

# SAFETY DATA SHEET – U.S. DEPARTMENT OF LABOR

May be used to comply with Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200, Standard must be consulted for specific requirements (non-mandatory form) Form Approved OMB No. 1218-0072

Date Prepared: 12-07-2016

Date Revised: 02-20-2017

## -Section 1: Identification of the Substance/Preparation and of the Company/Undertaking

### 1.1 Product Identifier

**Trade Name:** NH<sub>3</sub> CAL

**Synonyms:** None Known

### 1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against It

**Recommended Uses:** Nitrogen management aid to be blended with ammonia anhydrous for agricultural use

**Inadvisable Uses:** None Known

#### Details of the Distributor of the Safety Data Sheet

**Distributed By:** SoilBiotics

18500 W 3000S Rd

Reddick, IL 60961

815-365-2353

Country: United States

### 1.3 In Case of Emergency: Infotrac at 800-535-5053

## Section 2: Hazards Identification

### 2.1 OSHA Regulatory Status: Considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)



**Warning**

**CAUSES SKIN IRRITATION  
CAUSES SERIOUS EYE IRRITATION**

#### GHS Classification:

- If inhaled: No data, not classified
- If ingested: No classified as acutely toxic for oral exposure
- If contact with skin: HAZARD: Category 2 - Causes skin irritation
- If contact with eyes: HAZARD: Category 2A – Causes serious eye irritation
- If dermal contact: Not classified as acutely toxic for dermal exposure

#### Precautionary Statements – Prevention:

- Wear eye and face protection
- Wear protective gloves
- Wash thoroughly after handling

#### Precautionary Statements – Response:

- If in EYES: Rinse cautiously with water for several minutes. Remove contact lenses if easy to do. Continue rinsing. If irritation persists then get medical advice/attention.
- If on SKIN: Wash with plenty of water. Take off contaminated clothing and wash clothing. If irritation persists then get medical advice/attention.

- Specific treatment under Section 4

**Precautionary Statement – Disposal:**

- Dispose of contents and container in accordance with applicable local, regional, national, and or international regulations.

**Hazards Not Otherwise Classified:** None

See Section 11 for Toxicological Information

**Section 3: Composition/Information on Ingredients**

**3.2 Mixtures**

Substance	CAS No	EC No	REACH Reg No	Concentration	Notes	DSD- Classification	CLP - Classification	
Proprietary								

Note: Potassium chloride and sodium chloride are impurities from the naturally occurring source material.

**Section 4: First Aid Measures**

**4.1 Description of First Aid Measures**

**Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses if easy to do. Continue rinsing. If irritation persists then get medical advice/attention.

**Skin Contact:** Wash with plenty of water. Take off contaminated clothing and wash clothing. If irritation persists then get medical advice/attention. **SPECIFIC TREATMENT: Wash with lots of water.**

**Inhalation:** Move person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if one feels unwell.

**Ingestion:** If swallowed, rinse mouth. Call a POISON CENTER or doctor/physician if one feels unwell.

**4.2: Most important symptoms/effects (Acute):**

**Inhalation (Breathing):** Inhaling may cause irritation to upper respiratory tract (nose and throat). Nasal mucous and oropharyngeal erythema.

**Skin:** Skin exposure may cause slight irritation, redness, itching, swelling. May cause more severe response if skin is damp, abraded (scratched or cut), or covered by clothing, gloves, or footwear. Prolonged contact may cause more severe symptoms.

**Eye:** Eye exposure may cause serious eye irritation and pain. May cause conjunctival swelling and cornea opacification from hypertonic solution. Corneal eye pain redness, acute corneal thickening or whitening.

**Ingestion (Swallowing):** Consumption of solids or hypertonic solutions causes nausea, vomiting and increased thirst.

**4.3 Most important symptoms/effects (Delayed):**

- Chronic exposures to skin and mucus membranes that cause irritation may cause a chronic dermatitis or mucosal membrane problem.

**Interaction with other chemicals which enhance toxicity:** None known

**Medical Conditions Aggravated by Exposure:** Any skin condition that disrupts the skin, such as abrasions, cuts, psoriasis, fungal infections, etc. Any eye condition that compromises tear production, conjunctiva, or normal corneal homeostasis.

**Protection of Those Giving First Aid:** At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission. If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Notes to Physician:** Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach, and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

## Section 5: Fire-Fighting Measures

**5.1 Special Fire Fighting Procedures:** This material does not burn. Water should be applied in large quantities as a fine spray. Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant fire clothing with appropriate protective equipment and clothing.

**5.2 Fire and Explosion Hazards:** Formed under fire conditions: hydrogen chloride gas, calcium oxide

**5.3 Suitable Extinguishing Media:** Use extinguishing agents appropriate for surrounding fire

**5.4 Unsuitable Extinguishing Media:** None Known

Lower Flammability Level (air): NA

Upper Flammability Level (air): NA

Flash Point: NA

Auto-ignition Temperature: NA

## Section 6: Accidental Release Measures

**6.1 Personal Precautions:** Isolate area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard on some surfaces. Use appropriate safety equipment. For additional information, refer to Section 8, Section 7.

**6.2 Methods for Containment and Clean Up:**

Small and large spills: Contain spilled material if possible. Absorb with materials such as sand. Collect in suitable and properly labeled containers. Flush residue with plenty of water. See Section 13.

**6.3 Environmental Precautions:** Prevent spills from entering into soil, ditches, sewers, waterways and or ground water. See Section 12.

## Section 7: Handling and Storage

**7.1 Precautions for Safe Handling:** Avoid contact with eyes, skin, and clothing. Do not swallow. Wash thoroughly after handling. Wear personal protective equipment as described in Section 8.

**7.2 Safe Storage Conditions:** Protect from atmospheric moisture. Keep containers closed when not in use. Keep separated from incompatible substances. See Section 10.

**7.3 Incompatibilities/Materials to Avoid:** Avoid contact with: bromide trifluoride, 2-furan percarboxylic acid. Contact with zinc forms flammable hydrogen gas, which can be explosive, catalyzes exothermic polymerization of methyl vinyl ether, may release flammable hydrogen gas, reaction of bromide impurity with oxidizing materials may generate trace levels of impurities such as bromates.

## Section 8: Exposure Controls/Personal Protection

**8.1 Regulatory Exposure Limits:**

- Component: Particles not otherwise regulated, (PNOR), 00-00-001
- OSHA Final PEL TWO: 15 mg/m<sup>3</sup> (Total), 5 mg/m<sup>3</sup> (Respirable)
- OSHA Final PEL STEL and OSHA FINAL PEL Ceiling: NA

**8.2 Non-Regulatory Exposure Limits:**

- Use good personal hygiene
- Do not consume or store food in the work area
- Wash hands and affected skin immediately after handling, before smoking or eating, before breaks, and at the end of the workday

**8.3 Engineering Controls:** Use local exhaust ventilation or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. General ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

**8.4 Personal Protective Equipment:**

**Respiratory Protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. Wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In dusty or misty atmospheres, use an approved particulate respirator.

**Hand Protection:** Use gloves chemically resistant to this material. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Neoprene, Polyvinyl (PVC or vinyl), Nitrile/butadiene rubber (nitrile or NBR).

**Eye and Face Protection:** Wear safety glasses with side shields. Wear chemical safety goggles and or face shield to protect against skin and eye contact when appropriate.

**Skin and Body Protection:** Wear clean, body covering clothing. Wear appropriate clothing to avoid skin contact.

**Other protective equipment:**

**Section 9: Physical and Chemical Properties**

**9.1 Physical State/Appearance/Odor:** Clear and odorless

**9.2 Information on Basic Physical and Chemical Properties:**

Parameter	Value/Unit	Remark
pH	9 undiluted	
Melting Point	NA	
Initial Boiling Point	110 to 122 C 230 to 252 F	
Freezing Point	-43 to 21 C -46 to 69 F	
Flash Point	NA	
Evaporation Rate	Ether = 1 -	No data available
Flammability Limits in Air (% by vol.)		
Vapor Pressure (mmHg at 77F)	9 to 15 mm Hg @ 25C	
Vapor Density (Air – 1)		
Specific Gravity (H <sub>2</sub> O = 1)	1.275 to 1.439 @ 25C (77 F)	
Partition Coefficient N-Octanol/Water		Not applicable
Auto-Ignition Temperature		NA
% Volatiles by Volume		
Bulk Density (g/ml)		NA
Dry Matter, %		
Solubility in Water	Completely miscible	
Odor threshold (ppm)		NA

Decomposition Temperature		NA
Density	10.61 – 11.97 lbs/gal (1.27 – 1.43 kg/L) at 25C (77 F)	
Lower Upper Flammability Level (air)		NA
Viscosity	2– 7 cp @ 25C (77F)	
Hygroscopic	Yes	

## Section 10: Stability and Reactivity

Reactivity: Hygroscopic

**10.1 Chemical Stability:** Stable at normal temperatures and pressures

**10.2 Possibility of Hazardous Reactions:** No data available

**10.3 Materials to Avoid:** Avoid contact with: bromide trifluoride, 2-furan percarboxylic acid, contact with zinc forms flammable hydrogen gas, which can be explosive, catalyzes exothermic polymerization of methyl vinyl ether, may release flammable hydrogen gas, reaction of bromide impurity with oxidizing materials may generate trace levels of impurities such as bromates

**10.4 Hazardous Decomposition Products:** Formed under fire conditions: hydrogen chloride gas, calcium oxide

**10.5 Hazardous Polymerization:** Will not occur

**10.6 Conditions to Avoid:** None Known

## Section 11: Toxicological Information

**11.1 Product Toxicity Data:** LD<sub>50</sub> Oral: 2282 mg/kg – Oral Acute Toxicity Estimate (ATE)  
LD<sub>50</sub> Dermal: 6013 mg/kg – Dermal Acute Toxicity Estimate (ATE)  
LC<sub>50</sub> Inhalation: Not data is available

### 11.2 Component Toxicity Data:

**Component:** Calcium chloride 10043-52-4  
LD<sub>50</sub> Oral: 1000mg/kg (Rat)  
LD<sub>50</sub> Dermal: 2630 mg/kg (Rat)  
LC<sub>50</sub> Inhalation: Not Listed

**Component:** Potassium chloride 7447-40-7:  
LD<sub>50</sub> Oral: Not Listed  
LD<sub>50</sub> Dermal: Not Listed  
LC<sub>50</sub> Inhalation: Not Listed

**Component:** Sodium chloride 7647-14-5:  
LD<sub>50</sub> Oral: 3000 mg/kg (Rat)  
LD<sub>50</sub> Dermal: Not Listed  
CL<sub>50</sub> Inhalation: 42 g/m<sup>3</sup> (1 hour – Rat)

### 11.3 Potential Health Effects:

**Eye Contact:** May cause serious eye irritation. May cause slight corneal injury. Effects may be slow to heal.

**Skin Contact:** Brief contact is essentially nonirritating to skin. Prolonged contact may cause skin irritation, even a burn. May cause more severe response if skin is damp, abraded (scratched or cut), or covered by clothing, gloves, or foot wear. Not classified as corrosive to the skin according to the DOT guidelines.

**Inhalation:** Vapors are unlikely due to physical properties. Mist may cause irritation to upper respiratory tract (nose and throat).

**Ingestion:** Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operation are not likely to cause injury; however, swallowing larger amounts may cause injury. Swallowing may result in gastrointestinal irritation or ulceration.

**Chronic Effects:** Chronic exposure to calcium chloride that cause irritation may cause a chronic dermatitis or mucosal membrane problem. For the minor component(s): POTASSIUM CHLORIDE: in animals, effects have been reported on the following organic after ingestion: Gastrointestinal tract, heart, and kidney. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use. SODIUM CHLORIDE: Medical experience with sodium chloride has shown a strong association between elevated blood pressure and prolonged dietary overuse. Related effects could occur in the kidneys.

**11.4 Signs and Symptoms of Exposure:** Solution and or solids may be visible on the skin and or eyes. Localized redness, warmth, and irritation consistent with mechanism of injury: abrasion, burn, hypertonic solution

**Inhalation (Breathing):** Inhaling mist, spray, or vapor may cause irritation to upper respiratory tract (nose and throat). Nasal mucosal and oropharyngeal erythema.

**Skin:** Skin irritation. Skin exposure may cause slight irritation, redness, itching, swelling. May cause more severe response if skin is damp, abraded (scratched or cut), or covered by clothing, gloves, or footwear. Prolonged contact may cause more severe symptoms. Damage is localized to contact areas.

**Eye:** Eye irritation. Eye exposure may cause serious eye irritation and pain. May cause conjunctival swelling and cornea opacification from hypertonic solution. Corneal eye pain, redness, acute corneal thickening or whitening.

**Ingestion (Swallowing):** Consumption of solids or hypertonic solutions cause nausea, vomiting, and increased thirst.

**11.5 Interaction with other Chemicals Which Enhance Toxicity:** None known

#### 11.6 GHS Health Hazards:

**GHS: HAZARD – EYE:** Category 2A – Causes serious eye irritation

**Skin Absorbent/Dermal Route?** No

**GHS: CARCINOGENICITY:** Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC, or OSHA.

**Mutagenic Data:** Not classified as a mutagen per GHS criteria. The data presented are for the following material: Calcium chloride – in vitro genetic toxicity studies were negative. Potassium chloride – in vitro genetic toxicity studies were positive. However the relevance to this is unknown. Sodium chloride – in vitro genetic toxicity studies were predominantly negative.

**Developmental Toxicity:** Not classified as a developmental or reproductive toxin per GHS criteria. For the major component(s): Did not cause birth defects or any other fetal effects in laboratory animals.

Unknown Acute Dermal Toxicity                      3% of this product consists of ingredient(s) of unknown acute dermal toxicity

## Section 12: Ecological Information

### 12.1 Ecotoxicity Data:

**Component:** Calcium chloride

Freshwater Fish: -LC<sub>50</sub>, bluegill (*Lepomis macrochirus*): 8,350 – 10,650 mg/l

Invertebrate Toxicity: -LC<sub>50</sub>, water flea *Daphnia magna*: 759 -3,005 mg/l

Algae Toxicity: No data available

Other Toxicity: No data available

**Component:** Potassium chloride

Freshwater Fish: -LC<sub>50</sub>, rainbow trout (*Oncorhynchus mykiss*), 96 h: 4,236 mg/l

Invertebrate Toxicity: -EC<sub>50</sub>, water flea *Daphnia magna*, 24 h, immobilization: 590 mg/l – LC<sub>50</sub>, water flea *Ceriodaphnia dubia*, 96 h: 3,470 mg/l

Algae Toxicity: No data available

Other Toxicity: No data available

**Component:** Sodium chloride

Freshwater Fish: -LC<sub>50</sub>, fathead minnow (*Pimephales promelas*): 10,610 mg/l

Invertebrate Toxicity: -LC<sub>50</sub>, water flea *Daphnia magna*: 4,571 mg/l

Algae Toxicity: -IC<sub>50</sub>, OECD 209 Test; activated sludge, respiration inhibition: > 1,000 mg/l

Other Toxicity: -IC<sub>50</sub>, OECD 209 Test; activated sludge, respiration inhibition: >1,000 mg/l

**Aquatic Toxicity:** Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

## 12.2 Fate and Transport:

**Biodegradation:** The material is inorganic and not subject to biodegradation.

**Persistence:** Calcium chloride is believed not to persist in the environment because it is readily dissociated into calcium and chloride ions in water. Calcium chloride released into the environment is thus likely to be distributed into water in the form of calcium and chloride ions. Calcium ions may remain in soil by binding to soil particulate or by forming stable salts with other ions. Chloride ions are mobile and eventually drain into surface water. Both ions originally exist in nature, and their concentrations in surface water will depend on various factors, such as geological parameters, weathering, and human activities.

**Bioconcentration:** No bioconcentration is expected because of the relatively high water solubility. Potential for mobility in soil is very high (Koc between 0 and 50). Partitioning from water to n-octanol is not acceptable.

**Bioaccumulative Potential:** Calcium chloride and its dissociated forms (calcium and chloride ions) are ubiquitous in the environment. Calcium and chloride ions can also be found as constituents in organisms. Considering its dissociation properties, Calcium chloride is not expected to accumulate in living organisms.

**Mobility in Soil:** Calcium chloride is not expected to be absorbed in soil due to its dissociation properties and high water solubility. It is expected to dissociate into calcium and chloride free ions or it may form stable inorganic or organic salts with other counter ions, leading to different fates between calcium and chloride ions in soil and water components. Calcium ions may bind to soil particulate or may form stable inorganic salts with sulfate and carbonate ions. The chloride ion is mobile in soil and eventually drains into surface water because it is readily dissolved in water.

## Section 13: Disposal Considerations

**13.1 Waste from Material:** Reuse or reprocess if possible. All disposal practices must be in compliance with Federal, State, Provincial and local laws and regulations. Regulations may vary in different locations. Report spills if applicable. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOU SUPPLIED, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THE MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS.

**13.2 Container Management:** Dispose of container in accordance with applicable local, regional, national and/or international regulations.

## Section 14: Transport Information

**14.1 US DOT 49 CFR 172.101:** Status: Not regulated. This product is not classified as corrosive to the skin according to DOT guidelines.

**14.2 Canadian Transportation of Dangerous Goods:** Status: Not regulated

**14.3 Maritime Transport (IMO/IMDG):** Not regulated Status – IMO/IMDG: Not Regulated

## Section 15: Regulatory Information

**Regulatory Information** (Not meant to be all-inclusive)

**15.1 OSHA Regulatory Status:** This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

**15.2 CERCLA Sections 102a.103 Hazardous Substances (40 CFR 302.4):** Not regulated

**15.3 SARA EHA Chemical (40 CFR 355.30):** Not regulated

**15.4 EPCRA Sections 311/312 Hazard Categories (40 CFR 370.10):** Acute Health Hazard

**15.5 EPCRA Section 313 (40 CFR 372.65):** TO the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**15.6 OSHA Process Safety (PSM) (29 CFR 1910.119):** Not regulated

**15.7 National Inventory Status:**

**TSCA 12 (b):** This product is not subject to export notification

**Canadian Chemical Inventory:** All components of this product are listed on either the DSL or the NDSL

Component: Calcium chloride 10043-52-4: DSL: Listed; NDSL: Not Listed

Component: Potassium chloride 7447-40-7: DSL: Listed; NDSL: Not Listed

Component: Sodium chloride 7647-14-5: DSL: Listed; NDSL: Not Listed

**15.8 State Regulations:**

**California Proposition 65:** This product is not listed, but it may contain impurities/trace elements known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act. **WARNING:** This product (when used in aqueous formulations with a chemical oxidizer such as ozone) may react to form calcium bromate, a chemical known to the State of California to cause cancer.

**Component:** Calcium chloride 10043-52-4:

**CA Proposition 65:** Cancer Warning: Not Listed; Male reproductive toxin: NA; Female reproductive toxin: NA;

**Massachusetts** Right to Know Hazardous Substance List: NA;

**New Jersey** Right to Know Hazardous Substance List: Not Listed; New Jersey Special Health Hazards Substance List: NA;

New Jersey Environmental Hazards Substance list: Not Listed;

**Pennsylvania** Right to Know Hazardous Substance List: Not Listed; Pennsylvania Right to Know Special Hazardous Substances: Not Listed; Pennsylvania Right to Know Environmental Hazard List: Not Listed:

**Rhode Island** Right to Know Hazardous Substance List: Not Listed

**Component:** Potassium chloride 7447-40-7:

**CA Proposition 65:** Cancer Warning: Not Listed; Male reproductive toxin: NA; Female reproductive toxin: NA;

**Massachusetts** Right to Know Hazardous Substance List: NA;

**New Jersey** Right to Know Hazardous Substance List: Not Listed; New Jersey Special Health Hazards Substance List: NA;

New Jersey Environmental Hazards Substance list: Not Listed;

**Pennsylvania** Right to Know Hazardous Substance List: Not Listed; Pennsylvania Right to Know Special Hazardous Substances: Not Listed; Pennsylvania Right to Know Environmental Hazard List: Not Listed:

**Rhode Island** Right to Know Hazardous Substance List: Not Listed

**Component:** Sodium chloride 7647-14-5:

**CA Proposition 65:** Cancer Warning: Not Listed; Male reproductive toxin: NA; Female reproductive toxin: NA;

**Massachusetts** Right to Know Hazardous Substance List: NA;

**New Jersey** Right to Know Hazardous Substance List: Not Listed; New Jersey Special Health Hazards Substance List: NA;

New Jersey Environmental Hazards Substance list: Not Listed;

**Pennsylvania** Right to Know Hazardous Substance List: Not Listed; Pennsylvania Right to Know Special Hazardous Substances: Not Listed; Pennsylvania Right to Know Environmental Hazard List: Not Listed:

**Rhode Island** Right to Know Hazardous Substance List: Not Listed

**15.9 Canadian Regulations:**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

**Component:** Calcium chloride 10043-52-4:

Canadian Chemical Inventory: Listed; NDSL: NA; WHMIS – Classifications of Substances: D2B

**Component:** Potassium chloride 7447-40-7:

Canadian Chemical Inventory: Listed; NDSL: NA; WHMIS – Classifications of Substances: Uncontrolled product according to the EHMIS classification criteria

**Component:** Sodium chloride 7647-14-5:



Canadian Chemical Inventory: Listed; NDSL: NA; WHMIS – Classifications of Substances: Uncontrolled product according to the EHMIS classification criteria

## Section 16: Other Information

**16.1 HMIS Rating (0-4):** Health=1 Fire=0 Reactivity=0 Special=0

### Prepared by: SoilBiotics

The information and recommendations contained herein are offered as a service to our customers but are not intended to relieve the user from its responsibility to investigate and understand pertinent sources of information and to comply with all laws and procedures applicable to the safe handling and use of these materials. The information and recommendations provided herein were believed by SoilBiotics to be accurate at the time of preparation or obtained from sources believed to be generally reliable. However, SoilBiotics makes no warranty concerning their accuracy and SoilBiotics will not be liable for claims relating to any party's use of reliance on information or recommendations contained herein, regardless of whether it is claimed that the information or recommendations are inaccurate, incomplete or otherwise misleading.