SAFETY DATA SHEET

CALCIUM CHLORIDE GRANULES (94% PURITY, INDUSTRIAL GRADE)

CAS No.: 10043-52-4

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

CALCIUM CHLORIDE GRANULES (94% PURITY, INDUSTRIAL GRADE)
Calcium Chloride Anhydrous/Granular; $CaCl_2$

CAS: 10043-52-4

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Road de-icing agent, dust control on unpaved surfaces, oilfield/drilling fluid additive, industrial desiccant/drying agent, concrete set accelerator, refrigeration brine, tire ballast. For industrial user only – this grade is not intended for food use.

Uses advised against: All uses not specified in this section or in section 7.3.

Supplier's details

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

Emergency phone number

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Eye Irrit. 2	Eye irritation, Category 2, H319

GHS label elements, including precautionary statements

GHS: Warning

Hazard statements

Eye Irrit. 2: H319 – Causes serious eye irritation.

Precautionary statements

P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/eye 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.
P337+P313: If eye irritation persists: Get medical advice/attention.
P501: Dispose of contents/container in accordance with local regulations.

Other hazards which do not result in classification

Strongly hygroscopic – absorbs moisture from air. Dissolution in water is strongly exothermic and can generate significant heat, causing thermal burns on skin if concentrated solution/molten material contacts skin. Not a PBT or vPvB substance.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Calcium chloride ($CaCl_2$)

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 10043-52-4	Calcium Chloride — Eye Irrit. 2: H319 – Warning	≥ 94% (industrial granular grade; balance is primarily sodium chloride and moisture)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

Mixtures

Non-applicable

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance if irritation is significant or persistent, showing the SDS of this product.

By inhalation

Remove person to fresh air and keep at rest. Seek medical attention if irritation or breathing difficulty persists.

By skin contact

Remove contaminated clothing and rinse skin thoroughly with plenty of water. Concentrated solutions may generate heat – flush affected area with copious cool water. Seek medical attention if irritation or burns occur.

By eye contact

Rinse immediately and thoroughly with plenty of water for at least 15 minutes, holding eyelids apart. Remove contact lenses if present and easy to do. Seek medical attention.

By ingestion/aspiration

Rinse mouth with water. Give water to drink if the person is conscious. Do not induce vomiting. Seek medical attention if discomfort persists or large quantity is ingested.

Most important symptoms/effects, acute and delayed	Causes eye irritation. Concentrated solutions may cause skin irritation/mild thermal effects due to heat of dissolution. Ingestion of large amounts may cause gastrointestinal irritation. Acute and delayed effects are also indicated in sections 2 and 11.
Indication of immediate medical attention and special treatment needed, if necessary	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	**Suitable:** Product is non-combustible. Use extinguishing media suitable for the surrounding fire (water spray, foam, dry chemical powder, carbon dioxide). **Unsuitable:** None known
Specific hazards arising from the chemical	Not flammable, not explosive. Product itself will not burn. Dissolving in water is strongly exothermic and can generate steam/spattering if added to hot or limited water.
Special protective actions for fire-fighters	No special measures required beyond standard fire-fighting practice. Wear self-contained breathing apparatus if involved in a fire producing smoke from other combustible materials. **Additional provisions** Cool fire-exposed containers with water if practical.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	**For non-emergency personnel** Avoid contact with eyes and prolonged skin contact. Spilled granules become slippery/deliquescent when wet. Use personal protective equipment as described in section 8. **For emergency responders** Wear protective equipment (gloves, goggles). Keep unprotected persons away.
Environmental precautions	Avoid large releases into waterways – elevated chloride and dissolved solids concentrations can affect aquatic life and freshwater ecosystems. Notify the relevant authority in case of significant environmental release.
Methods and materials for containment and cleaning up	Sweep up or vacuum spilled granules before they absorb moisture and become sticky; place in a suitable labelled, sealed container for reuse or disposal. Flush residual area with water, containing washings for appropriate disposal where large quantities are involved.
Reference to other sections	See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use
Avoid contact with eyes. Avoid adding large quantities to limited water quickly, as this generates significant heat. Prevent moisture ingress into stored material (hygroscopic).

B. Technical recommendations for the prevention of fires and explosions
Not applicable – product is non-combustible.

C. Technical recommendations on general occupational hygiene
Do not eat, drink or smoke while handling. Wash hands after handling.

D. Technical recommendations to prevent environmental risks
Avoid uncontrolled release of large quantities to soil or water bodies (elevated chloride/salinity impact).

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Storage temperature	Ambient, dry conditions
Recommended shelf life	12–24 months in original sealed, moisture-proof packaging

B. General conditions for storage
Store in a dry, well-ventilated place in tightly closed, moisture-proof containers/bags (strongly hygroscopic – will absorb atmospheric moisture and cake or liquefy if exposed). Keep away from incompatible metals and strong oxidisers.

Specific end use(s)

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

No substance-specific occupational exposure limit has been established for calcium chloride by OSHA, ACGIH or Indian regulatory bodies. General limits for particulates not otherwise classified are commonly applied as guidance:

Identification	Occupational Exposure Limit Type	Value
Calcium Chloride (as inert/nuisance dust guidance) CAS: 10043-52-4	Inhalable fraction, 8-hr TWA	10 mg/m³
	Respirable fraction, 8-hr TWA	3 mg/m³

Appropriate engineering controls

Use local exhaust ventilation where dust is generated. Provide eyewash facilities near handling points due to the eye-irritation classification.

B. Respiratory protection
Dust mask/particulate respirator recommended during bagging, milling or extended dusty operations.

C. Specific protection for the hands
Chemical-resistant gloves (nitrile or PVC) recommended when handling, especially when preparing solutions.

D. Eye and face protection
Chemical safety goggles mandatory – product causes eye irritation.

E. Bodily protection
Protective overalls for bagging, loading and dissolution operations.

F. Additional emergency measures
Eyewash station recommended (ANSI Z358-1 / ISO 3864 compliant) in areas of regular handling.

Environmental exposure controls
Avoid environmental spillage of both product and container. See subsection 7.1.D.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Solid (granules/flakes)
Appearance	White to off-white granules or flakes
Color	White / off-white
Odor	Odorless
Odour threshold	Not applicable
Volatility	
Boiling point at atmospheric pressure	~1,935°C (anhydrous salt, not relevant to normal use)
Vapour pressure at 20°C	Not applicable (negligible, solid)
Evaporation rate	Not applicable
Product Description	
Density at 20°C	~2.15 g/cm³ (anhydrous solid)
Bulk density	~1.0–1.35 g/cm³ (granular/flake, 94% grade)
Molecular weight	110.98 g/mol
pH (5% aqueous solution, 20°C)	~8.0–9.0 (mildly alkaline, grade dependent)
Solubility in water at 20°C	Highly soluble, ~745 g/L (strongly exothermic dissolution)
Partition coefficient n-octanol/water	Not applicable (inorganic salt)
Decomposition temperature	Not applicable under normal conditions
Melting point/freezing point	772–775°C (anhydrous)
Flammability	
Flash Point	Non-applicable (non-combustible solid)
Flammability (solid, gas)	Non-flammable
Autoignition temperature	Not applicable
Lower / Upper flammability limit	Not applicable
Particle Characteristics	
Median particle size	Grade dependent (granule/flake) – available on request

Values are standard published physical constants for calcium chloride; industrial 94% grade contains minor moisture and sodium chloride, which can shift practical density/solubility slightly.

Other information

Explosive properties	Not explosive
Oxidising properties	Not an oxidiser
Corrosive to metals	Concentrated solutions can promote corrosion of carbon steel and some metals over time
Heat of combustion	Not applicable (non-combustible)
Surface tension	Not relevant (solid)
Viscosity	Not applicable (solid)

10. STABILITY AND REACTIVITY

Reactivity

Dissolution in water is strongly exothermic. Reacts with some metals to promote corrosion in the presence of moisture. No other significant reactivity hazards under normal conditions.

Chemical stability

Chemically stable under normal conditions of storage, handling and use. Strongly hygroscopic – will absorb moisture and deliquesce (turn liquid) if exposed to humid air.

Possibility of hazardous reactions

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected, other than significant heat release when dissolved rapidly in a limited volume of water.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Absorbs moisture (hygroscopic)	Not applicable	Not applicable	Avoid – deliquescence/caking

Incompatible materials

Water (rapid addition to limited volume)	Metals (moist conditions)	Strong Oxidisers
Avoid – strongly exothermic, spattering risk	Promotes corrosion over time	Avoid direct contact

Hazardous decomposition products

None expected under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at concentrations higher than recommended, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)
Moderate acute oral toxicity by test criteria; large doses may cause gastrointestinal irritation, nausea and vomiting due to the strongly ionic/hypertonic nature of the salt.

B. Inhalation (acute effect)
Dust may cause irritation of the nose, throat and respiratory tract.

C. Contact with skin and eyes (acute effect)
Causes serious eye irritation. Concentrated solutions or prolonged contact with dry salt may cause skin irritation and, from heat of dissolution, mild thermal-type effects.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)
Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data.

E. Sensitizing effects
Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure
May cause respiratory irritation from dust; not classified.

G. Specific target organ toxicity (STOT) – repeated exposure
Classification criteria are not met based on available data.

H. Aspiration hazard
Not applicable (solid).

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Calcium Chloride CAS: 10043-52-4	LD50 oral: 1,000 mg/kg	Rat
	LD50 dermal: >5,000 mg/kg (low dermal toxicity)	Rabbit

12. ECOLOGICAL INFORMATION

Moderately toxic to aquatic organisms primarily due to elevated chloride/salinity/osmotic effects at high concentrations; not classified as acutely hazardous under GHS aquatic criteria at typical use concentrations.

Toxicity

Acute Toxicity	Species	Genus
LC50: ~1,900–4,000 mg/L (96h, freshwater species, range reported)	Non-applicable	Fish
EC50: ~2,000 mg/L (48h, order-of-magnitude)	Non-applicable	Crustacean

Persistence and degradability

Not applicable – inorganic salt; dissociates completely in water into naturally occurring calcium and chloride ions.

Bioaccumulative potential

Not expected to bioaccumulate (inorganic, highly water-soluble ionic species).

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Not relevant (ionic)	Not relevant	Highly mobile (soluble)	Highly mobile

Results of PBT and vPvB assessment

Non-applicable – not a PBT or vPvB substance.

Other adverse effects

Repeated de-icing/dust-control use can elevate soil and surface-water chloride/salinity levels near application areas over time; apply per local environmental guidance.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Dilute with large volumes of water and dispose of via authorized effluent treatment systems, or dispose of as non-hazardous solid waste, subject to local regulatory approval and chloride discharge limits. Empty packaging can be recycled or disposed of as non-hazardous waste after ensuring it is empty of residue.

Refer to national and local regulations on waste management.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023)

14.1 UN number	Not assigned – not regulated as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG)

14.1 UN number	Not assigned – not regulated as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO)

14.1 UN number	Not assigned – not regulated as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 (not applicable – non-hazmat classification)
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
Water (Prevention and Control of Pollution) Act, 1974 – relevant to chloride discharge limits

16. OTHER INFORMATION

Legislation related to safety data sheets

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3

H319: Causes serious eye irritation.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources

Publicly available chemical safety data for calcium chloride (CAS 10043-52-4), including PubChem and standard industry safety data sheets.

Abbreviations and acronyms

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer | PBT: Persistent, Bioaccumulative and Toxic | vPvB: very Persistent, very Bioaccumulative

Disclaimer: The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

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