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Material Safety Data Sheet Calcium Chloride

1. Product Identification

Product Name: Calcium Chloride anhydrous/Calcium Chloride dihydrate
MSDS Code: RF-MSDS-02
CAS No.: 10043-52-4/10035-04-8
Molecular formula: $\text{CaCl}_2/\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$
Molecular Name: Calcium Chloride anhydrous/Calcium Chloride dihydrate

2. Composition/Information on Ingredients

Hazardous ingredient: Calcium Chloride 74-100%

3. Hazards Identification

Emergency Overview

WARNING! CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.
HARMFUL IF SWALLOWED OR INHALED.

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 2 - Moderate

Contact Rating: 3 - Severe

Lab Protective Equip: GOGGLES; LAB COAT

Storage Color Code: Green (General Storage)

Potential Health Effects

Inhalation: Calcium Chloride granular does not pose a significant inhalation hazard, but inhalation of dust may cause irritation to the respiratory tract, with symptoms of coughing and shortness of breath.

Ingestion: Calcium Chloride is low toxicity material but ingestion may cause serious irritation of the mucous membrane due to heat of hydrolysis. Large amounts can cause gastrointestinal upset, vomiting, abdominal pain.

Skin Contact: Calcium Chloride solid may cause mild irritation on dry skin; strong solutions or solid in contact with moist skin may cause severe irritation, even burns.

Eye Contact: Hazard may be either mechanical abrasion or, more serious, burns from heat of hydrolysis and chloride irritation.

Chronic Exposure: No information found.

Aggravation of Pre-existing Conditions: No information found.

4. First Aid Measures

Skin Contact: Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Note to Physician: Oral ingestion may cause serum acidosis.

5. Fire-Fighting Measures

Fire: Calcium Chloride is not considered to be a fire hazard.

Explosion: Calcium Chloride not considered to be an explosion hazard.

Fire Extinguishing For Calcium Chloride use any means suitable for extinguishing surrounding
Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. At high temperatures or when moistened under fire conditions, calcium chloride may produce toxic or irritating fumes.

6. Accidental Release Measures

Emergency Measure: Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. Small amounts of residue may be flushed to sewer with plenty of water.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Moist calcium chloride and concentrated solutions can corrode steel. When exposed to the atmosphere, calcium chloride will absorb water and form a solution. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Control/Personal Protection

Airborne Exposure None established.

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators For conditions of use where exposure to dust or mist is apparent and (NIOSH Approved): engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerin, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator.

WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Eyes Protection: Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection: Wear protective gloves and clean body-covering clothing.

Other Control Maintain good housekeeping in work area. Dust deposits on floors and other surfaces may pick up moisture and cause the surfaces to become slippery and present safety hazards.

Measures:

9. Physical & Chemical Properties

Bases: Calcium Chloride

Appearance: White or gray-white granules.

Odor: Odorless.

pH: 8 - 9 Aqueous solution

Melting Point (°C): CaCl_2 772°C , $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$ 175°C

Boiling Point (°C): > 1600°C (> 2912°F)

Relative Density (water=1): CaCl_2 : 2.15(25°C) $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$: 1.835(25°C)

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): No information found.

Evaporation Rate (BuAc=1): No information found.

Critical pressure (MPa): No information found.

Octanol /Water No information found.

Partition Coefficient:

Flash Point (°C): No information found.

Igniting Temperature (°C): No information found.

Flammable/Explosive No information found.

limits-Upper Vol %:

Flammable/Explosive No information found.

limits-Lower Vol %:

Solubility: Soluble in water and alcohol.

10. Stability and Reactivity

Stability: Calcium Chloride is stable under ordinary conditions of use and storage.

Calcium Chloride will pick up moisture from the air and go into solution if exposed in open containers.

Hazardous Calcium Chloride emits toxic chlorine fumes when heated to decomposition.

Decomposition Calcium Chloride may form hydrogen chloride in presence of sulfuric or

Products: phosphoric acids or with water at elevated temperatures.

Conditions to avoid: No information found.

Hazardous
polymerization: Will not occur.

Incompatibilities: Methyl vinyl ether, water, zinc, bromine trifluoride, mixtures of lime and boric acid, barium chloride, and 2-furan percarboxylic acid. Metals will slowly corrode in aqueous calcium chloride solutions. Aluminum (and alloys) and yellow brass will be attacked by calcium chloride.

Conditions to Avoid: Incompatibles.

11. Toxicological Information

Oral rat LD50: CaCl_2 : 1000 mg/kg. Investigated as a tumorigen and mutagen.

Chronic Toxicity: No data

Irritation: No data

Sensitivity: No data

Sensitivity: No data

Mutagenicity: No data

Teratogenicity: No data

12. Ecological Information

Environmental Fate: Environmental Fate: Based on available information for Calcium Chloride anhydrous, this material will not biodegrade or bioaccumulate.

Environmental Toxicity: The LC50/96-hour values for fish are over 100 mg/l.

Non-Biodegradability: No data

Biological Accumulation: No data

Other Hazardous Effects: No data

Other Information No data

13. Disposal Consideration

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transportation Information

According to IMDG/IMO, it's not dangerous cargo.

15. Regulatory Information

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No

SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No

Reactivity: No (Pure / Solid)

Australian Hazchem Code: None allocated.

Poison Schedule: None allocated.

WHMIS: This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 1 Flammability: 0 Reactivity: 1

Label Hazard Warning:

WARNING! CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. HARMFUL IF SWALLOWED OR INHALED.

Label Precautions:

Avoid contact with eyes, skin and clothing.

Wash thoroughly after handling.

Avoid breathing dust.

Keep container closed.

Use only with adequate ventilation.

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In case of contact, wipe off excess material from skin then immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases, get medical attention.

Disclaimer:

WARNING! :

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