Material Safety Data Sheet (MSDS)

CAS No.: 10043-52-4

EC No.: 233-140-8

Product Name: Anhydrous Calcium Chloride

Supplier: Hubei Sanning Chemical Co., Ltd.

1. Identification of the Substance and the Company/Undertaking

Item	Details
Product Identifier	Anhydrous Calcium Chloride
Chemical Formula	$CaCl_2$
Recommended Use	Industrial applications (deicing, drying agent, dust control, water treatment, etc.)
Restrictions on Use	Not for use in food, pharmaceutical or medical applications without specific approval
Supplier Name	Hubei Sanning Chemical Co., Ltd.
Supplier Address	No.9 Yanjiang Road, Yaojiagang, Zhijiang City, Hubei Province, China
Supplier Telephone	-3524
Emergency Telephone	+86-400-180-3030 (24/7 Emergency Support)

2. Hazards Identification

Category	Hazard Details
Global Harmonization System (GHS) Classification	- Eye Irritation: Category 2- Skin Irritation: Category 2- Respiratory Irritation: Category 2- Specific Target Organ Toxicity (Single Exposure): Category 3 (Respiratory tract)
Signal Word	Warning
Hazard Statements (H-codes)	- H319: Causes serious eye irritation- H315: Causes skin irritation- H335: May cause respiratory irritation
Precautionary Statements (P-codes)	- P264: Wash skin thoroughly after handling- P280: Wear protective gloves/eye protection/face protection- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing- P302+P352: IF ON SKIN: Wash with plenty of soap and water- P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing
General Hazards	- Strongly hygroscopic (absorbs moisture from air rapidly)- Reacts violently with strong acids (releases toxic fumes)- May form corrosive solutions with water

2. Composition/Information on Ingredients

Substance	Concentration (wt%)
Anhydrous Calcium Chloride ($CaCl_2$)	≥98.0 10043-52-4
Impurities (NaCl, $Ca(OH)_2$	water-insolubles, etc.) ≤2.0 -

4. First-Aid Measures

Route of Exposure	Treatment Details
Eyes	1. Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower lids. 2. Remove contact lenses if worn and easily removable. 3. Continue rinsing; seek medical attention if irritation persists.
Skin	1. Wash affected skin with plenty of soap and water for at least 15 minutes. 2. Remove contaminated clothing and shoes; wash before reuse. 3. Seek medical attention if skin irritation (redness, itching) develops or persists.
Inhalation	1. Remove victim to fresh air, keep warm and at rest. 2. If breathing is difficult, administer oxygen by a qualified person. 3. If breathing stops, perform artificial respiration; seek medical attention immediately.
Ingestion	1. Do NOT induce vomiting. 2. Rinse mouth with water; give small sips of water to dilute. 3. Seek medical attention immediately; never give anything by mouth to an unconscious person.
Most Important Symptoms/Effects	Irritation of eyes, skin, respiratory tract; dryness of mucous membranes; gastrointestinal discomfort if ingested.
Indication of Immediate Medical Attention and Special Treatment	Symptomatic treatment; ensure medical personnel are aware of the substance and exposure route.

5. Fire-Fighting Measures

Extinguishing Media	Use water spray, dry chemical, foam, or carbon dioxide (CO_2) extinguishers.
Special Hazards During Burning	- No specific flammability; however, heating may release calcium oxide fumes (irritating). - Reaction with strong acids generates toxic hydrogen chloride fumes.

Protective Equipment for Fire-Fighters	Wear self-contained breathing apparatus and chemical-resistant protective clothing to avoid contact with fumes and contaminated water.

6. Accidental Release Measures

Personal Precautions	1. Wear protective gloves, goggles, and a dust mask; avoid inhalation of dust.2. Ensure adequate ventilation; keep away from ignition sources (non-combustible, but dust may form explosive mixtures in air with high concentrations).
Environmental Precautions	Prevent release into sewers, watercourses, or soil; avoid runoff to contaminated water sources.
Methods for Containment/Cleanup	1. Isolate the spill area; keep unauthorized personnel away.2. For dry spills: Use a shovel to collect into dry, closed containers; avoid generating dust (use dust suppression with water mist if needed).3. For wet spills (absorbed moisture): Absorb with inert material (sand, earth), collect, and dispose of as hazardous waste.4. Do not flush with water into sewers; clean spill area with water, then dispose of washwater appropriately.
Waste Disposal Method	Collect spilled material in accordance with local/regional regulations for industrial solid waste disposal; do not mix with other hazardous wastes.

7. Handling and Storage

Handling	1. Use only in well-ventilated areas; avoid dust formation (use dust extraction equipment if necessary).2. Avoid contact with eyes, skin, and clothing; avoid inhalation of dust.3. Do not eat, drink, or smoke during handling; wash hands thoroughly after use.4. Handle with care to prevent breakage of containers; avoid dropping or damaging packaging.
Storage	1. Store in tightly sealed, moisture-resistant containers (e.g., HDPE bags, steel drums) in a cool, dry, well-ventilated warehouse.2. Keep away from strong acids, strong oxidizers, and incompatible materials.3. Store away from sources of moisture (e.g., water taps, humidifiers) to prevent caking/hygroscopy.4. Keep containers closed when not in use; label clearly at all

	times.
End Use Precautions	Follow good industrial hygiene practices; avoid prolonged/repeated exposure without protection.

8. Exposure Controls / Individual Protection

Biological Exposure Limit (Belgium/UK/US)	No specific occupational exposure limits established for anhydrous calcium chloride; follow general industrial exposure limits for dusts.
Control Measures	1. Engineering controls: Ensure adequate ventilation; use local exhaust ventilation to control dust emissions.2. Respiratory protection: Use N95/P100 dust mask if dust concentrations exceed exposure limits.3. Hand protection: Wear chemical-resistant gloves (nitrile rubber, PVC).4. Eye/face protection: Wear safety goggles or face shield to prevent dust/liquid splashes.5. Hygiene measures: Wash hands, face, and body thoroughly after handling; remove contaminated clothing before reuse.

9. Physical and Chemical Properties

Property	Value
Appearance	White granular solid
Odor	Odorless
pH (10 g/L, 25° C)	8.0 - 10.5
Relative Density	2.15 g/cm³
Melting Point	772 ° C
Boiling Point	1935 ° C
Solubility	Highly soluble in water (exothermic reaction); slightly soluble in ethanol
Vapor Pressure	Negligible at ambient temperature
Flash Point	Non-flammable
Auto-Ignition Temperature	N/A (non-combustible)

10. Stability and Reactivity

Stability	Stable under normal storage and handling conditions; hygroscopic (absorbs moisture from air).
Possibility of Hazardous Reactions	- Reacts violently with strong acids (e.g., HCl, H_2SO_4) → releases toxic hydrogen chloride fumes.- Reacts with strong oxidizers under high temperature → may release irritant fumes.- No polymerization hazards.
Conditions to Avoid	Exposure to moisture (high humidity), strong acids, strong oxidizers, high temperatures (above 772 °C).
Incompatible Materials	Strong acids, strong oxidizers, strong alkalis (reactive under specific conditions).
Decomposition Products	Calcium oxide (CaO) and hydrogen chloride (HCl) fumes (at temperatures > 772 °C).

11. Toxicological Information

Acute Toxicity :

- Oral (rat): $LD_{50} \approx$ 2200 mg/kg (moderately toxic)- Dermal (rabbit): LD_{50} > 2000 mg/kg (low toxicity)

Irritation - Skin (rabbit):

Mild to moderate irritation (redness, itching)- Eye (rabbit): Moderate irritation (conjunctivitis)

Sensitization: No evidence of skin sensitization in animal studies.

Chronic Toxicity:

No chronic toxicity data available; prolonged exposure to dust may cause chronic respiratory irritation.

Carcinogenicity: Not listed in IARC, NTP, or OSHA as a carcinogen.

Reproductive Toxicity :

No reproductive toxicity data available; avoid maternal exposure during pregnancy.

12. Ecological Information

Ecotoxicity :- Freshwater fish (Lepomis macrochirus): LC_{50} (96h) > 1000 mg/L- Daphnia magna: EC_{50} (48h) > 1000 mg/L- Algae (Pseudokirchneriella subcapitata): EC_{50} (72h) > 1000 mg/L

Persistence and Degradability : Non-biodegradable; stable in the environment.

Bioaccumulative Potential : Low bioaccumulation potential (log Kow < 0).

Mobility in Soil :Highly soluble in water; may leach into groundwater in sandy soils.

Other Adverse Effects :May increase water hardness; toxic to aquatic organisms at very high concentrations (>1000 mg/L).

13. Disposal Considerations

Waste Disposal Method :

1. Recover unspent, uncontaminated product for reuse (if possible).
2. Contaminated waste: Dispose of in accordance with local/regional industrial solid waste regulations (landfill or incineration, if permitted).
3. Spent solutions: Neutralize with a suitable acid/base before discharge (per local wastewater discharge standards); avoid direct discharge to waterways.

Pollutant Code:

Follow local environmental protection regulations for waste classification and disposal.

14. Transport Information

| UN Number | 1787 |

| UN Proper Shipping Name | Calcium chloride, anhydrous |

| UN Hazard Class | Non-hazardous (not classified as dangerous goods for transport under ADR/RID/IMDG) |

| Packing Group | N/A (non-hazardous) |

| Transport Precautions | - Ensure packaging is intact, dry, and sealed; avoid moisture contact during transport.- Keep away from strong acids/oxidizers during transit.- Comply with local/regional road/sea/rail transport regulations for industrial chemicals. |

15. Regulatory Information

Regulatory Compliances:

- Complies with GB/T 26520-2021 (Industrial Calcium Chloride Standard).- Not listed as a hazardous substance under China’s Environmental Protection Law (without specific exposure limits).- GHS-compliant hazard classification per EU CLP Regulation (EC) No. 1272/2008.

Other Regulations :

Follow local occupational safety, environmental protection, and waste disposal regulations.

16. Other Information

Disclaimer The information in this MSDS is based on current data and believed to be accurate, but no warranty, express or implied, is made regarding its completeness or accuracy. The user is responsible for determining suitability for use and compliance with all applicable laws and regulations.