

1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY UNDERTAKING

1.1 Product identifier

Product name Liq Solu-Cal # 31010

1.2 Relevant use of the product

Applications Liquid Fertilizer

1.3 Manufacturer, Importer or Responsible Party

Name GROWMARK FS, LLC
 Address 308 NE Front Street
 Milford, DE 19963 USA

Telephone 774-678-0288

Contact email orders@solu-cal.com

1.4 Emergency phone number

Telephone USA National Capital Poison Center: 1 800 222 1222

2. HAZARDS IDENTIFICATION

2.1. The hazard classification of the chemical according to HCS 2012 (US-GHS)

Acute Tox. 4	H302
Skin Irrit. 2	H315
Eye Irrit. 2A	H319
STOT SE 3	H335

2.2. Danger symbols



2.3. Signal word

Warning

2.4. Hazard and environmental statements

H302 Harmful if swallowed.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.

2.5. Precautionary statements

Prevention

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P260 Do not breathe dust.
 P264 Wash hands thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.

Response	<p>P271 Use only outdoors or in a well-ventilated area.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.</p> <p>P330 Rinse mouth.</p> <p>P302+P352 IF ON SKIN: Wash with plenty of water.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P314 Get medical advice/attention if you feel unwell.</p>
Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container according to local regulations.

- 2.6. Description of any hazards not otherwise classified** Not applicable.
- 2.7. % ingredient(s) with unknown acute toxicity** Not applicable.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-Nr.	Concentration %
Water	7732-18-5	C = 51.9%
Calcium Nitrate 15.5-0-0	Calcium Nitrate 10124-37-5 (76%)	C = 42.1%
	Ammonium Nitrate 6484-52-2 (7.4%)	
Carboxylic acids	Gluconic acid 526-95-4	C = 6.0%
	4-Hydroxybenzoic acid 99-96-7	

4. FIRST AID MEASURES

4.1 First Aid measures after Inhalation

Following inhalation Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Get medical attention if irritation develops and persists.

4.2 First Aid measures after Skin exposure

Following skin contact Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Get medical attention if irritation develops and persists.

4.3 First Aid measures after Eye exposure

Following eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if irritation develops and persists.

4.4 First Aid measures after Ingestion

Following ingestion Induce vomiting, but only if victim is fully conscious. Never give anything by mouth to an unconscious person. Drink 1 or 2 glasses of water. Do not give milk or alcoholic beverages. Call a physician.

4.5 Most important symptoms and effects, both acute and delayed

INHALATION	May cause respiratory irritation.
SKIN	Causes skin irritation.
EYES	Causes serious eye irritation.
INGESTION	Harmful if swallowed.

4.6 Indication of any immediate medical attention and special treatment needed

Notes to physician: Treat symptomatically.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable:

Use extinguishing agent suitable for type of surrounding fire. Avoid excessive water to minimize runoff. Prevent firefighter water from entering the environment.

Small fires: Water spray, foam, dry chemical or CO2

Large fires: Water spray, fog or foam.

Unsuitable: Not applicable.

5.2 Special hazards arising from chemical or mixture during the fire

Container may rupture on heating. Cool closed containers exposed to fire with water spray. Do not allow run-off from firefighting to enter drains or water courses. Explosive reactions with oxidizing agents such as potassium chlorate and/or peroxides. In case of fire hazardous decomposition products may be produced such as:

- Ammonia
- Carbon monoxide
- Carbon dioxide (CO2)

5.3 Special Protective Precautions or equipment for firefighters

In the event of fire and/or explosion do not breathe fumes. In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment

Wear personal protective equipment.

6.2 Emergency procedures

Unprotected persons must be kept away.

Evacuate personnel to safe areas.

Provide adequate ventilation.

Avoid dust formation.

Avoid breathing dust.

Avoid contact with skin, eyes and clothing.

6.3 Methods and materials used for containment

Do not flush into surface water or sanitary sewer system.

Prevent further leakage or spillage if safe to do so.

Do not let product enter drains.

6.4 Clean-up procedures

Use mechanical handling equipment.

Clean contaminated surface thoroughly.

Pick up and arrange disposal without creating dust.
 Use a suitable vacuum cleaner.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Handle with care.
 Wear personal protective equipment.
 Use only in well-ventilated areas.
 Avoid dust formation.
 Provide exhaust ventilation if dust is formed.
 Dust must be extracted directly at the point of origin.
 Avoid breathing dust.
 Avoid contact with skin, eyes and clothing.

7.2 Conditions for safe storage

Keep containers tightly closed in a dry, cool and well-ventilated place.
 Containers should be protected against falling down.
 Containers which are opened must be carefully resealed and kept upright to prevent leakage.
 Store away from incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ACGIH-Threshold Limit Value (TLV)

Exposure limit values of the components: Ingredients of this product are not listed as carcinogens by ACGIH.

8.2 OSHA-Permissible Exposure Limit (PEL)

Exposure limit values of the components:

Component / CAS	8H (OSHA, PEL)
	mg/m ³
Calcium Nitrate	None listed
Carboxylic acids	

8.3 Any other exposure limit used or recommended by chemical manufacturer

Non applicable

8.4 Engineering Controls

Provide exhaust ventilation if dust is formed. Dust must be extracted directly at the point of origin. Apply technical measures to comply with the occupational exposure limits.

8.5 Personal Protective Equipment

Hand protection: Gloves

Gloves must be inspected prior to use. Replace when worn.

Eye protection: Do not wear contact lenses.

Wear as appropriate: Safety glasses with side-shields

Body protection: Long sleeved clothing

Respiratory protection: A NIOSH approved air purifying respirator with a type 95 (R or P) particulate filter may be used under conditions where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is potential for uncontrolled release, exposure levels are not known or any other circumstances where air purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed if workplace conditions warrant a respirator use.

Hygiene measures: Wash hands before breaks and at the end of workday. Remove and wash contaminated clothing before re-use. Keep working clothes separately.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information of basic physical and chemical properties

Appearance (physical state, colour, etc.)	White liquid
Odour	Odourless
Odour threshold	Not applicable
pH	Neutral
Melting point/freezing point;	No data available
Boiling point	Not applicable
Boiling Range	Not applicable
Flash point	No data available
Evaporation rate	Not applicable
Flammability	Not flammable
Upper/lower flammability or explosive limits	No data available
Oxidising properties	No data available
Vapour pressure	Not applicable
Vapour density	No data available
Density	1.31
Solubility in water	Very soluble
Other Solvents	No data available
Partition coefficient (n-octanol/water)	No data available

Auto ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	Not applicable

10. STABILITY AND REACTIVITY

10.1 Reactivity	Under Normal Conditions: Stable Under Fire Conditions: Stable, non-flammable.
10.2 Chemical stability	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	Hazardous polymerization does not occur.
10.4 Conditions to avoid	Extreme temperatures
10.5 Incompatible materials	Hypochlorites, strong alkalis, strong oxidizers.
10.6 Hazardous decomposition products	If heated to the point of decomposition, Carbon dioxide (CO ₂), Carbon monoxide, oxides of nitrogen and ammonia (NH ₃) may be released.

11. TOXICOLOGICAL INFORMATION

11.1 Measures of Toxicity	
Acute toxicity:	Ingredients: Calcium Nitrate: Acute toxicity: LD50 Oral (Rat): 9285 mg/kg (Exposure time: 24h) Ammonium Nitrate: Acute toxicity: LD50 Oral (Rat): 2217 mg/kg (Exposure time: 24h)
Skin corrosion/irritation:	No data available
Serious eye damage/irritation:	No data available
Respiratory or skin sensitisation:	Product: no data available
11.2 Listed in IARC or considered carcinogen by NTP or OSHA	None
11.3 Further information	n/a

12. ECOLOGICAL INFORMATION

12.1 Toxicity	Ingredients: Ammonium Nitrate: <u>Toxicity to fish</u> : Acute toxicity: Species: Rainbow trout, LC ₅₀ = 420 mg/L (Exposure time: 96 h)
----------------------	---

Toxicity to daphnia and other aquatic invertebrates:

Daphnia: EC₅₀: 555 mg/l (Exposure time: 48 h)

Algae: EC₅₀: 83 mg/l (Exposure time: 48 h)

12.2 Persistence and degradability No data available

12.3 Bioaccumulative potential No data available

12.4 Mobility in soil No data available

12.5 Other adverse effects No data available

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods to employ Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

13.2 Description of appropriate disposal containers to use No data available

13.3 Description of the physical and chemical properties that may affect disposal activities No data available

13.4 Language discouraging sewage disposal. No data available

13.5 Any special precautions for landfills or incineration activities No data available

14. TRANSPORT INFORMATION

UN Number

UN proper shipping name

Transport hazard classes

Packing group

Environmental hazards

Guidance On transport

in bulk

Special precautions for

user

15. REGULATORY INFORMATION

National and/or regional regulatory information of the chemical or mixtures

Inventories:

US. Toxic Substances Control Act: No data available

OSHA Hazards: Carcinogen

Clean Air Act: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B). This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

16. OTHER INFORMATION

Indications on the revision

First edition: 08/10/2015

Addition of all fields as required by regulation (US) HCS 1910.1200 [HCS 2012].

Update of the classification information and update of related sections accordingly.

Abbreviations and acronyms used

ACGIH: American conference of governmental and industrial hygienist

CAS N°.: Chemical Abstract Service Number

CFR: Code of Federal Regulations

EC50: Half maximal effective concentration

IARC: International agency for the research on cancer

IC50: Half maximal inhibitory concentration

HCS: Hazard communication standard

LC50: Half maximal lethal concentration

LD50: Half maximal lethal dose

NIOSH: National institute of occupational safety and health

OSHA: Occupational safety and health administration

STOT SE: Specific target organ toxicity single exposure

UN N°.: United Nations Number

Methods of evaluation for the classification of mixtures

The classification of the mixture was set based on the regulation (US) HCS 1910.1200 [HCS 2012].

Other information

This information is based on our present knowledge and is provided according to the relevant national regulations. This information is intended as a characterization of the product in order to provide guidance for the relevant safety issues. However, this document does not provide any warranty, expressed or implied, regarding the properties of the product.