SAFETY DATA SHEET

EHC® Liquid Reagent Mix

SDS # : EHCLM-C
Revision date: 2016-02-09
Version 1

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

1.1. Product Identifier

Product Name EHC® Liquid Reagent Mix

Alternate Commercial Name EHC®-L Mix; EHC® Liquid - Solid Component

Pure substance/mixture Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use: Bioremediation product for the remediation of contaminated soil and groundwater.

Restrictions on Use: Not for drinking water purification treatment.

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier

PeroxyChem LLC
2005 Market Street
Suite 3200
Philadelphia, PA 19103
267/422-2400 (General Information)
sdsinfo@peroxychem.com (E-Mail General Information)

1.4. Emergency telephone number

For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)
1 303/ 389-1409 (Medical - U.S. - Call Collect)

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

The preparation is not classified in accordance with Directive 1272/2008.

Occupational exposure limits, if available, are listed in section 8.

2.2. Label Elements

Not classified as a dangerous substances or preparation according to Regulation (EC) 1272/2008.

2.3. OTHER INFORMATION

General Hazards
CONTAINMENT HAZARD:. Any vessel that contains wet EHC must be vented due to potential pressure build up from fermentation gases. Dust cloud can be ignited by a spark.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical name	EC-No	CAS-No	Weight %	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH registration number
Iron salt	Listed	-	92-97	-	NA
amino acid	Listed	-	3-7	-	NA

Occupational exposure limits, if available, are listed in section 8

4. FIRST AID MEASURES

4.1. Description of first-aid measures

Skin Contact Wash off with warm water and soap. Get medical attention if irritation develops and persists.
Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids intermittently. Consult a physician.
Inhalation Remove from exposure, lie down. If symptoms persist, call a physician.
Ingestion If swallowed, do not induce vomiting - seek medical advice.
Protection of first-aiders No information available.

4.2. Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed Gastrointestinal effects. Inhalation of dust in high concentration may cause irritation of respiratory system.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Indication of immediate medical attention and special treatment needed, if necessary Treat symptomatically.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

5.2. Special hazards arising from the substance or mixture

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases
Dust may form explosive mixture in air.

5.3. Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

For personal protection see Section 8. Avoid dispersal of dust in the air (i.e., cleaning dust surfaces with compressed air.). Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area).

6.2. Environmental Precautions

Prevent undiluted spillage from entering sewers, basements or watercourses.

6.3. Methods and materials for containment and cleaning up

Sweep or vacuum up spillage and return to container. Avoid wetting dust and clean up as a dry powder with appropriate PPE for handling dry dusty materials; store in containers that keep material dry, segregated but allow to vent. Avoid dispersal of dust in the air (i.e., cleaning dust surfaces with compressed air.). Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Material may be recycled when contamination is not a problem. Following product recovery, flush area with water.
Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Use only non-sparking tools.

6.4. Reference to other sections.

For personal protection see Section 8. See section 13 for disposal information.

7. HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Ensure adequate ventilation. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powdered material can build static electricity when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmosphere.

7.2. Conditions for safe storage, including any incompatibilities

Storage
Keep tightly closed in a dry and cool place. Keep away from open flames, hot surfaces and sources of ignition.

Materials to avoid
Strong oxidizing agents

7.3. Specific end uses

See subsection 1.2. Relevant identified uses of the substance or mixture and uses advised against

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits Ingredients with workplace control parameters

Chemical name	Latvia	Lithuania	Czech Republic
amino acid	TWA 2 mg/m³		

8.2. Exposure Controls

Engineering measures Ensure adequate ventilation, especially in confined areas. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in the handling of this product contain explosion relief vents or an explosion suppression or an oxygen-deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.

Personal protective equipment

Respiratory Protection In case of insufficient ventilation wear suitable respiratory equipment. P2 Dust mask when airborne dust concentrations elevated. The use of breathing apparatus must comply strictly with the manufacturer's instructions and the regulations governing their choices and uses.

Eye/Face Protection Safety glasses with side-shields

Skin and Body Protection No special precautions required.

Hand Protection Protective gloves

Hygiene measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls No special environmental precautions required.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Dry powder
Color	light gray
Physical State	Solid
Odor	Slight
Odor threshold	No information available
pH	4.5 (1% solution)
Flash point	Not applicable
Melting Point/Range	Decomposes on heating 100 °C
Freezing Point	No information available
Boiling Point/Range	No information available
Autoignition temperature	No information available
Explosive properties	Low level dust explosion hazard
Vapor pressure	No information available
Vapor density	No information available
Partition coefficient	No information available
Water solubility	Fairly soluble
Viscosity	No information available
Evaporation Rate	No information available

9.2. OTHER INFORMATION

No information available

10. STABILITY AND REACTIVITY

10.1. Reactivity

None under normal use condtions

10.2. Chemical Stability

Stable under recommended storage conditions.

10.3. Possibility of Hazardous Reactions

Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

10.4. Conditions to avoid

To avoid thermal decomposition, do not overheat.

10.5. incompatible materials

Strong oxidizing agents.

10.6. Hazardous Decomposition Products

Carbon oxides (COx)

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

LD50 Dermal	No information available
LD50 Oral	Iron Salt: 2100 mg/kg (guinea pig) Cysteine: 1890 mg/kg (rat)
LC50 Inhalation	No information available
Skin Contact	Expected to be non-irritating based on ingredients.
Eye Contact	Expected to be non-irritating based on ingredients.

Chronic toxicity

Sensitization	Not expected to be sensitizing based on the components.
Carcinogenicity	Contains no ingredient listed as a carcinogen.
Mutagenicity	This product is not recognized as mutagenic by Research Agencies
Reproductive toxicity	This product does not contain any known or suspected reproductive hazards

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

12.2. Persistence and degradability

Product is biodegradable.

12.3. Bioaccumulative potential

No information available.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)

12.6. Other Adverse Effects

None known.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues / unused products If recycling is not practicable, dispose of in compliance with local regulations

Contaminated Packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

ADR/RID NOT REGULATED

IMDG/IMO NOT REGULATED

ICAO/IATA NOT REGULATED

15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)	NZIoC (New Zealand)
Iron salt	X	X	X	-	-	X	X	X	X
amino acid	X	X	X	X	X	X	X	X	X

Directive 2008/98/EC on waste
Not applicable
Major Accidents (Directive 96/82/CEE)
Not applicable
CWC (Chemical Weapons Convention) - Annex on Chemicals

Not applicable
EU Export and import of dangerous chemicals (Regulation (EC) No 304/2003)
Not Applicable
Water contamination class (Germany):
WGK 1
Regulation 98/2013 on the marketing and use of explosives precursors
Not Applicable

15.2. Chemical Safety Report

Not Applicable.

16. OTHER INFORMATION

Issuing Date: 2016-01-26
Restrictions on Use:
Not for use in potable drinking water. This product's foreseen or recommended applications are: Bioremediation product for the remediation of contaminated soil and groundwater.

Revision date: 2016-02-09
Revision note (M)SDS sections updated, 9.

Disclaimer
PeroxyChem believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specified product designated and may not be applicable where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use are beyond the control of PeroxyChem, PeroxyChem expressly disclaims any and all liability as to any results obtained or arising from any use of the products or reliance on such information.

Prepared By:

PeroxyChem

End of Safety Data Sheet