffen in ortsbeweglichen Behältern" Ausgabe Dezember 2020

Quelle: 06002
L. Roth, U. Weller
"Gefährliche Chemische Reaktionen" Loseblattsammlung mit Ergänzungslieferungen, ecomed-Verlag ("Dangerous chemical reactions" loose-leaf collection with supplement deliveries)

Quelle: 07580
Bekanntmachung der Liste der wassergefährdenden Stoffe im Bundesanzeiger vom 10.08.2017, zuletzt geändert 24.11.2023

Quelle: 07795
H. Geerißen "GloSaDa 2000 Plus - Glove Safety Data"

Quelle: 99999
Angabe des Bearbeiters
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