

1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY UNDERTAKING

1.1 Product identifier

Product name 0-0-22 Micro K-Cal # 23030

1.2 Relevant use of the product

Applications Fertilizers

1.3 Manufacturer, Importer or Responsible Party

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

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)

Skin Irrit. 1A	H314
Eye Irrit. 1	H318
STOT SE 3	H335
Carc. 1A	H350
STOT RE 1	H372

2.2. Danger symbols



2.3. Signal word

Warning

2.4. Hazard statements

H314 Causes severe skin burns and eye damage
H318 Causes serious eye damage
H335 May cause respiratory irritation
H350 May cause cancer.
H372 May cause damage to organs (Lungs) through prolonged or repeated exposure if inhaled.

2.5. Precautionary statements

Prevention P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.

Response	P260 Do not breathe dust. P264 Wash hands thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye protection/face protection. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water. P362+P364 Take off contaminated clothing and wash it before reuse. P314 Get medical advice/attention if you feel unwell.
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 %
Potassium sulfate (99 – 100 %)		7778-80-5	C = 41.5 %
Calcitic lime	Calcium carbonate (99%)	1317-65-3	C = 28.4 %
	Quartz (<1%)	14808-60-7	
	Humic acid (< 1%)	n/a	
Dolomitic lime	Natural calcium carbonate magnesium (90 % - 95 %)	1317-65-3	C = 23.1 %
	Lignosulfonate (5 % - 10 %)		
	Humic acid (< 1%)	n/a	
Magnesium sucrate	Magnesium oxide (80 - < 90 %)	1309-48-4	C = 7.0%
	Calcium hydroxide (1 - < 3 %)	1305-62-0	

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 by a qualified operator. 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 SKIN EYES INGESTION	May cause respiratory irritation. Causes severe skin burns. Causes serious eye irritation. May be harmful if swallowed.
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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.

6.3 Methods and materials used for containment

Avoid contact with skin, eyes and clothing.
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:

Calcium carbonate: ACGIH TLV® = 10 mg/m³

Respirable quartz dust: ACGIH TLV® = 0,025 mg/m³

8.2 OSHA-Permissible Exposure Limit (PEL)

Exposure limit values of the components:

Component / CAS	8H (OSHA, PEL)
	mg/m ³
Quartz (SiO ₂) CAS N°: 14808-60-7	Total dust: 30 mg/m ³ / %SiO ₂ +2 (OSHA Z-3) Respirable: 10 mg/m ³ / %SiO ₂ +2 (OSHA Z-3) Respirable: 250 mppcf / %SiO ₂ +5 (OSHA Z-3)
Limestone CAS N°: 1317-65-3	Total dust: 15 mg/m ³ (OSHA Z-1) Respirable: 5 mg/m ³ (OSHA Z-1) Total dust: 15 mg/m ³ (OSHA P0) Respirable: 5 mg/m ³ (OSHA P0)
Particulates Not Otherwise Regulated (PNOR) :	Total dust: 15 mg/m ³ (OSHA Z-1) Respirable: 5 mg/m ³ (OSHA Z-1)

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.)	Multicolor granular
Odour	Odourless
Odour threshold	Not applicable
pH	No data available
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

Vapor pressure	Not applicable
Vapor density	No data available
Density	80 lb/ft ³
Solubility in water	Partially 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	Contains Limestone which reacts with acids. It forms carbon dioxide (CO ₂). This displaces the oxygen in the air in closed spaces. (danger of suffocation)
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	Contact with incompatible materials
10.5 Incompatible materials	Strong oxidizing agents, fluorine, phosphorous, boron trifluoride, chlorine trifluoride.
10.6 Hazardous decomposition products	Limestone ignites on contact with fluorine and is incompatible with acids, ammonium salts and magnesium.

11. TOXICOLOGICAL INFORMATION

11.1 Measures of Toxicity	
Acute toxicity:	Limestone: Acute toxicity: LD50 Oral (Rat): > 5,000 mg/kg Silica: Acute toxicity: LD50 (Rat): 5,000 mg/kg (Mouse): >15000 mg/Kg Potassium sulfate: Acute toxicity: LD50 (Rat): 6,600 mg/kg
Skin corrosion/irritation:	Causes severe skin burns and eye damage

Serious eye damage/irritation: Causes serious eye damage

Respiratory or skin sensitisation: Not a respiratory sensitizer

11.2 Listed in IARC or considered carcinogen by NTP or OSHA Quartz (SiO₂)
CAS N°: 14808-60-7
Group 1 (IARC), Volume 68, 100C

11.3 Further information This product contains prismatic tremolite (e.g., cleavage fragments) as an impurity. Sufficient exposure to respirable prismatic tremolite dust may cause serious lung problems.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Ingredients:

Silica (quartz):

Toxicity to fish :
LC50: > 10,000 mg/l
Exposure time: 96 h
Species: *Oncorhynchus mykiss* (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates:
EC50: >1000mg/l (Exposure time:48 h)
Species: *Daphnia magna* (Water flea)
EC50: 200 mg/l (Exposure time:72h)
Species: *Desmodesmus subspicatus* (green algae)

Limestone:

Toxicity to fish
LC₅₀: >10,000 mg/L (Exposure time: 96 Hours)
Species: Algae
Toxicity to daphnia and other aquatic invertebrates:
EC50: >1000mg/l (Exposure time:48 h)
Species: *Daphnia magna* (Water flea)

Potassium sulfate:

Toxicity to fish
Lepomis macrochirus: 653 mg/L; 96 h LC₅₀ *Lepomis macrochirus*: 3550 mg/L; 96 h LC₅₀ *Pimephales promelas*: 510-880 mg/L
Toxicity to daphnia and other aquatic invertebrates:
EC50: 890mg/l (Exposure time:48 h)
Species: *Daphnia magna* (Water flea)

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

May release ammonium ions that are toxic to fish. Un-ionized ammonia concentrations above 0.02 mg/l are considered toxic in fresh water. May release phosphates which will result in algae growth, increased turbidity, and depleted oxygen. At extremely high concentrations, this may be hazardous to fish or other marine organisms. Release to watercourses may cause effects downstream. Fish 96 hour LC50, OECD Guidelines 203 (rainbow trout): >86mg/L.

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods to employ

Recover or recycle if possible. Properly characterize all waste materials. Consult federal, state/provincial and local regulations regarding the proper disposal of this material. Prevent material from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways. Empty containers should be taken to an approved waste handling site for recycling or disposal.

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

IC50: Half maximal inhibitory concentration

HCS: Hazard communication standard

LC50: Half maximal lethal concentration

LD50: Half maximal lethal dose

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.