

MATERIAL SAFETY DATA SHEET

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFIER		Oxy Cal		WHMIS CLASSIFICATION		C: Oxidizer, E (corrosive)	
PRODUCT USE		Soil Oxygenator					
Manufacturers Name		Greenstar Plant Products Inc.		Suppliers Name			
Street Address		9430 198th Street		Street Address			
City	Langley	Province	BC	City		Province	
Postal Code	V1M 3C8	Emergency Telephone	604-882-7699	Postal Code		Emergency Telephone	
Date MSDS Prepared	May 14, 2010	Prepared By	Greenstar Plant Products Inc.			Phone Number	

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients (<i>Specific</i>)	%	CAS	LD ₅₀ of Ingredient	LC ₅₀ of Ingredient
Calcium Peroxide	75%	001305-79-9	LD ₅₀ (Oral, rat) > 5,000 mg/Kg LD ₅₀ (Dermal, rat) > 10,000 mg/Kg	LC ₅₀ (inhalation, rat) 23066 ppm 4 hrs
Calcium Hydroxide	25%	001305-62-0	LD ₅₀ (Oral, rat) 7,340 mg/Kg	

SECTION 3 – HAZARDS IDENTIFICATION

Route of Entry	√ Skin contact	√ Eye Contact	√ Inhalation	√ Ingestion
Emergency Overview: STRONG OXIDIZER – CONTACT WITH COMBUSTIBLES MAY CAUSE FIRE. SEVERELY IRRITATING TO THE EYES CAUSING BURNS AND POSSIBLE BLINDNESS. IRRITATING TO SKIN AND RESPIRATORY TRACT				
WHMIS Symbols: NAV				
EFFECTS OF ACUTE EXPOSURE TO PRODUCT:				
Eye Contact: Causes severe eye irritation, burns and possible permanent corneal damage which may result in blindness. Damage may occur without the sensation or onset of pain.				
Skin Contact: This product may cause irritation and burns due to its corrosive nature. Prolonged, confined (especially under the finger nails, under rings or watch bands) or repeated exposure may cause skin irritation and possibly lead to chemical burns. Damage may occur without the sensation or onset of pain. Skin absorption: Not likely to be absorbed through the skin.				
Inhalation: Product is likely to cause severe irritation of the nose, throat and respiratory tract. Excessive contact with powder may cause drying of mucous membranes of nose and throat due to absorption of moisture and oils. Severe exposure may cause lung damage. Damage may occur without the sensation or onset of pain				
Ingestion: This product causes severe burning and pain in the mouth, throat and abdomen. Vomiting, diarrhea, and perforation of the esophagus and stomach lining may occur. Damage may occur without the sensation or onset of pain.				
EFFECTS OF CHRONIC EXPOSURE:				
Effects (irritancy) on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Strict adherence to first aid measures following any exposure is essential.				
May cause coughing and sneezing, nosebleeds, sore throat and pneumoconiosis. Pneumoconiosis is the deposition of dust in the lungs and the tissue's reaction to its presence. When exposure to the dust is severe or prolonged, the lungs' defenses are overwhelmed.				

SECTION 4 – FIRST AID MEASURES

Skin Contact: Flush the skin with running water for at least 30 minutes. If irritation, redness or burning sensation develops and persists, seek medical advice. Damage may occur without the sensation or onset of pain

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Inhalation: Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical attention IMMEDIATELY.

Ingestion: Do not attempt to give anything by mouth to an unconscious person. If victim is alert and not convulsing, rinse mouth out and give ½-1 glass of water to dilute material. IMMEDIATELY contact local Poison Control Centre. DO NOT INDUCE VOMITING. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY transport victim to an emergency facility.

Note to Physicians:

Treat symptomatically. Due to the severely irritating or corrosive nature of the material, swallowing may lead to ulceration and inflammation of the upper alimentary tract with hemorrhage and fluid loss. Also, perforation of the esophagus or stomach may occur, leading to mediastinitis or peritonitis and the resultant complications.

Medical conditions that may be aggravated by exposure to this product include diseases of the skin, eyes or respiratory tract.

SECTION 5 – FIRE FIGHTING MEASURES

Flammable Non-flammable but product is a strong oxidizer and may cause fire on contact with combustible material. Will accelerate burning when involved in a fire

Means of Extinction: Use flooding quantities of water. Use water spray to keep exposed containers cool. Do not use dry chemicals or foams.

Flashpoint (°C) and method	NAV	Upper Flammable Limit (% by volume)	Non combustible	Lower Flammable Limit (% by volume)	Non combustible
Auto ignition Temperature (°C)	NAV	Explosion Data – Sensitivity to Impact	Oxidizable material can be ignited by grinding and may become explosive	Explosion Data-Sensitivity to Static Discharge	NAV

Hazardous Combustion Products: Oxygen is released as a result of exposure to above moderate heating, greater than 160° C. Thermal decomposition products are toxic and may include oxides of silicon, calcium and carbon.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Leak and Spill Procedures:

Containment and Clean-up procedures: Minimize airborne spread of dust. Wear respirator, protective clothing and gloves. Vacuuming or wet sweeping is preferred. Avoid dry sweeping. Do not use compressed air to clean surfaces. Eliminate all source of ignition. Collect product for recovery or disposal Do not allow to enter sewers or watercourses.

If released to land, or storm water runoff, contain discharge by constructing dykes or applying inert absorbent; if released to water, utilize damming and/or water diversion to minimize the spread of contamination. Ventilate enclosed spaces. Notify applicable government authority if release is reportable or could adversely affect the environment.

SECTION 7 – HANDLING AND STORAGE

Handling Procedures and Equipment: Use normal “good” industrial hygiene and housekeeping practices. Minimize air borne spreading of dust. Closed containers exposed to heat may explode. Spilled material may cause floors and contact surfaces to become slippery. Enforce NO SMOKING rules in area of use. Strong oxidizers can cause ignition of combustible or oxidizable materials. May decompose violently on contact with metals, or their salts, dusts or other contaminants. Damp material may decompose exothermically and may cause combustion of organic material. Oxygen release due to exothermic decomposition may support combustion.

Storage Requirements: Keep material dry. Store in a clean cool place away from sources of heat such as direct sunlight, steam pipes, radiant heaters, hot air vents or welding sparks. Avoid contact with reducing agents. Reacts with moisture. Keep container tightly closed when not in use. Protect against physical damage. Keep away from incompatible materials.

Equipment for storage, handling or transportation should NOT be made of brass. Confirm suitability of any material before using.

SECTION 8 – EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limits: Calcium Peroxide SAEL: TWA = 3mg/

ACGIH TLV: 5 mg/m³, Calcium hydroxide

OSHA PEL: (Total dust) Calcium Hydroxide 5mg/M³, Calcium Carbonate 15mg/ M³ (no data on Calcium peroxide)

NIOSH REL: (Total dust) Calcium Hydroxide 5mg/M³, Calcium Carbonate 10mg/ M³ (no data on calcium peroxide)

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Engineering Controls:

Local exhaust ventilation required. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low lying areas such as sumps or pits where dense dust may collect.

Personal Protective Equipment

Eye Protection:

Use chemical safety goggles when there is potential for eye contact. Contact lenses should not be worn when working with this material.

Skin Protection:

Gloves and protective clothing made from neoprene or nitrile rubber should be impervious under conditions of use. Prior to use, user should confirm impermeability. Discard contaminated gloves.

Respiratory Protection:

A NIOSH / MSHA approved air-purifying respirator equipped with dust, mist, fume cartridges for concentrations up to 50mg/ M³ or 100mg/ M³ particulate. An air-supplied respirator if concentrations are higher or unknown.

Clothing:

Wear long sleeved shirt, pants and an impermeable apron. Locate safety shower and eyewash station close to chemical handling area.

Footwear:

Wear impermeable boots

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid	Odour and Appearance: Yellow Powder. Odourless	Odour Threshold (ppm): N/A
Specific Gravity: N/A	Vapour Density (air = 1): N/A	Vapour Pressure (mmHg): N/A
Evaporation Rate: N/A	Boiling Point (°C): N/A, decomposes at 275°C	Freezing Point (°C): N/A
pH: 11-13 (Saturated solution)	Coefficient of Water/Oil Distribution: NAV	Solubility in Water: Insoluble in water

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability: Stable unless exposed to heat and moisture.	Avoid temperatures greater than 160°C, sparks, open flames and all other sources of ignition. Minimize airborne spreading of dust.
Incompatibility with Other Substances:	Combustible or oxidizable materials, Lewis or mineral acids, Organic nitro compounds, Phosphorus, fluorine gas, brass, manganese trifluoride, reducing agents, strong bases, organic materials, combustibles. May decompose violently on contact with metals, or their salts, dusts or other contaminants.
Reactivity, and under what conditions?	Decomposes (potentially violently) on moderate heating (greater than 160°C). Yields oxygen. Damp material may decompose exothermically and release oxygen.
Hazardous Decomposition Products:	Thermal decomposition products are toxic and may include oxides of silicon, calcium and carbon.

SECTION 11 – TOXICOLOGICAL INFORMATION

Effects of Acute Exposure:

Calcium Peroxide:

LD₅₀ (Oral, rat) > 5,000 mg/Kg

LD₅₀ (Dermal, rat) > 10,000 mg/Kg

LC₅₀ (inhalation, rat) 23066 ppm 4 hrs

Calcium Hydroxide: LD₅₀ (Oral, mouse) 7,300 mg/Kg

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Effects of Chronic Exposure: See Section 3 – hazards identification

Irritancy of Product: See Section 3 – hazards identification

Skin Sensitization: NAV

Respiratory Sensitization: NAV

Carcinogenicity – IARC: Not classified as carcinogenic

Carcinogenicity – ACGIH: Not classified as carcinogenic

Reproductive Toxicity: NAV

Teratogenicity: NAV

Embryotoxicity: NAV

Mutagenicity: NAV

Name of Synergistic Products/Effects

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity: NAV. May be harmful to aquatic life. Toxicity is primarily associated with pH.

Fish: Cyprinus carpio, LC50, 48 h, 160 mg/l

Crustaceans: Daphnia sp., EC50, 24 h, 25.6 mg/l

Environmental Fate: Aquatic toxicity is unlikely due to low solubility. Weak solubility and precipitation as carbonate or sulfate in aquatic environment. Does not bioaccumulate. Diluted product is rapidly neutralized at environmental pH.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of in compliance with Federal, Provincial and municipal regulations. Do not dispose of waste with normal garbage, or to sewer systems. Empty containers retain product residue and can be dangerous. Do not dispose of package until thoroughly washed out.

SECTION 14 – TRANSPORT INFORMATION

Shipping Information

CANADIAN TDG: Calcium Peroxide, Class 5.1, Un1457, Packing Group II
Labels/Placard(s): Oxidizer

U.S.DOT: Calcium Peroxide, Class 5.1, UN1457, Packing Group II
Labels/Placard(s): Oxidizer

SECTION 15 – REGULATORY INFORMATION

WHMIS Classification

C: Oxidizer, E: Corrosive (eyes and skin)

USA, OSHA Hazard Communication Classification: Oxidizer, Skin and Eye irritant.

International: The following component or components of this product appear on the European Inventory of Existing Commercial Chemical Substances: Calcium Hydroxide, Calcium Carbonate

USA, Environmental Protection Act: All constituents of this product are included on the TSCA inventory

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by CPR

SECTION 16 – OTHER INFORMATION

As of the date of this document, the foregoing information is believed to be accurate and is provided in good faith to comply with applicable laws. However, no warranty or representation of law or fact, with respect to such information is intended or given.