MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product identifier **CALCIUM NITRATE LIQUID 9-0-0-11 Ca**

Product Use Fertilizer, horticultural chemical

Chemical Family Inorganic fertilizer

Manufacturer part no. MGS-008

Supplier's name and address:
Plant Products Inc.
50 Hazelton Street
Leamington, ON, Canada
N8H 1B8

Manufacturer's name and address:
Plant Products Inc.
50 Hazelton Street
Leamington, ON, Canada
N8H 1B8

24 Hr. Emergency Tel # (613) 996-6666 (CANUTEC)

WHMIS Classification: C, D2B

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS #	Wt.%	LC_{50}(4hr) (Rat, ihl.)	(Oral, rat)	LD_{50} (Rabbit, dermal)
Calcium nitrate, tetrahydrate	13477-34-4	60 - 100	N/Av	3900 mg/kg	N/Av

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Clear liquid. Odourless. DANGER! May be harmful if swallowed.
May cause eye, skin and respiratory tract irritation. When dry, the residue is an oxidizer.

POTENTIAL HEALTH EFFECTS

Target organs Eyes, skin, kidney, gastrointestinal tract.

Routes of exposure *Inhalation:* YES *Skin Absorption:* YES *Skin & Eyes:* YES *Ingestion:* YES

Signs and symptoms of short-term (acute) exposure

Inhalation Slightly irritating. May cause coughing and breathing difficulties. Effects may be delayed. Irritating or noxious gases may be released during thermal decomposition.

Skin Slightly irritating. Stinging, redness and possible dermatitis (rash).

Eyes May cause mild eye irritation. Contact may cause redness, swelling and a painful sensation.

Ingestion Harmful if swallowed. Gastrointestinal discomfort, nausea, vomiting, and headache. Risk of nitrate toxicity.

Potential chronic health effects

Prolonged inhalation may cause susceptibility to respiratory illness from continued irritation.

Other important hazards OXIDIZER! CONTACT WITH COMBUSTIBLE MATERIALS MAY CAUSE FIRE!

SECTION 4 - FIRST AID MEASURES

Inhalation If INHALED excessively remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Get medical attention immediately.

Skin contact In case of contact with skin, wash with mild soap and plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing before re-use. Get medical attention immediately.

Eye contact Flush eyes with water for at least 15 minutes while holding eyelids open. Remove contact lenses if present and easy to do. Get medical attention immediately.

Ingestion Rinse mouth with water. Do not induce vomiting, unless directed to do so by qualified medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

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Do not take action that involves any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth-resuscitation. In case of inhalation or decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

SECTION 5 - FIRE FIGHTING MEASURES

Fire hazards/conditions of flammability

Not flammable. However, product has oxidizing properties. Contact with combustible material may cause fire. Will support combustion in the absence of oxygen.

Flash point	Not applicable.		
Flash point Method	Not applicable.	**Auto-ignition temperature**	Not applicable.
Lower flammable limit (% by vol.)		**Upper flammable limit (% by vol.)**	
	Not applicable.		Not applicable.
Oxidizing properties	Strong oxidizer which will promote combustion.		
Flame Projection Length	Not applicable.	**Flashback observed**	Not applicable.

Explosion data: Sensitivity to mechanical impact / static discharge

Not sensitive to static discharge or mechanical impact under normal conditions of use and handling.

Suitable extinguishing media Use media appropriate for surrounding material. Normally, fires can be put out using strong water spray (flooding). Foams, carbon dioxide and dry chemicals may be ineffective, due to the strong oxidizing properties of the material.

Special fire-fighting procedures/equipment

Firefighters should wear an approved full-face, self-contained breathing apparatus (SCBA) and impervious clothing. Use water spray to keep containers cool. Move containers from fire area if safe to do so.

Hazardous combustion products

May produce the following hazardous combustion or decomposition products when ignited or exposed to extreme heat: Oxides of nitrogen, metal oxides. In addition, burning organics may release carbon dioxide and carbon monoxide gas.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions Wear suitable protective clothing (see Section 8). Evacuate personnel to safe areas. Eliminate all ignition sources if safe to do so. Do not smoke. Do not walk through spilled material.

Environmental precautions Keep material, as well as water from fire-fighting efforts, from entering streams, drains and other water systems. Contact appropriate local and provincial environmental authorities for assistance and/or reporting requirements.

Spill response/cleanup Eliminate all ignition sources. Remove combustible materials. Scoop up spilled material with non-sparking tools into a suitable container (glass, metal or high-density polyethylene) for storage for disposal. Flush area with water to remove residue - dispose of water appropriately, following environmental regulations. Do not use combustible materials, such as sawdust, as absorbent material. The used containers should be properly closed and labelled. Recycle or dispose of in accordance with environmental regulations. Do not reuse container.

Prohibited materials Do not use any combustible collection materials, such as sawdust, paper, cardboard or cotton.

SECTION 7 - HANDLING AND STORAGE

Safe Handling procedures Avoid contact with eyes, skin and clothing. Keep away from combustibles and other incompatibles. Keep away from heat and sources of ignition. Avoid dust formation. Do not breathe dust. Wash hands thoroughly after using this product, and before eating, drinking or smoking. Use with adequate ventilation. Smoking, eating and drinking should be prohibited in the application area.

Storage requirements Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep away from food and drink. Do not smoke while using this product. Do not store with or near organic materials, strong acids, or reducing agents. Do not store near combustible materials. Keep container tightly closed when not in use. Keep away from direct sunlight. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers.

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Incompatible materials Reducing agents; Organic materials; Acids and bases.

Special packaging materials Containers should be made of metal, glass or high-density polyethylene (HDPE). Combustible materials such as wood or paper should not be in direct contact with the product.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits

Ingredients	ACGIH TLV TWA	ACGIH TLV STEL	OSHA PEL PEL	OSHA PEL STEL
Calcium nitrate, tetrahydrate	N/Av	N/Av	N/Av	N/Av

Ventilation and engineering measures

Avoid dust formation. If dusts are unavoidable, use local ventilation (explosion proof) to remove dust from work area. Vacuum up loose material with explosion-proof vacuum, or wet-vacuum. Dispose of vacuumed material carefully, since any organic contaminants may cause combustion.

Respiratory protection If used in open areas, natural ventilation may be sufficient. Otherwise, wear a NIOSH/MSHA approved high efficiency particulate respirator to remove dust.

Skin protection Wear impervious gloves, such as neoprene or nitrile rubber.

Eye / face protection Chemical safety glasses with side shields or splash proof goggles.

Other protective equipment Safety shoes, non-flammable work clothing.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state Crystalline solid.

Appearance White solid.

Odour Odourless.

Odour threshold Not applicable.

pH Not known.

Boiling point Solid - extremely high boiling point. Decomposition temperature: 132 °C (269.6 °F),

Specific gravity N/Av

Melting/Freezing point 42.74 °C (108.9 °F)

Coefficient of water/oil distribution Not available.

Vapour pressure (mmHg @ 20° C / 68° F) Not applicable.

Solubility in water Soluble in cold water and acetone.

Vapour density (Air = 1) Not applicable.

Evaporation rate (n-Butyl acetate = 1) Not applicable.

Volatile organic Compounds (VOCs) 0 (approximately)

Volatiles (% by weight) 0 (approximately)

Absolute pressure of container Not applicable.

Viscosity Not applicable.

SECTION 10 - REACTIVITY AND STABILITY DATA

Stability and reactivity Stable under normal conditions. May decompose at temperatures above 132 °C. Reacts dangerously with organic materials, or when mixed with other chemicals. May explode if contaminated with other materials.

Conditions to avoid Extremely high temperatures. Contamination with dust or organic materials.

Materials To Avoid And Incompatibility

Organic materials, reducing agents such as powdered metals.

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Hazardous decomposition products

In the event of fire the following can be released: Ammonia, metallic oxides, carbon monoxide, carbon dioxide, oxides of nitrogen.

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicological data	See Section 2 for toxicity levels.
Carcinogenic status	No component of this product present at levels greater than or equal to 0.1% as a carcinogen or potential carcinogen by IARC or ACGIH.
Reproductive effects	No known effect.
Teratogenicity	No known effect.
Mutagenicity	No known effect.
Sensitization to material	Not expected to be a sensitizer. However, sensitive people may have reactions to any chemical.
Synergistic materials	None known.

Medical conditions aggravated by overexposure

Skin conditions such as dermatitis, respiratory problems.

Additional Health Hazards None known.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental effects Not acutely toxic.

Important environmental characteristics

Product is a fertilizer. May cause excessive plant growth (eutrophication) if released improperly.

Ecotoxicological Aquatic toxicity : :LC50 (fish) 10,000 mg/L; EC50 (daphnia) 2355 mg/L.

SECTION 13 - DISPOSAL CONSIDERATIONS

Handling for Disposal	Handle waste according to recommendations in Section 7.
Methods of Disposal	Dispose of in accordance with federal, provincial and local hazardous waste laws. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply. Avoid generation of wastes where possible. Empty containers or liners may contain product residues,

SECTION 14 - TRANSPORTATION INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
TDG	UN3139	OXIDIZING LIQUID, N.O.S. (Calcium nitrate)	5.1	III	

SECTION 15 - REGULATORY INFORMATION

WHMIS information:
Class C (Oxidizing Material)
Class D2B (Materials Causing Other Toxic Effects, Toxic Material)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and this MSDS contains all the information required by the CPR.
Canadian Environmental Protection Act (CEPA): All ingredients listed appear on the Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).
TSCA: All listed ingredients appear on the Toxic Substances Control Act (TSCA) inventory.

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SECTION 16 - OTHER INFORMATION

Legend

N/Ap: not applicable
OSHA: Occupational Safety and Health Administration
TLV: Threshold Limit Values
DSL: Domestic Substances List
ACGIH: American Conference of Governmental Industrial Hygienists
NIOSH: National Institute of Occupational Safety and Health
IARC: International Agency for Research on Cancer
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
CEPA: Canadian Environmental Protection Act
N/Av: not available
Inh: Inhalation
TSCA: Toxic Substance Control Act
NDSL = Non-Domestic Substances List

References

Canadian Centre for Occupational Health and Safety databases. Material Safety Data Sheets from ingredient manufacturers.

Prepared for:
Plant Products Inc., 519-326-9037

Prepared by:
ICC The Compliance Center Inc.
http://www.thecompliancecenter.com

MSDS Preparation Date (dd/mm/yyyy)

08/12/2014

DISCLAIMER OF LIABILITY

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