Safety Data Sheet: Potassium Chloride 98%

1. Identification

Product name	Potassium Chloride 98% (KCl), industrial grade
CAS / EC No.	7447-40-7 / 231-211-8
Formula / molecular weight	KCl / 74.55 g/mol
Synonym	Muriate of potash
Recommended use	Oilfield water-based drilling fluid additive, brine preparation and industrial formulations. Food, feed or medicinal use requires separate grade qualification.
Supplier	Hainan Zhongxin Chemical Co., Ltd.
Address	Room 1001, Building A, Caohejing Center, No. 1520 Gumei Road, Xuhui District, Shanghai, China.
Telephone / emergency contact	+86-21-54265599 (office contact, China time, UTC+8; no 24-hour service is asserted). For urgent medical or fire assistance, contact local emergency services.
Website / email	www.zxchem.com / sales@zxchem.com.cn
Safety data scope	Reference safety information for crystalline potassium chloride. The commercial grade has a minimum 98.0% KCl assay on a dry basis; moisture is at most 2.0%. This document does not certify a complete delivered-batch impurity or additive profile.

2. Hazards Identification

Classification	Potassium chloride is not classified as a hazardous substance under the OSHA Hazard Communication Standard or EU CLP on the available substance information. This reference assessment applies to potassium chloride; it does not establish the classification of an undisclosed additive or different formulation.
Label elements	No GHS pictogram, signal word or hazard statement is assigned to the reference potassium chloride substance.
Other hazards	Airborne dust may irritate eyes and the respiratory tract. A large ingestion can disturb potassium balance and affect heart rhythm.
Precautions	Avoid breathing dust and unnecessary contact; protect eyes, use ventilation, wash after handling and prevent ingestion or uncontrolled discharge.

3. Composition / Information on Ingredients

Material identity	Refined inorganic potassium chloride, CAS 7447-40-7, EC 231-211-8.
Potassium chloride content	At least 98.0% on a dry basis. This is not a minimum 98.0% w/w assay of the moist, as-supplied material.
Moisture / specified constituents	Moisture: at most 2.0% as supplied. Dry-basis limits: NaCl at most 1.2%; Ca + Mg at most 0.2%; sulfate as SO4 at most 0.5%; water-insoluble matter at most 0.1%. These are individual specification limits, not measured batch composition; do not add their maxima to infer a formulation.
Composition boundary	The complete impurity and additive profile has not been established. Hazard and transport entries describe the reference KCl substance; a different formulation requires its own assessment.

4. First-Aid Measures

General	Remove the person from exposure and provide this sheet to medical personnel.
Inhalation	Move to fresh air. Seek medical help for persistent irritation, coughing or difficulty breathing. If breathing stops, trained personnel should provide resuscitation and obtain emergency assistance.
Skin	Remove contaminated clothing and wash with water. Obtain advice if symptoms persist.
Eyes	Rinse cautiously with water for at least 15 minutes. Remove contact lenses if easy to do. Obtain medical attention for persistent symptoms.
Ingestion	Rinse mouth. Do not induce vomiting. Seek urgent medical assistance after a large ingestion or if symptoms develop. Give nothing by mouth to an unconscious person.
Symptoms / treatment	Irritation, nausea, vomiting or diarrhea may occur. Significant ingestion may cause weakness, hyperkalemia and abnormal heart rhythm. Medical treatment should be directed by the exposure and clinical findings.

5. Fire-Fighting Measures

Extinguishing media	Use an agent suitable for the surrounding fire, such as water spray, foam, dry powder or carbon dioxide.
Specific hazards	Potassium chloride does not burn. Severe heating or fire may produce hydrogen chloride and potassium-containing fumes.
Firefighter protection	Wear self-contained breathing apparatus and suitable protective clothing. Contain contaminated firewater.

6. Accidental Release Measures

Personal precautions	Restrict access, ventilate the area and avoid creating dust clouds. Use the protection in Section 8.
Environmental precautions	Keep material out of drains, soil and surface water.
Cleanup	Collect dry material using low-dust methods into closed, labelled containers. Avoid dry sweeping that disperses dust. Recover uncontaminated material where suitable; dispose of contaminated material as described in Section 13.

7. Handling and Storage

Handling	Control dust during bag opening, transfer and mixing. Avoid inhalation and eye contact. Do not eat, drink or smoke while handling. Wash hands after work.
Storage	Keep bags tightly closed in a dry, ventilated area. Protect from moisture, damage and strong oxidizing agents.
Specific use	Use in the intended industrial formulation and assess exposure during charging, mixing and cleanup.

8. Exposure Controls / Personal Protection

Control parameters	No KCl-specific occupational exposure limit is established in this sheet. Apply local airborne-particulate limits and assess actual workplace exposure.
Engineering controls	Enclose dusty transfer points or use local extraction. Provide eyewash and washing facilities.
Respiratory protection	Where ventilation does not adequately control dust, use an approved particulate respirator selected for the measured exposure and local requirements.
Hand / body protection	Wear appropriate protective gloves and work clothing, with closed footwear. Select glove material for the actual handling conditions.
Eye protection / hygiene	Use safety glasses with side shields; use sealed goggles where dust exposure is likely. Remove dusty clothing and wash before eating.

9. Physical and Chemical Properties

Physical state / color	White to slightly yellowish fine crystals or powder (commercial grade).
Odor / threshold	Odorless / no data available.
Melting / freezing point	Approximately 770 °C (reference KCl).
Boiling point	Approximately 1,413 °C at 1,013 hPa (reference KCl).
Flammability / explosion limits	Non-combustible KCl; flammable/explosive concentration limits are not applicable.
Flash point / autoignition	Not applicable to non-combustible KCl / no data available.
Decomposition temperature	No product-specific data available.
pH	Approximately 5.5-8.5 (50 g/L water, 20 °C; reference KCl).
Water solubility	Approximately 355 g/L at 25 °C (reference KCl).
Density / relative density	Approximately 1.98 g/cm3 at 20 °C / approximately 1.98 (reference KCl).
Vapor pressure / vapor density	No measured product vapor pressure available; evaporation at ambient temperature is negligible. Relative vapor density: not applicable under normal handling.
Viscosity / partition coefficient	Viscosity: not applicable to solid. Log Pow: not applicable to an inorganic ionic salt.
Particle characteristics	Fine crystals or powder; numerical particle-size distribution and bulk density are not specified.
Property scope	Reference substance values are not batch acceptance limits or measurements of the supplied grade.

10. Stability and Reactivity

Reactivity / stability	Stable under normal ambient handling and dry storage. No hazardous polymerization is expected.
Conditions to avoid	Moisture, excessive heating, uncontrolled dust release and incompatible materials.
Incompatibilities	Strong oxidizing agents. Assess compatibility before mixing with other chemicals.
Decomposition products	None expected in normal use; severe heating or fire may produce hydrogen chloride and potassium-containing fumes.

11. Toxicological Information

Exposure routes	Dust inhalation, eye or skin contact and accidental ingestion.
Acute toxicity	Reference KCl oral LD50 (rat): 3,020 mg/kg. No acute toxicity testing of the supplied commercial grade is reported here.
Irritation / sensitization	Dust may irritate eyes and airways. Product-specific skin-irritation and respiratory/skin-sensitization data are unavailable.
CMR / organ effects	Product-specific carcinogenicity, mutagenicity, reproductive toxicity and single/repeated-exposure target-organ data are unavailable.
Other effects / aspiration	Large ingestion may produce gastrointestinal symptoms, hyperkalemia and cardiac dysrhythmia. Aspiration classification is not assigned for this solid.

12. Ecological Information

Aquatic toxicity	Reference KCl fish LC50: 880 mg/L, 96 hours, Pimephales promelas. A large release may alter salinity and harm freshwater organisms.
Persistence / degradation	Dissolves into inorganic ions. Conventional biodegradability testing does not apply to this inorganic salt.
Bioaccumulation / mobility	No product-specific bioaccumulation data available. Dissolved ions can move with water.
Other effects	Product-specific PBT/vPvB and endocrine-disruption assessments are unavailable. Prevent uncontrolled releases.

13. Disposal Considerations

Product / residues	Recover clean material where practicable. Use an authorized waste handler for unusable product, cleanup material and contaminated packaging under applicable requirements. Determine waste classification from actual contaminants and use history.
Containers / wastewater	Do not discharge concentrated salt residues or wash water into waterways or drains. Empty bags may retain dust and require the same handling precautions.

14. Transport Information

ADR / RID	Reference potassium chloride: not regulated as dangerous goods. UN number, UN proper shipping name, transport hazard class and packing group: not applicable.
IMDG Code	Reference potassium chloride: not regulated as dangerous goods. UN number, proper shipping name, hazard class and packing group: not applicable. Marine pollutant: no.
IATA DGR	Reference potassium chloride: not regulated as dangerous goods. UN number, proper shipping name, hazard class and packing group: not applicable.
Environmental hazards	Reference KCl is not classified as environmentally hazardous for dangerous-goods transport.
Special precautions	Keep packages closed and dry; prevent bag damage, leakage and cargo contamination. Observe Sections 7 and 8.
Bulk maritime transport	This sheet addresses packaged material. Bulk-specific maritime requirements are outside its scope.
Grade boundary	The entries apply to reference KCl and do not certify an undisclosed additive or a specific delivered consignment.

15. Regulatory Information

Safety framework	Sixteen-section GHS safety information. The substance classification basis is stated in Section 2. This sheet does not certify compliance with every destination-specific SDS, registration or labelling requirement.
Inventory / destination obligations	KCl has EC inventory number 231-211-8. The supplier and importer must verify the applicable inventory, workplace, language and import obligations for the intended market. No supplier-specific registration, exemption or product approval is asserted.
Chemical safety assessment	No product-specific chemical safety assessment is provided.

16. Other Information

Issue / revision	19 October 2026 / 2026.2 / English. Prepared by ZXCHEM.
Scope	Substance safety information for the KCl grade described in Sections 1 and 3. Technical assay uses a dry basis. Reference properties and safety entries are not analytical results for a supplied batch.
Abbreviations	GHS: Globally Harmonized System; CLP: classification, labelling and packaging; LD50/LC50: median lethal dose/concentration; PBT/vPvB: persistent, bioaccumulative and toxic / very persistent and very bioaccumulative; ADR/RID: road/rail dangerous-goods rules; IMDG: maritime dangerous-goods code; IATA: air transport rules.
Disclaimer	Information supports safe handling of the stated material and is not a warranty or batch specification. Users must assess their process, exposure controls and applicable requirements.
Document scope	Reference safety information for the material and grade described in Sections 1 and 3. Different concentrations, solvents or formulations require the applicable safety information. This is not a batch analytical certificate.

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