

# MATERIAL SAFETY DATA SHEET

## 1. PRODUCT AND COMPANY IDENTIFICATION Issue Date September 16, 2011

### 1.1. Identification of the substance or preparation

Product Name : Peroxy Green™ CALCIUM PEROXIDE GRANULES  
Molecular Weight : 72.1 g/mol

### 1.2. Use of the Substance/Preparation

Recommended Use : - Agriculture industry  
- Soil remediation  
- For further information, please contact:

### 1.3. Company/Undertaking Identification

Address : A Growing Alternative, Inc.  
751 Fairview Church Road  
Spruce Pine, NC 28777-8223  
United States

### 1.4. Emergency and contact telephone numbers

Emergency telephone : 1 (800) 424-9300 CHEMTREC® (USA & Canada)  
Contact telephone number  
(product information):  
US: 828-766-6179 (Product information)

## 2. HAZARDS IDENTIFICATION

### 2.1. Emergency Overview:

NFPA : H= 2 F= 0 I= 1 S= OX  
HMIS : H= 2 F= 0 R= 1 PPE = Supplied by User; dependent on local conditions

#### General Information

Appearance : Granular  
Color : light yellow  
Odor : odorless

#### Main effects

- The preparation is classified as dangerous in accordance with Directive 1999/45/EC.
- Oxidizing
- Contact with combustible material may cause fire.
- Irritating to respiratory system and skin.
- Risk of serious damage to eyes.

### 2.2. Potential Health Effects:

#### Inhalation

- irritation of the upper respiratory tract
- Irritating to mucous membranes
- Repeated or prolonged exposure: Risk of sore throat, nose bleeds.
- (in case of higher concentration): Cough.

#### Eye contact

- Severe eye irritation
- Lachrymation
- Redness
- Swelling of tissue
- Risk of serious damage to eyes.

#### Skin contact

- Prolonged skin contact may cause skin irritation.

#### Ingestion

- Severe irritation
- Irritation of the mouth and throat.
- Symptoms: Nausea, Abdominal pain, Vomiting, Diarrhea.

**Other toxicity effects**

- See section 11: Toxicological Information

**2.3. Environmental Effects:**

- See section 12: Ecological Information

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Calcium peroxide**

CAS-No. : 1305-79-9

**Concentration** : **>= 70.0 %**

**Calcium dihydroxide**

CAS-No. : 1305-62-0

**Concentration** : **>= 10.0 - <= 25.0 %**

**Other inorganic calcium compounds**

CAS-No. : Proprietary

**Concentration** : **>= 10.0 - <= 25.0 %**

**4. FIRST AID MEASURES**

**4.1. Inhalation**

- Remove the subject from dusty environment and let him blow his nose.
- If symptoms persist, call a physician.

**4.2. Eye contact**

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- Consult with an ophthalmologist immediately in all cases.

**4.3. Skin contact**

- Remove and wash contaminated clothing before re-use.
- Wash off with plenty of water.
- If symptoms persist, call a physician.

**4.4. Ingestion**

- Call a physician immediately.
- If victim is conscious:**
- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.
- If victim is unconscious but breathing:**
- Artificial respiration and/or oxygen may be necessary.

**5. FIRE-FIGHTING MEASURES**

**5.1. Suitable extinguishing media**

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Water
- Water spray

**5.2. Extinguishing media which shall not be used for safety reasons**

- None.

**5.3. Special exposure hazards in a fire**

- Oxidizing
- Oxygen released in thermal decomposition may support combustion
- Contact with combustible material may cause fire.
- Contact with flammables may cause fire or explosions.
- Risk of explosion if heated under confinement.

**5.4. Hazardous decomposition products**

- Oxygen

**5.5. Special protective equipment for fire-fighters**

- In the event of fire, wear self-contained breathing apparatus.
- Fire fighters must wear fire resistant personnel protective equipment.

**5.6. Other information**

- Keep product and empty container away from heat and sources of ignition.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions

- Refer to protective measures listed in sections 7 and 8.
- Keep away from incompatible products

### 6.2. Environmental precautions

- Should not be released into the environment.
- If the product contaminates rivers and lakes or drains inform respective authorities.

### 6.3. Methods for cleaning up

- Do not add chemical products.
- Pick up and arrange disposal without creating dust.
- All receiving equipment should be clean, vented, dry, labeled and made of material that is compatible with the product.
- Flush with plenty of water.
- Treat recovered material as described in the section "Disposal considerations".

## 7. HANDLING AND STORAGE

### 7.1. Handling

- Clean and dry piping circuits and equipment before any operations.
- Never return unused material to storage receptacle.
- Containers and equipment used to handle the product should be used exclusively for that product.
- Keep away from heat and sources of ignition.
- Keep away from Incompatible products.

### 7.2. Storage

- Keep in a dry place.
- Keep in a cool, well-ventilated place.
- Keep away from direct sunlight.
- Keep away from heat.
- Keep away from Incompatible products.
- The container must be used exclusively for the product.
- Keep in container fitted with safety valve or vent.

### 7.3. Packaging material

- Stainless steel
- Plastic material
- glass

### 7.4. Other information

- Avoid dust formation.
- Refer to protective measures listed in sections 7 and 8.
- In industrial installations, apply the rules for the prevention of major accidents (consult an expert).
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Exposure Limit Values

#### Calcium dihydroxide

- US. ACGIH Threshold Limit Values 01 2006  
time weighted average = 5 mg/m<sup>3</sup>
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006  
Permissible exposure limit = 5 mg/m<sup>3</sup>  
Remarks: respirable dust fraction
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006  
Permissible exposure limit = 15 mg/m<sup>3</sup>  
Remarks: Total dust
- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989

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time weighted average = 5 mg/m<sup>3</sup>

- US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A 06 2008

time weighted average = 5 mg/m<sup>3</sup>

Remarks: respirable dust fraction

- US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A 06 2008

time weighted average = 15 mg/m<sup>3</sup>

Remarks: Total dust

### **Calcium carbonate**

- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006

Permissible exposure limit = 5 mg/m<sup>3</sup>

Remarks: respirable dust fraction

- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006

Permissible exposure limit = 15 mg/m<sup>3</sup>

Remarks: Total dust

- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989

time weighted average = 5 mg/m<sup>3</sup>

Remarks: respirable dust fraction

- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989

time weighted average = 15 mg/m<sup>3</sup>

Remarks: Total dust

- US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A 06 2008

time weighted average = 15 mg/m<sup>3</sup>

Remarks: Total dust

- US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A 06 2008

time weighted average = 5 mg/m<sup>3</sup>

Remarks: respirable dust fraction

ACGIH® and TLV® are registered trademarks of the American Conference of Governmental Industrial Hygienists.

SAEL = Solvay Acceptable Exposure Limit, Time Weighted Average for 8 hour workdays. No Specific TLV STEL (Short Term Exposure Level)

has been set. Excursions in exposure level may exceed 3 times the TLV TWA for no more than a total of 30 minutes during a workday and under

no circumstances should they exceed 5 times the TLV TWA.

## **8.2. Engineering controls**

- Ensure adequate ventilation.

- Refer to protective measures listed in sections 7 and 8.

- Apply technical measures to comply with the occupational exposure limits.

## **8.3. Personal protective equipment**

### **8.3.1. Respiratory protection**

- Use only respiratory protection that conforms to international/ national standards.

- Use NIOSH approved respiratory protection.

### **8.3.2. Hand protection**

- Wear suitable gloves.

### **8.3.3. Eye protection**

- Chemical resistant goggles must be worn.

### **8.3.4. Skin and body protection**

- Protective suit

### **8.3.5. Hygiene measures**

- Use only in an area equipped with a safety shower.

- Eye wash bottle with pure water

- Handle in accordance with good industrial hygiene and safety practice for diagnostics.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1. General Information**

**Appearance** : Granular

**Color** : light yellow

**Odor** : odorless

## 9.2. Important health safety and environmental information

<b>pH</b>	: 11.7	<i>Remarks: saturated aqueous solution</i> <i>Concentration: 10 g/l</i> <i>Temperature: 20 °C ( 68 °F )</i>
<b>Boiling point/boiling range</b>		: <i>Remarks: not applicable</i>
<b>Flash point</b>		: <i>Remarks: not applicable</i>
<b>Flammability</b>		: <i>Remarks: The product is not flammable.</i>
<b>Explosive properties</b>		: <i>Explosion danger:</i> : <i>Remarks: Not explosive</i>
<b>Oxidizing properties</b>		: <i>Remarks: Oxidizing</i>
<b>Vapor pressure</b>		: <i>Remarks: not applicable</i>
<b>Relative density / Density</b>	: 2.92	
<b>Bulk density</b>	: 500 kg/m <sup>3</sup>	
<b>Solubility</b>	: Water	: 1.65 g/l (calcium hydroxide) <i>Temperature: 20 °C ( 68 °F )</i> : slightly soluble : <i>Remarks: Decomposes in contact with water.</i>
<b>Partition coefficient: n-octanol/wate</b>		: <i>Remarks: not applicable</i>
<b>Vapour density</b>		: <i>Remarks: not applicable</i>

## 9.3. Other data

<b>Melting point/range</b>	: 275 °C ( 527 °F )
<b>Decomposition Temperature</b>	: <i>Remarks: Decomposition</i> : > 275 °C ( 527 °F )

## 10. STABILITY AND REACTIVITY

### 10.1. Stability

- Stable under recommended storage conditions.

### 10.2. Conditions to avoid

- Exposure to moisture.
- Keep at temperature not exceeding: 275 °C ( 527 °F )

### 10.3. Materials to avoid

- Water, Acids, Bases, Heavy metal salts, Reducing agents, Organic materials, Flammable materials

### 10.4. Hazardous decomposition products

- Oxygen

## 11. TOXICOLOGICAL INFORMATION

### Toxicological data

#### **Acute oral toxicity**

- LD50, rat, > 2,000 mg/kg

#### **Acute inhalation toxicity**

- LC50, rat, > 5,000 mg/m<sup>3</sup>

#### **Acute dermal irritation/corrosion**

- LD50, rat, > 2,000 mg/kg

#### **Skin irritation**

- rabbit, No skin irritation

#### **Eye irritation**

- Risk of serious damage to eyes.

#### **Sensitisation**

- guinea pig, Did not cause sensitization on laboratory animals.

#### **Genetic toxicity in vitro**

- In vitro tests did not show mutagenic effects

#### **Remarks**

- Risk of serious damage to eyes.

## 12. ECOLOGICAL INFORMATION

### 12.1. Ecotoxicity effects

#### *Acute toxicity*

- Fishes, *Cyprinus carpio*, LC50, 48 h, 160 mg/l
- Crustaceans, *Daphnia* sp., EC50, 24 h, 25.6 mg/l

### 12.2. Mobility

#### - Air

Remarks: not applicable

#### - Water

Remarks: low solubility and mobility

#### - Soil/sediments

Remarks: no data available

### 12.3. Persistence and degradability

#### *Abiotic degradation*

##### - Air

Result: not applicable

##### - Water/soil

Result: complexation/precipitation of inorganic materials

##### - Water

Result: non-significant hydrolysis

#### *Biodegradation*

- Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

### 12.4. Bioaccumulative potential

- Remarks: not applicable

### 12.5. Other adverse effects

- no data available

### 12.6. Remarks

- Hazard for the environment is limited due to product properties:
- 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.

## 13. DISPOSAL CONSIDERATIONS

### 13.1. Waste from residues / unused products

- Dilute with plenty of water.
- Dispose of wastes in an approved waste disposal facility.
- Can be landfilled, when in compliance with local regulations.
- In accordance with local and national regulations.

### 13.2. Packaging treatment

- Clean container with water.
- Empty containers should be taken to an approved waste handling site for recycling or disposal.
- Uncleaned empty packaging
- Dispose of as unused product.
- In accordance with local and national regulations.

### 13.3. RCRA Hazardous Waste

- Listed RCRA Hazardous Waste (40 CFR 302) - No
- Unlisted RCRA Hazardous Waste (40 CFR 302) - Yes  
D001 (ignitable waste)

## 14. TRANSPORT INFORMATION

**UN-Number** 1457

### IATA-DGR

Class 5.1  
Packing group II  
ICAO-Labels Oxidizer

#### IMDG

Class	5.1
Packing group	II
ICAO-Labels	Oxidizing agent
HI/UN No.	1457

#### U.S. Dept of Transportation

Class (Subsidiary)	5.1
Packing group	II
Label (Subsidiary)	Oxidizing agent
Emergency info:	ERG: 140

#### Canada (TDG)

Class (Subsidiary)	5.1
Packing group	II
Label (Subsidiary)	Oxidizer
Emergency info:	ERG: 140

### 15. REGULATORY INFORMATION

#### 15.1. Inventory Information

**Toxic Substance Control Act list (TSCA)** : - In compliance with inventory  
:

**Australian Inventory of Chemical Substances (AICS)** : - In compliance with inventory  
:

**Canadian Domestic Substances List (DSL)** : - In compliance with inventory.

**Korea Existing Chemicals Inv.** : - In compliance with inventory.

#### (KECI) (KECI (KR))

**EU list of existing chemical** : - In compliance with inventory.

#### substances (EINECS)

**Japan (ENCS) List (ENCS (JP))** : - In compliance with inventory.

**Inventory of Existing Chemical** : - In compliance with inventory.

#### Substances (China) (IECS)

**Philippine Inventory of Chemicals** : - In compliance with inventory.

#### and Chemical Substances (PICCS)

**New Zealand Inventory (in preparation) (NZ)** : - In compliance with inventory.

#### 15.2. Other regulations

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)**

- not regulated.

**SARA Hazard Designation (SARA 311/312)**

- Acute Health Hazard: Yes.

- Fire Hazard: Yes.

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic**

**Chemicals (40 CFR 372.65) - Supplier Notification Required**

- not regulated.

**US. EPA CERCLA Hazardous Substances (40 CFR 302)**

- not regulated.

**US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)**

- yes.

**US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)**

- not regulated.

**US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)**

- not regulated.

**16. OTHER INFORMATION**

**Ratings :**

**NFPA (National Fire Protection Association)**

Health = 2      Flammability = 0      Instability = 1      Special =OX

**HMS (Hazardous Material Information System)**

Health = 2      Fire = 0      Reactivity = 1      PPE : Supplied by User; dependent on local conditions

**Further information**

The previous information is based upon our current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and integrity of the work environment. (Unless noted to the contrary, the technical information applies only to pure product). To our actual knowledge, the information contained herein is accurate as of the date of this document. However, neither the company mentioned in section 1 nor any of its affiliates makes any warranty, express or implied, including merchantability or fitness for use, or accepts any liability in connection with this information or its use. This information is for use by technically skilled persons at their own discretion and risk and does not relate to the use of this product in combination with any other substance or any other process. This is not a license under any patent or other proprietary right. The user alone must finally determine suitability of any information or material for any contemplated use in compliance with applicable law, the manner of use and whether any patents are infringed. This information gives typical properties only and is not to be used for specification purposes. The company mentioned in section 1 reserves the right to make additions, deletions or modifications to the information at any time without prior notification. Trademarks and/or other products of the company mentioned in section 1 referenced herein are either trademarks or registered trademarks of the company mentioned in section 1 or its affiliates, unless otherwise indicated.  
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