

SAFETY DATA SHEET

Product name: EHC-0

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Preparation Date: December 12, 2006

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY / UNDERTAKING

Product name: **EHC-O**

Application: Soil and water treatment.

Supplier:

Adventus Remediation Technologies Inc.

1345 Fewster Drive

Mississauga, Ontario, Canada

L4W 2A5

Phone: 001-905-273-5374

Emergency Tel. #: 001-416-457-9491

2. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture of: Mixture of peroxide, inorganic hydroxide and hydrated natural zeolite.

The following substances shall be indicated according to legislation:

<u>Ingredients</u>	<u>CAS #</u>	<u>EINECS No.</u>	<u>Concentration</u>	<u>Hazard classification</u>
Calcium peroxide	1305-79-9	215-139-4	45 - 70	None assigned
Calcium dihydroxide	1305-62-0	215-137-3	10 - 20	None assigned
Sodium, calcium aluminosilicate, hydrated	12173-10-3	None for this hydrated form	20 - 30	None assigned

The full text for all R-phrases are shown in section 16.

3. HAZARDS IDENTIFICATION

White solid. No odour.

Oxidising. Contact with combustible material may cause fire.

Causes burns.

Irritating to the respiratory system.

4. FIRST-AID MEASURES

Ingestion: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Do not induce vomiting. Never give anything by mouth to an unconscious or convulsing person.

Inhalation: Immediately remove victim to fresh air. Obtain medical advice.

Skin contact: In case of contact with skin, rinse immediately with large amounts of water. Seek medical advice. Launder clothing before re-use.

Eye contact: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Use water spray to fight fires.

Unsuitable extinguishing media: Use chemical extinguishing agents with caution. Some chemical extinguishing agents may react with this material.

Unusual fire and explosion hazards: May intensify fire: oxidiser. Contact with combustible material may cause fire. Damp material may decompose exothermically and can ignite nearby combustibles. The pressure in sealed containers can increase under the influence of heat, and may burst. Burning produces obnoxious and toxic fumes. In the event of fire the following can be released: oxygen, calcium oxides.

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5. FIRE-FIGHTING MEASURES Continued

Protective equipment for fire-fighters: Wear proper chemically resistant protective equipment and self-contained breathing apparatus operated in positive pressure mode. Fight fire from a safe distance.

Special fire fighting procedures: Move container from fire area if it can be done without risk. Use water spray to keep fire exposed containers cool. Keep run-off water out of sewers and water sources. Dike for water control.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: All persons dealing with clean-up should wear the appropriate chemically protective equipment. Wear necessary chemically protective equipment, such as gloves, goggles and suitable body protection. Refer to point 8 on this Safety Data Sheet, EXPOSURE CONTROLS / PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

Environmental precautions: Ensure spilled product does not enter drains, sewers, waterways and soil.

Methods for cleanup: Ventilate area of release. Stop leak if possible without risk. Remove all combustible and flammable materials from the area. Contain spillage, and then cover with non-combustible absorbent material (e.g. sand, earth, diatomaceous earth, vermiculite). Transfer into suitable containers for disposal according to local / national regulations (see section 13). Use methods that do not generate high concentrations of airborne dusts. Flush contaminated area with water to remove trace residue. Do not allow flush material to enter drains, sewers, waterways and soil. Flush material should be absorbed with non-combustible absorbent material (e.g. sand, earth, diatomaceous earth, vermiculite), and disposed of in accordance with all local / national regulations. Contact the proper local authorities.

7. HANDLING AND STORAGE

Safe handling procedures: Keep out of the reach of children. Use personal protective equipment when handling this material. Use only in well-ventilated areas. Do not ingest. Avoid breathing dusts. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Keep away from incompatibles. Keep away from combustible material. Wash thoroughly after handling.

Storage requirements: Store in cool, dry, well-ventilated place. Keep containers properly labelled and well sealed. Protect from moisture. Do not store near combustible materials. Inspect periodically for damage or leaks. Protect against physical damage.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures: Use in well ventilated area. Observe Occupational Exposure Limits (OEL's) and minimize the risk of inhalation of dusts. Do not use in confined or closed spaces. Use mechanical or local exhaust ventilation. In case of insufficient ventilation wear suitable respiratory equipment.

Exposure limits:

Chemical name:	Exposure limits:	Type:	Notes:
Calcium peroxide	2 mg/m ³ (TWA) (aerosol, natural and artificial) 6 mg/m ³ (STEL) (aerosol)	OEL – Russia	None
Calcium dihydroxide	5 mg/m ³ (TWA)	IOELV – European Union	None
	5 mg/m ³ (TWA) 15 mg/m ³ (STEL)	WEL – United Kingdom	None
Sodium, calcium aluminosilicate, hydrated (zeolite)	None established.	None established.	None

Ingredient Comments: TWA = Time Weighted Average; STEL = Short Term Exposure Limit; WEL = Workplace Exposure Limit; IOELV = Indicative Occupational Exposure limit value.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION Continued

Respiratory protection: Exposure should be avoided\controlled by ventilation. Where exposure is likely to be prolonged or is unknown wear approved respiratory protection. Confirmation of which type of respirator is most suitable for the intended application should be obtained from respiratory protection suppliers

Hand protection: Use chemically protective gloves. Protective gloves should be inspected for wear before use and replaced regularly in accordance with the manufacturers specifications. Confirmation of which type of material is most suitable for the intended application should be obtained from glove suppliers.

Eye protection: Wear chemical splash goggles, to prevent any dusts from entering the eyes. A full face shield may also be necessary.

Other protection: Wear chemically protective apron, sleeves, boots and other clothing to prevent skin contact. An eyewash station and safety shower should be made available in the immediate working area.

Hygiene measures: Avoid inhaling dusts. Avoid contact with eyes, skin and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Thoroughly wash at the end of each work shift. Immediately remove any clothing that becomes contaminated and launder before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White solid.

Odour: No odour.

pH: ~ 11.

Boiling point: No information available.

Specific gravity / relative density: 0.5 – 0.65 g/mL

Solubility in water: Insoluble.

Flashpoint (Method): Not applicable.

Flammability: Not applicable (Lower / Upper explosive limits).

Decomposition temperature: Self-accelerating decomposition with oxygen release starting from 275°C.

Vapour pressure: No information available

Coefficient of water/oil distribution: No information available

Viscosity: No information available.

Vapour density (Air = 1): No information available

Evaporation rate (BuAe = 1): No information available.

Volatiles (% by weight): No information available.

Freezing point: No information available.

10. STABILITY AND REACTIVITY

Stability: Stable under the recommended storage and handling conditions prescribed. May intensify fire; oxidizer. Contact with combustible material may cause fire. Self-accelerating decomposition occurs with extremely high temperatures. Hazardous polymerisation will not occur.

Conditions to avoid: Avoid heat, sparks and flame. Keep away from combustible materials. Do not use in areas without adequate ventilation.

Materials to avoid (incompatibles): Moisture, Acids; Reducing agents; Organic materials; Bases; Salts of heavy metals

Hazardous decomposition products: In the event of fire the following can be released: oxygen, calcium oxides.

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11. TOXICOLOGICAL INFORMATION

Routes of exposure: Skin contact, eye contact, inhalation, ingestion.

Signs and symptoms of short-term (acute) exposure:

Inhalation: Inhalation may cause severe irritation to the nose, throat and upper respiratory tract. Symptoms may include coughing, wheezing and shortness of breath.

Skin: Can cause burns. Product will cause severe irritation and possibly corrosive burns if not promptly removed.

Eyes: Causes burns.

Ingestion: May cause severe irritation or corrosive damage to the mouth, throat and stomach. Symptoms may include severe abdominal pain, burns, cramping, vomiting and diarrhea.

Chronic effects: Prolonged or repeated skin contact with low concentrations may cause drying and cracking of the skin.

Carcinogenicity: Not classifiable as a human carcinogen.

Reproductive effects: No ingredients listed are classified as toxic for reproduction.

Mutagenicity: No mutagenic effects are known.

Other important hazards: None known.

12. ECOLOGICAL INFORMATION

Ecotoxicity: The ecotoxic effects of the product itself have not been fully investigated. The product contains Calcium dihydroxide and a hydrated natural Zeolite. There is no data available for the specific hydrated Zeolite (CAS # 12173-10-3), however, there is data available for the anhydrous form (CAS # 1318-02-1). Acute toxicity data available for the Calcium dihydroxide and anhydrous Zeolite, are listed below.

The acute toxicity of Calcium dihydroxide is (IUCLID):

Fish – 96-Hr LC₅₀, Mosquito fish (*Gambusia affinis*) = 160 mg/L

The acute toxicity of anhydrous Zeolite is (IUCLID):

Fish – 96-Hr LC₅₀, Zebrafish (*Brachydanio rerio*) = 1800 mg/L

Aquatic Invertebrates – 48-Hr EC₅₀, Water flea (*Daphnia magna*) = 1000 - 1800 mg/L.

Mobility: The mobility of this product in soil has not been fully investigated.

Degradability: The degradability of the product itself has not been fully investigated.

Bioaccumulation potential: The bioaccumulation potential of this product has not been fully investigated.

Other adverse environmental effects: None known.

Water contaminating class (Germany): 1 (self classified)

13. DISPOSAL CONSIDERATIONS

Handling for disposal: Handle according to recommendations listed in Section 7.

Methods of disposal: Dispose of in accordance with the European Directives on waste and hazardous waste.

Waste must be classified and labelled prior to recycling or disposal. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

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14. TRANSPORT INFORMATION

Land (RID / ADR):

UN number: UN1479

Proper shipping name: **OXIDIZING SOLID, N.O.S. (Calcium peroxide)**

Class: 5.1

Packing Group: II

Labels: 5.1

Classification Code: O2

Hazard Identification No.: 50

Other Shipping Information: This product may be shipped as a 'Limited Quantity' when inner packagings do not exceed 500 g. Combination packagings must be used and the maximum gross weight of the package must not exceed 30 kg. Refer to the ADR Chapter 3.4 for additional shipping requirements.

Sea (IMDG):

UN number: UN1479

Proper shipping name: **OXIDIZING SOLID, N.O.S. (Calcium peroxide)**

Class: 5.1

Packing Group: II

EmS: F-A, S-Q

Marine Pollutant (Yes/No): No

Other Shipping Information: This product may be shipped as a 'Limited Quantity' when inner packagings do not exceed 1 kilogram. Combination packagings must be used and the maximum gross weight of the package must not exceed 30 kg. Refer to the IMDG Code Chapter 3.4 for additional shipping requirements.

Air (ICAO / IATA):

UN number: UN1479

Proper shipping name: **Oxidizing solid, n.o.s. (Calcium peroxide)**

Class: 5.1

Packing Group: II

Other Shipping Information: Refer to the appropriate packaging instruction prior to shipping this material. Review all applicable state and operator variations.

15. REGULATORY INFORMATION

Labelling:



Oxidising



Corrosive

- | | |
|-----------|---|
| R8 | Contact with combustible material may cause fire. |
| R34 | Causes burns. |
| R37 | Irritating to respiratory system |
| S17 | Keep away from combustible material. |
| S22 | Do not breathe dust. |
| S36/37/39 | Wear suitable protective clothing, gloves and eye/face protection. |
| S26 | In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. |
| S45 | In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). |
| S60 | This material and its container must be disposed of as hazardous waste. |

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15. REGULATORY INFORMATION Continued

National Regulations:

1. EC Directives 67/548/EEC on dangerous substances, as amended; and 1999/45/EC on dangerous preparations, as amended.
2. EC Directives 2001/58/EC and 91/155/EEC on SDS for dangerous preparations.
3. United Kingdom - Chemicals (Hazard Information and Packaging) (Amendment) Regulations 2005 (SI 2005 No. 2571) (CHIP or CHIP 3.1).
4. German legislation on water endangering substances VwVwS.

16. OTHER INFORMATION

INFORMATION SOURCES:

1. Material Safety Data Sheet from manufacturer.
2. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases, 2006 (Chempendium, RTECs, HSDB, INCHEM).
3. European Chemicals Bureau, Existing Chemicals Work Area, EINECS Information System, 2006.
4. European Chemicals Bureau, IUCLID Dataset, 18-FEB-2000 for Calcium dihydroxide.
5. European Chemicals Bureau, IUCLID Dataset, 18-FEB-2000 for Zeolites.

PREPARATION DATE: December 12, 2006

R-PHRASES (Full Text): None.

DISCLAIMER

This data is offered in good faith as typical values, and not as a product specification. No warranty, express or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use, and determine whether they are appropriate. The information contained in this Safety Data Sheet is believed to be correct as of this date.