

EHC® - M

Product code(s): EHC® - M

SDS Preparation Date (dd/mm/yyyy): 11/05/2009

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SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

Product Name : **EHC® - M**
Product Code(s) : EHC® - M
Application : Bioremediation product for remediation of contaminated soil and groundwater only. Not for use in potable drinking water.
Use pattern: professional use.

Supplier's name and address:

Adventus Remediation Technologies

A Division of Envirometal Technologies Inc.
1345 Fewster Drive
Mississauga, ON, Canada
L4W 2A5

Manufacturer:
Harben Powder Services
Shell Green Estate
Gorse Lane
Widnes, Cheshire
United Kingdom
WA8 0YZ

Telephone : 001-905-273-5374 (Canada); 044 01514 07764 684090 (UK)

Emergency Telephone Number : 001-416-903-9491

2. HAZARDS IDENTIFICATION

Tan / Brown / Yellow Flakes / Powder.
No odour.

Most important hazards: The product is classified as dangerous in accordance with Directive 1999/45/EC.

Classification:
Flammable
R11 - Highly flammable.
Xi - Irritant
R38 - Irritating to skin.

Other hazards which do not result in classification:

Ingestion of large amounts may be harmful. If dusts are formed, inhalation may cause adverse lung effects. May cause irritation of respiratory tract. Inhalation of fumes, may result in metal fume fever, a flu-like illness.
May react slowly with water, releasing flammable hydrogen gas. Heating or fire can release toxic gas.

Any vessel that contains wet EHC or EHC and water must be vented due to potential pressure build-up from fermentation gases.

Environmental precautions: Do not release, unmonitored, into the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature of the preparation - Mixture of: Metal compounds; Organic amendment.

The following substances shall be indicated according to legislation:

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<u>Ingredients</u>	<u>CAS #</u>	<u>EINECS No.</u>	<u>Concentration</u>	<u>Hazard classification</u>
Iron	7439-89-6	231-096-4	25.0 - 35.0	None assigned. Substances for which there are Community workplace exposure limits.
Sulfur	7704-34-9	231-722-6	25.0 - 35.0	Xi;R38

For the full text of the R phrases mentioned in this Section, see Section 16.

4. FIRST-AID MEASURES

- Ingestion** : Do NOT induce vomiting. If swallowed, seek medical advice immediately and show this container or label. Never give anything by mouth to an unconscious person.
- Inhalation** : If breathed in, move person into fresh air. When symptoms persist or in all cases of doubt seek medical advice.
- Skin contact** : Remove/Take off immediately all contaminated clothing. Wash off with warm water and soap. When symptoms persist or in all cases of doubt seek medical advice.
- Eye contact** : Rinse with plenty of water. When symptoms persist or in all cases of doubt seek medical advice.
- Additional Information** : Treat symptomatically.

5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media** : Water. Use fog nozzle to spray water. Foam
- Unsuitable extinguishing media** : Do not use direct stream of water, which can result in a dust cloud and explosion hazard.

Unusual fire and explosion hazards

- : Highly flammable. Dust may form explosive mixture in air. May react slowly with water, releasing flammable hydrogen gas. Any vessel that contains wet EHC or EHC and water must be vented due to potential pressure build-up from fermentation gases. Burning produces obnoxious and toxic fumes. In the event of fire the following can be released: Metal oxides; Hydrogen sulfide.

Protective equipment for fire-fighters

- : Wear self-contained breathing apparatus and protective suit. Fight fire with normal precautions from a reasonable distance.

Special fire-fighting procedures

- : Move containers from fire area if safe to do so. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** : Wear suitable protective equipment. Refer to protective measures listed in sections 7 and 8. Keep people away from and upwind of spill/leak.
- Environmental precautions** : Discharge into the environment must be avoided.
- Methods for cleanup** : Remove all sources of ignition. Ventilate the area. Prevent further leakage or spillage if safe to do so. Clean up promptly by scoop or vacuum. Avoid dust formation. Use approved industrial vacuum cleaner for removal. Refer to Section 13 for disposal of contaminated material. Contact the proper local authorities.

7. HANDLING AND STORAGE

- Handling procedures** : Wear suitable protective equipment. Use only in well-ventilated areas. Avoid breathing dust. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Avoid contact with incompatible materials. Protect from moisture. Avoid and control operations which create dust. Keep containers tightly closed when not in use. Wash thoroughly after handling. Any vessel that contains wet EHC or EHC and water must be vented due to potential pressure build-up from fermentation gases.

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Storage requirements : Store in cool/well-ventilated place. Inspect periodically for damage or leaks. Keep out of the reach of children. Keep in a dry, cool place. Keep containers dry and tightly closed to avoid moisture absorption and contamination.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:			
Chemical Name	Exposure Limits	Type	Notes
Iron	6 mg/m ³ (inhalable fraction, dust) (TWA)	European Union (OEL)	Bulgaria
	10 mg/m ³ (TWA)	Czech Republic (OEL)	(dust)
	6 mg/m ³ (TWA)	Slovak Republic (OEL)	(total aerosol)
Sulfur	15 mg/m ³ (STEL)	European Union (OEL)	Romania
	6 mg/m ³ (TWA)	Latvia (OEL)	None.

Ingredient Comments: TWA = time weighted average; STEL = Short term exposure limit; OEL = National occupational exposure limits.

Ventilation and engineering measures

: Use only in well-ventilated areas. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded. In case of insufficient ventilation wear suitable respiratory equipment.

Respiratory protection

: Respirator with a dust filter. The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

Skin protection

: Wear protective gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye / face protection

: Wear eye/face protection. Safety goggles or glasses as appropriate for the job. See also EN 166.

Other protective equipment

: Choose body protection according to the amount and concentration of the dangerous substance at the work place. Ensure that eyewash stations and safety showers are close to the workstation location.

General hygiene considerations

: Avoid contact with skin, eyes and clothing. Avoid breathing dust. Do not eat, drink or smoke when using this product. Wash hands and face before breaks and immediately after handling the product. Wash contaminated clothing before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Tan / Brown / Yellow Flakes / Powder.
Odour : odourless
pH : No information available.
Flash point : 207 °C
Flashpoint (Method) : No information available.
Lower flammable limit (% by vol.) : 3.3%

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Upper flammable limit (% by vol.)

: 46.0%

Auto-ignition temperature

: 248 - 266 °C

Oxidizing properties

: None known.

Explosion data

: Not expected to be sensitive to mechanical impact or static discharge.

Boiling point

: 3000 °C

Melting/Freezing point

: 744 - 803 °C

Specific gravity

: 1.21

Solubility

: insoluble

Vapour pressure

: 1 mmHg @ 1787 °C

Vapour density

: No information available.

Coefficient of water/oil distribution

: No information available.

Viscosity

: Not applicable.

Evaporation rate (BuAe = 1)

: No information available.

Volatiles (% by weight)

: No information available.

Volatile organic Compounds (VOC's)

: No information available.

10. STABILITY AND REACTIVITY

Stability and reactivity

: Stable under normal conditions. Hazardous polymerisation does not occur. May react slowly with water, releasing flammable hydrogen gas. Any vessel that contains wet EHC or EHC and water must be vented due to potential pressure build-up from fermentation gases.

Conditions to avoid

: Do not use in areas without adequate ventilation. Direct sources of heat. Avoid contact with incompatible materials. Avoid moisture.

Materials To Avoid And Incompatibility

: Strong oxidizing agents; Acids; Alkali metals; Halogenated compounds.

Hazardous decomposition products

: Burning produces obnoxious and toxic fumes. In the event of fire the following can be released: metal oxides; Hydrogen sulfide.

11. TOXICOLOGICAL INFORMATION

Routes of exposure

: Inhalation; Skin contact; Eye contact; Ingestion

Signs and symptoms of short-term (acute) exposure

Inhalation : May cause irritation to the nose, throat and upper respiratory tract.
If dusts are formed: Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.
Inhalation of fumes, may result in metal fume fever, a flu-like illness. Symptoms of metal fume fever may include fever, fatigue, vomiting, muscle aches and shortness of breath.

Skin : Irritating to skin.

Eyes : Inert particles may cause mechanical irritation of the eyes, including scratches.

Ingestion : May cause irritation of mouth, throat, and stomach. May cause nausea, vomiting, and diarrhea.
Ingestion of large amounts may cause: Pain; Liver toxicity. Could cause cyanosis (bluish discoloration of the skin due to deficient oxygenation of the blood).

Potential Chronic Health Effects

: If dusts are formed: Pneumoconiosis, or "dusty lung" disease, may result from chronic exposure to any dust.

Carcinogenicity

: Contains no ingredient listed as a carcinogen.

Reproductive effects

: Contains no ingredient listed as toxic to reproduction.

Mutagenicity

: Contains no ingredient listed as a mutagen.

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- Teratogenicity** : No known effect.
- Other important hazards** : May cause an allergic respiratory reaction (e.g. asthma) in some hypersensitive individuals. Individuals with known allergies to sulfide drugs may have allergic reaction to elemental sulfur.



12. ECOLOGICAL INFORMATION

- Ecotoxicity** : The ecological characteristics of this product have not been fully investigated. There is no data available for this product. Do not release, unmonitored, into the environment.
- Mobility** : The product itself has not been tested.
- Persistence** : The product itself has not been tested.
- Bioaccumulation potential** : The product itself has not been tested.
- Other Adverse Environmental effects** : No information available.
- Water contaminating class (Germany)** : 1 (self classified)

13. DISPOSAL CONSIDERATIONS

- Handling for Disposal** : Handle in accordance with good industrial hygiene and safety practice. Refer to protective measures listed in sections 7 and 8.
- 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.

14. TRANSPORTATION INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
ADR/RID	UN1350	SULPHUR MIXTURE	4.1	III	
EU ADR/RID Classification Code	F3 - Flammable solids, without subsidiary risk; Inorganic				
EU ADR / RID Hazard Identification Number	40 - flammable solid, or self-reactive substance, or self-heating substance				
ADR/RID Additional information	May be shipped as a Limited Quantity when transported in containers no larger than 6.0 kg, in combination packagings no larger than 30 kg gross mass. May be shipped as a Limited Quantity when transported in containers no larger than 3.0 kg, in shrink-wrapped or stretch-wrapped trays no larger than 20 kg gross mass.				
ICAO/IATA	UN1350	Sulphur mixture	4.1	III	
ICAO/IATA Additional information	Refer to the appropriate Packing Instruction, prior to shipping this material. Review all State and Operator Variations, prior to shipping this material.				

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IMDG	UN1350	SULPHUR MIXTURE	4.1	III	
IMDG Additional information	May be shipped as Limited Quantity when transported in containers no larger than 5.0 kg; in packages not exceeding 30 kg gross mass.				

15. REGULATORY INFORMATION

Labelling:



Highly flammable



Irritant

Hazardous components which must be listed on the label: sulfur.

R11 - Highly flammable.

R38 - Irritating to skin.

S22 - Do not breathe dust.

S 7 - Keep container tightly closed.

S36/37 - Wear suitable protective clothing and gloves.

S46 - If swallowed, seek medical advice immediately and show this container or label.

S 8 - Keep container dry.

S35 - This material and its container must be disposed of in a safe way.

National Regulations:

1. Substances presenting a health or environmental hazard within the meaning of Directive 67/548/EEC.
2. Classification according to European directive on classification of hazardous preparations 1999/45/EC.
3. This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.
4. In accordance with the legislation of the United Kingdom.
5. German legislation on water endangering substances VwVwS (see Section 12).

16. OTHER INFORMATION

Information Source :

1. Material Safety Data Sheet from manufacturer.
2. Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2009.
3. European Chemicals Bureau, Existing Chemicals Work Area, EINECS Information System, 2009.

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R-Phrases (Full Text)

: Not applicable.

Refer to section 15 for additional R phrases not listed here.

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