

Document No: MSDS-06

Issue Status: 003

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Approved by: General Manager

Author: Manager HSE

Dev. Date: 13-08-2023

Issued To: All Concerned

Title: Material Safety Data Sheet Calcium Chloride Flakes 77 – 100 %

MSDS CALCIUM CHLORIDE FLAKES 77 – 100%**SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****SUBSTANCE:** Calcium Chloride**TRADE NAMES/SYNONYMS:**

Calcium chloride anhydrous

CHEMICAL FAMILY: Inorganic Compound**MANUFACTURER:****COMPANY INFORMATION** Saudi Factory for Chlorine & Alkalies

Building #2101, Unit # 2, Riyadh 14545-8762, Kingdom of Saudi Arabia.

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SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS**COMPONENT:** CALCIUM CHLORIDE**CAS NUMBER:** 10043-52-4

Sr. #	Parameters	Unit	Limits
1	CaCl ₂	w/w %	77 Min
2	Magnesium chloride	w/w %	1 Max
3	Alkali chloride as NaCl	w/w %	1.5 to 6.8 Max
4	Heavy metals as Pb	w/w %	0.005 Max
5	Sulfate as CaSO ₄	w/w %	0.05 Max
6	Water insoluble	w/w %	0.2 Max
7	Other water-soluble impurities	w/w %	0.85 Max
8	pH 10% solution	--	7.5 to 8.5
9	Appearance	--	White
10	Particles size	mm	≤ 11 mm

SECTION 3: HAZARDS IDENTIFICATION**Emergency Overview:****CAUSES SERIOUS EYE IRRITATION! WASH SKIN THOROUGHLY AFTER HANDLING, WEAR PROTECTIVE GLOVES AND CLOTHING, EYE AND FACE PROTECTION**

Irritant to Eye & Skin

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Code	Word	Hazard Statement
H319	Warning	Causes serious eye irritation.
H315	Warning	Causes skin irritation.
H335	Warning	May cause respiratory irritation.
H402	Warning	Harmful to aquatic life.
H290	Warning	May be corrosive to metals

Note: No Danger codes apply unless mixed with impurities (e.g., alkaline hydroxides).

Precautionary Statements (P-Codes)**Prevention:**

- P264: Wash hands thoroughly after handling.
- P261: Avoid breathing dust/fume.
- P280: Wear protective gloves/eye protection.
- P271: Use only outdoors or in well-ventilated areas (for dust control).

Response:

- P305 + P351 + P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present.
- P302 + P352: If on skin: Wash with plenty of water.
- P337 + P313: If eye irritation persists: Seek medical advice.

Storage/Disposal:

- P403 + P233: Store in a well-ventilated place. Keep container tightly closed.
- P501: Dispose of contents/container per local regulations.

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=0 REACTIVITY=1**EMERGENCY OVERVIEW:****COLOR:** White or cream**PHYSICAL FORM:** Flakes**ODOR:** Odorless**MAJOR HEALTH HAZARDS:** Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator)**POTENTIAL HEALTH EFFECTS:**

CARCINOGENIC EFFECTS: Not available. **MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance may be toxic to heart, cardiovascular system. Repeated or prolonged exposure to the substance can produce target organs damage.





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SECTION 4: FIRST AID MEASURES

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water holding eyelids open for at least 15 minutes. Cold water may be used. Get medical attention. Symptoms include redness, pain, or temporary corneal injury.

Skin Contact: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention. Symptoms include irritation, dryness, or redness (severe exposure may cause burns).

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Symptoms include respiratory irritation, coughing, or sore throat.

Serious Inhalation: Not available.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband. Symptoms include nausea, vomiting, or electrolyte imbalance (if large amounts are swallowed).

Serious Ingestion: Not available.

SECTION 5: FIRE FIGHTING MEASURES

Flammability of the Product: Non-flammable. Auto-Ignition

Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Furan-2-peroxycarboxylic acid + calcium chloride causes explosion at room temperature.

SECTION 6: ACCIDENTAL RELEASE MEASURES

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Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill: Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

SECTION 7: HANDLING AND STORAGE

Precautions: Keep locked up. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as moisture.

Storage: Hygroscopic. Keep container tightly closed. Keep the container in a cool, well-ventilated area. Do not store above 30°C (86°F).

Shelf Life: When properly stored to protect from moisture contact, the expected shelf life for all calcium chloride packaged products is 36 months.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION**Occupational Exposure Limit or Biological Limit Value:****Exposure Limits:**

Regulatory Agency / Standard	Exposure Limit	Notes
OSHA PEL (TWA)	15 mg/m ³ (total dust)	29 CFR 1910.1000
ACGIH TLV (TWA)	10 mg/m ³ (respirable)	2024 Threshold Limit Value

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Synthetic apron. Gloves (impervious). *Nitrile gloves (≥0.4 mm), ANSI Z87.1 goggles, Dust mask for dust.*

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.





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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance: Solid. (Crystalline solid.)

Odor: Odorless.

Taste: Saline.

Molecular Weight: 110.99 g/mole

Color: Colorless. White. Off-white.

pH (10% solution @ 20 °C is 9 - 11

Boiling Point: 1935 °C

Melting Point: 773°C

Critical Temperature: Not available.

Density: @ 25°C = ≤ 1 g/ cm³

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, acetone.

Solubility: Easily soluble in cold water, hot water, acetone. Freely soluble in alcohol. Soluble in Acetic Acid.

SECTION 10: STABILITY AND REACTIVITY

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, moisture.

Incompatibility with various substances: Reactive with moisture.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Hygroscopic. Reacts violently (violent boiling) with water, generating heat. Forms flammable gases and evolves hydrogen when reacted with zinc. Solutions attack some metals. Generates heat and violent polymerization occurs when mixed with methyl vinyl ether. Bromine trifluoride reacts violently with and attacks calcium chloride.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.



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SECTION 11: TOXICOLOGICAL INFORMATION

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals: Oral LD50 (rat): 1,000 mg/kg.

Chronic Effects on Humans: MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: heart, cardiovascular system.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Lowest Published Lethal Dose: LDL [Rabbit] - Route: Oral; Dose: 1384 mg/kg

Special Remarks on Chronic Effects on Humans: May affect genetic material based on animal data. May cause cancer (tumorigenic) based on animal data.

Special Remarks on other Toxic Effects on Humans: Acute Potential Health Effects: Skin: May cause severe irritation and possible burns, especially if skin is wet. Contact with dry skin causes mild irritation. Contact of solid with moist/wet skin or skin contact with strong solutions may cause marked irritation or possible burns. Eyes: May cause severe irritation, possible transient corneal injury, and possible eye burns. Inhalation: May cause severe irritation of the upper respiratory tract with pain, inflammation, and possible burns. Ingestion: May cause severe gastrointestinal (digestive) tract irritation with nausea, vomiting and possible burns. May affect cardiovascular system (cardiac disturbances, slow heartbeat), behavior (seizures), metabolism, blood, and brain, respiration (rapid respiration). Chronic Potential Health Effects: effects may be delayed.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Ecotoxicity in water (LC50): 100 mg/l 96 hours [Fish].

EC50 (Daphnia magna, 48h): 100 mg/L Harmful to aquatic organisms (H402).

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself. **Special Remarks on the Products of Biodegradation:** Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulations. Neutralize with weak acid (e.g., vinegar) before disposal. Comply with Saudi Waste Management Center (SWMC) Regulation M/50.



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SECTION 14: TRANSPORT INFORMATION

DOT Classification: Not regulated for transport (DOT/IMO/IATA) but may require secondary containment for spills.

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

SECTION 15: REGULATORY INFORMATION

Federal and State Regulations: TSCA 8(b) inventory: Calcium chloride, Anhydrous

Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications: WHMIS (Canada): CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC): R36- Irritating to eyes. S2- Keep out of the reach of children. S22- Do not breathe dust. S24- Avoid contact with skin.

EU CLP: Eye Irrit. 2 (H319), Skin Irrit. 2 (H315).

KSA SASO GHS: Compliant with SASO 1503:2018.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 1

Personal Protection: C

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 1

Specific hazard: Protective Equipment: Gloves (impervious). Synthetic apron. Wear an appropriate respirator when ventilation is inadequate. Safety glasses.

SECTION 16: OTHER INFORMATION

MSDS SUMMARY OF CHANGES

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