

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Chemical name: Potassium chloride
CAS No: 7447-40-7

Trade name: Potassium chloride, MOP, Chloride of potassium,
Potassium salt of hydrochloric acid

Technical name: Muriate of potash
REACH registration number: this substance is
exempted from the obligation of registration under
Annex V of Regulation (EC) 1907/2006 (natural origin).

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

Identified uses: Fertilizer, raw material for the production of fertilizers.
It also finds numerous applications outside of
agriculture - for example in the metallurgical, mining,
optical, pharmaceutical and food industries.

Uses advised against: Not specified

1.3. Details of the supplier of the safety data sheet

Supplier: „Aurepio-Kalij” Sp. z o. o.
Al. Jana Pawła II 11
00-828 Warszawa, Poland

Supplier’s phone number: + 48 22 652 90 61 to 64

E-mail of person responsible for the safety data sheet: aurepio@aurepio.pl

1.4. Emergency telephone number

Emergency telephone number in Poland:
112 (24 h) or
+48 22 652 90 61 to 64 (Monday -Friday, at hours: 8 a.m. – 4 p.m.).

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture**

Classification according to Regulation (EC) No. 1272/2008 as amended.

The substance does not meet the criteria for classification.

Human health effects

In case of significant dust concentrations or direct product penetration into eyes, irritation, redness, tearing, burning, itching may occur. Contact with the skin may cause itching, local redness. Prolonged inhalation of dust may cause slight irritation of the respiratory tract, irritation of the nasal mucosa and mouth, coughing. Swallowing may cause damage of

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

mucous membrane of the digestive tract, vomiting and diarrhea. Ingestion of large amounts may cause problems with heart due to an excess of potassium.

Environmental effects

It is not harmful for the environment, if used correctly.

Physical effects

Moist potassium chloride causes corrosion of various metals.

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 as amended.**

Pictograms: Not required.

Signal word: Not required.

Hazard statements: Not required.

Precautionary statements: Not required

2.3. Other hazards

The criteria described in Annex XIII (PBT and vPvB properties) do not apply to inorganic substances.

SECTION 3: Composition/information on ingredients**3.1. Substances**

Product identifier: Potassium chloride, MOP, Chloride of potassium, Potassium salt of hydrochloric acid, CAS No: 7447-40-7

Substance's name	Index number	CAS number	EC Number	Mass fraction in %	Hazard classes and category codes	Hazard statement codes
Potassium chloride*	-	7447-40-7	231-211-8	95 – 99.5	-	-

Impurities:

Sodium chloride *	-	7647-14-5	231-598-3	0 – 3.6	-	-
Calcium sulfate **	-	7778-18-9	231-900-3	0 – 0.6	-	-
Calcium chloride *	011-005-00-2	10043-52-4	233-140-8	0 – 0.24	Eye Irrit. 2	H319
Magnesium chloride*	-	7786-30-3	232-094-6	0 – 0.16	-	-

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

Water	-	7732-18-5	233-149-7	0-1	-	-
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* Designated NDS for dusts

** NDS designated for calcium sulfate.

The full wording of the H-Statements and the acronyms of symbols, hazard classes and category codes are given in section 16.

SECTION 4: First aid measures**4.1. Description of first aid measures**

Inhalation: Move the injured person from the risk area, arrange a comfortable reclining or sitting position, ensure peace, heat. Call a doctor if necessary.

Skin contact: Take off immediately contaminated clothing and wash the skin thoroughly with lukewarm, running water. Call a doctor if necessary.

Eye contact: Rinse immediately with plenty of cold water, preferably running water for at least 15 minutes. Remove contact lenses. Avoid a strong water jet due to the risk of mechanical damage to the cornea. If irritation persists, get medical attention.

Gastrointestinal tract: If swallowed, do not induce vomiting. Rinse mouth with water and then give a large amount of water to drink. Consult a doctor if necessary.

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

Significant dust concentrations or direct product penetration into eyes may cause irritation, redness, tearing, burning, itching. Contact with skin may cause itching, local redness. Prolonged inhalation of dust may cause slight irritation of the respiratory tract, irritation of the nasal mucosa and mouth, coughing. Swallowing may cause damage of mucous membrane of the digestive tract, vomiting and diarrhea.

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

No special recommendations. Use symptomatic treatment.

If swallowed, active carbon is recommended.

SECTION 5: Firefighting measures**5.1. Extinguishing media**

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

Suitable extinguishing media: The product is not flammable. Use extinguishing media appropriate for materials that are burning in surrounding area.

Unsuitable extinguishing media: Full water jet.

5.2. Special hazards arising from the substance or mixture

In case of fire, toxic fumes containing hydrogen chloride may release.

5.3. Advice for firefighters

Wear gas-tight protective clothing and breathing apparatus that is independent of ambient air. Requirements for protective clothing: EN 469

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Wear personal protective equipment. Mark the hazard area and prevent access to unauthorized persons. Avoid raising dust.

6.2. Environmental precautions

Protect against penetration into sewers, surface and ground waters and soil.

6.3. Methods and material for containment and cleaning up

Place the damaged packaging in the replacement packaging. Collect the released product mechanically, avoiding dust collection, transfer into tightly closed containers and dispose for disposal. Rinse the contaminated surface with large amounts of water.

6.4. Reference to other sections

Follow the instructions given in section 7.

Detailed information on personal protective equipment is given in section 8.

Remove as directed in section 13.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

Take precautions to avoid contact with skin and eyes when working with the substance. Do not breathe dust. Do not eat, drink or smoke during use. Wash hands during breaks and after work. Remove contaminated clothing immediately, wash before re-use. Use in rooms with general ventilation. Keep away from sources of heat and ignition.

7.2. Conditions for safe storage, including any incompatibilities

Store in original, properly labelled, tightly closed containers in a cool, well-ventilated place accessible only to authorized persons. Keep away from children. Protect against moisture. Do

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

not store together with food, drinks and animal feeds. Do not store with incompatible materials - see section 10.

It is recommended to store in a closed warehouse or outside in bags placed on a hard surface and protected against moisture.

7.3. Specific end use(s)

No information on applications other than mentioned in subsection 1.2.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Recommended procedures for monitoring air cleanliness in the work environment:**

EN 689 Air at workplaces. Guidelines for the assessment of inhalation exposure to chemical agents by comparison with limit values and measurement strategy

EN 1540 Air at workplaces. Terminology PN-Z-04008-7: 2002 / Az1: 2004 and PN-Z-04008-7: 2002 - Polish version. Air purity protection - Sampling - Principles of air sampling in the work environment and interpretation of results

For Poland:

Component	CAS No.:	Normative	Value	Unit	Legal base
Dusts not classified for toxicity					
- inhalable fraction	-	NDS	10	mg/m ³	O.J.2018.0.1286
Calcium sulfate					
Calcium (VI) sulfate (gypsum)					
- inhalable fraction	7778-18-9	NDS	10	mg/m ³	O.J.2018.0.1286

8.2. Exposure controls**8.2.1. Appropriate engineering controls**

Use efficient ventilation.

8.2.2. Individual protection measures, such as personal protective equipment

Respiratory system: In the event of a high concentration of dust, use respiratory protection with a particulate filter marked in white and P in accordance with EN 149 or EN 143.

Hands and skin: When handling large quantities, wear protective clothing made of natural materials, gloves made of rubber (thickness $\geq 0.4 \text{ mm} \pm 0.1 \text{ mm}$, breakthrough time $> 480 \text{ min}$), protective footwear made of rubber or leather. Gloves must comply with the standard: EN 374. Requirements for protective clothing: ISO 13982.

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

Eyes: Wear safety goggles according to EN 166.

Hygiene at work: Observe the general industrial hygiene provisions. Do not allow for to exceeded permissible normative concentrations at work. Remove contaminated clothing after work. Wash hands and face before breaks at work. Wash the entire body thoroughly after work. Do not eat, drink or smoke during work. Do not breathe dust.

8.2.3. Environmental exposure controls

Secure against entering the municipal water, sewage system and watercourses.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

- | | | |
|----|--|--|
| a) | Appearance: | Greyish-white to red-brown granules or crystals |
| b) | Odour | No odour |
| c) | Odour threshold | Not applicable |
| d) | pH | 5.5 – 8.8 (50000 mg/l of water) |
| e) | Melting point/freezing point | 768 - 772 °C |
| f) | Initial boiling point and boiling range | 1406 – 1413 °C |
| g) | Flash point | No data available. |
| h) | Evaporation rate | No data available. |
| i) | Flammability (solid, gas) | The substance is non-flammable. |
| j) | Upper/lower flammability or explosive limits | It does not pose an explosion hazard. |
| k) | Vapour pressure | No data available. |
| l) | Vapour density | No data available. |
| m) | Relative density | 1.98 (water=1) |
| n) | Solubility | It dissolves in water. Partially dissolves in liquid ammonia and ethanol. It does not dissolve in most organic solvents and fats. |
| o) | Partition coefficient: n-octanol/water | According to Annex VII (point 7.8) to Regulation (EC) 1907/2006, the study does not need to be conducted for inorganic substances. |
| p) | Auto-ignition temperature | No data available. |
| q) | Decomposition temperature | No data available. |
| r) | Viscosity | Not applicable. |
| s) | Explosive properties | It does not pose an explosion hazard. |

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

- t) Oxidising properties
- According to column 2 of Annex VII to the REACH Regulation, the study does not need to be performed.
- Based on the chemical structure and taking into account the chemical properties, no oxidizing properties are expected.

9.2. Other information

No data available.

SECTION 10: Stability and reactivity**10.1. Reactivity**

Reacts with acids and bases.

10.2. Chemical stability

The substance is stable under the recommended conditions of transport or storage.

10.3. Possibility of hazardous reactions

At high temperatures, as a result of contact with concentrated acids (sulfuric and nitric acid), toxic gases with a stifling effect may release: hydrogen chloride, nitrosyl chloride.

10.4. Conditions to avoid

Moisture. Moist potassium chloride causes corrosion of metals.

10.5. Incompatible materials

Acids, bases, organic materials.

10.6. Hazardous decomposition products

Chlorine is released by electrolysis of aqueous NaCl and KCl solutions.

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Acute toxicity:**

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

LD₅₀ - intragastrically rat 2430 - 2600 mg/kg

LD₅₀ - intragastrically mouse 620 - 1500 mg/kg

LD₅₀ - intraperitoneally rat 660- 770 mg/kg

LD₅₀ - intravenously rat 39 - 142 mg/kg

LD₅₀ - intravenously mouse 117 mg/kg

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

Skin corrosion / irritation:

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

Serious eye damage / eye irritation:

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

Respiratory or skin sensitization:

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

Germ cell mutagenicity:

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

Carcinogenicity:

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

Reproductive toxicity:

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

Specific target organ toxicity - single exposure

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

Specific target organ toxicity - repeated exposure

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

Aspiration hazard:

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

Health effects of local exposure

Inhalation:	Prolonged inhalation of dust may cause slight irritation of the respiratory tract, irritation of the nasal mucosa and mouth, coughing.
Eye contact:	Significant dust concentrations or direct product penetration into eyes may cause irritation, redness, tearing, burning, itching.
Skin contact:	It can cause itching, local redness.
Swallowing:	Contact with skin may cause itching, local redness. Swallowing may cause damage of mucous membrane of the digestive tract, vomiting and diarrhea. Swallowing of large amounts can cause heart's problems due to excess of potassium.

SECTION 12: Ecological information**12.1. Toxicity**

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

Toxicity to fish:

LC₅₀ (Leuciscus Idus): 2300 mg/l

Time of exposure 48 hours

LC₅₀ (Phoxinus Phoxinus): 373 mg/l

Time of exposure 12-29 hours

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

LC₅₀ (Gambusia Affinis): 10000 mg/l

Time of exposure 24 hours

LC₅₀ (Gambusia Affinis): 4200 mg/l

Time of exposure 48 hours

LC₅₀ (Diplodus Cervinus): 74,6 mg/l

Time of exposure 4,5-15 hours

LC₅₀ (Lepomis Macrochirus): 2010 mg/l

Time of exposure 96 hours

LC₅₀ (Lepomis Macrochirus): 5500 mg/l

Time of exposure 24 hours

LC₅₀ (Cyprinus Carpio): 12500 mg/l

Time of exposure 5 hours

Toxicity to invertebrates:

EC₅₀ (Daphnia Magna): 825 mg/l

Time of exposure 48 hours

LC₅₀ (Autsropotamobius Palliepes) 740 mg/l

Time of exposure 96 hours

LC₅₀ (Orconectes Limosus) 1214 mg/l

Time of exposure 96 hours

EC₅₀ (Physella Heterostropka (mollusc)) 940 mg/l

Time of exposure 96 hours

LC₅₀ (Autsropotamobius Palliepes) 398-531 mg/l

Time of exposure 30 days

LC₅₀ (Orconectes Limosus) 626-854 mg/l

Time of exposure 30 days

Algae and aquatic plants:

EC₅₀ (Scenedesmus subspicatus): 2500 mg/l

Time of exposure 72 hours

LC₅₀ (Nitchera linearis): 1337 mg/l

Time of exposure 120 hours

12.2. Persistence and degradability

Under abiotic conditions, the substance is very stable (half-life > 30 days).

12.3. Bioaccumulative potential

Octanol / water partition coefficient (Kow):

Not determined for inorganic substances.

Bioconcentration factor (BCF):

No data available.

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

12.4. Mobility in soil

According to section 1 of Annex XI to the REACH Regulation, the study does not need to be conducted because the main components of the product are present in an ionic form, which means that the substance will not be adsorbed.

12.5. Results of PBT and vPvB assessment

The criteria described in Annex XIII (PBT and vPvB properties) do not apply to inorganic substances

12.6. Other adverse effects

No data available.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Product**

Do not dispose together with municipal waste. Do not allow contamination of ground and surface water. If possible, use all amount of the product. Possible remnants should be given to an authorized waste recipient.

Package

Empty the packaging thoroughly. Reusable packaging can be reused after thoroughly cleaning. Disposable packaging (after thoroughly cleaning) can be recycled. Proceed in accordance with country and local regulations. Empty and clean packaging can be disposed to municipal waste stream.

Special precautions:

There are no special recommendations.

SECTION 14: Transport information

This product is not classified as dangerous within the meaning of transport regulations.

ADR/RID, IMDG, IATA

14.1. UN number	Not applicable.
14.2. UN proper shipping name	Not applicable.
14.3. Transport hazard class(es)	Not applicable.
14.4. Packing group	Not applicable.

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

14.5. Environmental hazards

The substance does not pose a risk to the environment in accordance with the criteria contained in the UN Model Regulations.

14.6. Special precautions for user

No special recommendations.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

Regulation of the Minister of Agriculture and Rural Development of 24 June 2002 on occupational health and safety in the use and storage of plant protection products as well as mineral and organic-mineral fertilizers (Dz.U.2002.99.896), as amended.

Regulation (EC) 1907/2006 of the European Parliament and of the Council of 18 December 2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94, as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000 / 21 / EC (OJ EU L series No. 396 of 30 December, 2006), as amended.

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (EC) No 1272/2008 of 16 December 2008 on the classification, Labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and amending Regulation (EC) No. 1907/2006 (OJ EU L Series No. 353 of 31 December, 2008), as amended.

Act of 25 February 2011 on chemical substances and mixtures (Book of Acts 2011.63.322), as amended.

Regulation of the Minister of Health of 30 December, 2004 on occupational health and safety connected with chemical agents at work (Book of Acts 2005.11.86), as amended.

Regulation of the Minister of Health of 2 February, 2011 on the testing and measurement of agents harmful to health in the work environment (Book of Acts 2011.33.166).

The Act of 14 December 2012 on waste (Book of Acts 2013.0.21), as amended.

Act of 13 June 2013 on the management of packaging and packaging waste (Book of Acts 2013.0.888), as amended.

Regulation of the Minister of Labor and Social Policy of 14.03.2000 on the safety and hygiene of work on manual transport work (Book of Acts 2000.26.313), as amended.

Regulation of the Minister of Labor and Social Policy of 6 June, 2014 on the highest allowable concentrations and intensities of agents harmful to health in the work environment (Book of Acts 2018.0.1286).

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

REGULATION (EC) No 2003/2003 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 October 2003 on fertilizers, as amended.

Act of 10 July 2007 on fertilizers and fertilization, Book of Acts 1997, No.147.1033, as amended.

Regulation of the Minister of Agriculture and Rural Development of 16 April 2008 on the detailed method of fertilizer application and conducting training in the field of their application, Dz.U.2008.80.479, as amended..

Regulation of the Minister of Economy of 8 September 2010 on the method of packaging mineral fertilizers, placing information on fertilizer components on these packaging, the method of testing mineral fertilizers and types of lime fertilizer, Dz.U.2010.183.1229.

Regulation of the Minister of Agriculture and Rural Development of 18 June 2008 on the implementation of certain provisions of the Act on fertilizers and fertilization, OJ 2008.119.765, as amended.

15.2. Chemical safety assessment

A chemical safety assessment for this substance has not been carried out.

SECTION 16: Other information

The full wording of the H-Statements and the acronyms of symbols, hazard classes and category codes given in section 3.

H319 Causes serious eye irritation.

Eye Irrit. 2 Serious eye damage/eye irritation, hazard category 2.

Sources:

- Safety Data Sheet in English, date of compilation: 04.12.2017

Recommendations for training

As a minimum there is recommended a safety training. Prior to working with the product the user is required to know the safety rules for safe handling of chemicals, and above all, hold appropriate workplace training.

Abbreviations:

NDS - Highest permissible concentration - value of weighted average of concentration, which impact on the employee during an 8-hour daily and average weekly working time, during the duration of its professional activity should not cause negative changes in his state of health and the health of the future generations

DNEL - level that does not cause harm to human health - the level of exposure to the substance not causing harmful effects to human health

PNEC - predicted concentration causing changes in the environment - the concentration of the substance below which there are no expected adverse effects on the environment

SAFETY DATA SHEET

according to REGULATION (EC) 1907/2006, as amended.

POTASSIUM CHLORIDE

Date of revision: 29.10.2019

vPvB - substance very persistent and very bioaccumulative

PBT – substance persistent, bioaccumulative and toxic

NOAEL — *Highest dose* at which there *was not* an observed toxic or adverse effect.

LOAEL — *Lowest dose* at which there *was* an observed toxic or adverse effect.

DMEL - Derived Minimal Effect Level

LD₅₀: Lethal Dose 50 %. The LD₅₀ corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval.

LC₅₀: Lethal Concentration 50 %. The LC₅₀ corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval.

EC₅₀: Effective Concentration 50 %. The EC₅₀ corresponds to the concentration of a tested substance causing 50% changes in response (e.g. on growth) during a specified time interval.

BCF - bioconcentration factor - the ratio of the concentration of substances in the body to its concentration in water at equilibrium

ADR- Agreement on Dangerous Goods by Road

RID - Regulations Concerning the International Transport of Dangerous Goods by Rail

IMDG - International Maritime Dangerous Goods Code

IATA - International Air Transport Association

CAS - number assigned to a chemical substance on the list of Chemical Abstracts Service

EC - the reference number used in the European Union in order to identify hazardous substances, in particular, registered in the European Inventory of Existing Commercial Chemical Substances (EINEC) or the European List of Notified Chemical Substances (ELINCS) or the list of chemical substances listed in the publication of "No-longer polymers"

UN number - four-digit identification number of the material in the list of dangerous materials of the United Nations, based on the "UN Model Regulations", which classified material is an individual, mixture or article

The information contained in this safety data sheet are based on the current state of knowledge and data from a supplier. They are not a guarantee of specific properties of the product and does not relieve users of responsibility for the appropriate use of this information. The supplier will not be liable for any damages or losses that might arise from the use of this product.

Reason for update: Section 8**Changes**

Changes to the previous version are marked with a vertical bold line on the left of the text.