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

1.1. Product Identifier

Product Name: DARAMEND® Reagent
Pure substance/mixture: Mixture

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

Recommended Use: Remediation of contaminated soil and groundwater
Restrictions on Use: No uses to be advised against were identified

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 numbers

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

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

2.2. Label Elements

Not classified

2.3. OTHER INFORMATION

General Hazards

CONTAINMENT HAZARD: Any vessel that contains wet DARAMEND must be vented due to potential pressure build up from fermentation gases. Powdered material may form explosive dust-air mixtures.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>EC-No</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
<th>REACH registration number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecithin 8002-43-5 (3)</td>
<td>Present</td>
<td>8002-43-5</td>
<td>3</td>
<td>-</td>
<td>NA</td>
</tr>
<tr>
<td>Iron 7439-89-6 (40-50)</td>
<td>Present</td>
<td>7439-89-6</td>
<td>40-50</td>
<td>-</td>
<td>01-2119462838-24-XX</td>
</tr>
<tr>
<td>Organic amendment (50-60)</td>
<td>Listed</td>
<td>-</td>
<td>50-60</td>
<td>-</td>
<td>NA</td>
</tr>
</tbody>
</table>

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 soap and water. In the case of skin irritation or allergic reactions see a physician.

Eye Contact

In case of contact, immediately flush skin with plenty of water. Get medical attention if irritation develops and persists.

Inhalation

Remove person to fresh air. If signs/symptoms continue, get medical attention.

Ingestion

Rinse mouth with water and afterwards drink plenty of water or milk. Call a poison control center or doctor immediately for treatment advice. Never give anything by mouth to an unconscious person.

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

Coughing and/or wheezing

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**
Dry chemical, CO₂, sand, earth, water spray or regular foam

5.2. **Special hazards arising from the substance or mixture**

**Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases**
Dry or powdered ingredients are combustible. Dispersal of finely divided dust from products into air may form mixtures that are ignitable or explosive. Minimize airborne dust generation and eliminate sources of ignition.

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**

Avoid dust formation. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). For personal protection see Section 8.

6.2. **Environmental Precautions**

No special environmental precautions required.

6.3. **Methods and materials for containment and cleaning up**

Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Sweep or vacuum up spillage and return to container.

6.4. **Reference to other sections**

See section 13 for disposal information.

7. **HANDLING AND STORAGE**

7.1. **Precautions for Safe Handling**

Minimize dust generation and accumulation. Keep away from open flames, hot surfaces and sources of ignition. Refer to Section 8.

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. Any vessel that contains wet DARAMEND must be vented due to potential pressure build up from fermentation gases.

**Materials to avoid**
Oxidizing agents. Strong acids.

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
8.2. Exposure Controls

Engineering measures

Provide appropriate exhaust ventilation at places where dust is formed. 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.

Personal protective equipment

- **Respiratory Protection**: In case of insufficient ventilation wear suitable respiratory equipment.
- **Eye/Face Protection**: Safety glasses with side-shields
- **Skin and Body Protection**: No special protective equipment required.
- **Hand Protection**: No special precautions required

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product.

Environmental exposure controls

No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Flakes</td>
</tr>
<tr>
<td>Color</td>
<td>Tan, Brown</td>
</tr>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>6.0</td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No information available</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>Decomposes upon heating</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Low level dust explosion hazard</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Insoluble in water</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available</td>
</tr>
</tbody>
</table>

9.2. OTHER INFORMATION

- **Bulk Density**: 0.75 - 0.95 kg/L

10. STABILITY AND REACTIVITY

10.1. Reactivity
None under normal use conditions

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

Heat, flames and sparks.

10.5. incompatible materials

Oxidizing agents. Strong acids.

10.6. Hazardous Decomposition Products

Burning produces obnoxious and toxic fumes

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

The product has not been tested. Data is based on component.

<table>
<thead>
<tr>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to Microorganisms</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>96 h LC50: = 13.6 mg/L (Morone saxatilis) static</td>
<td>48 h Daphnia magna EC50 = 8934.78 mg/l</td>
<td></td>
</tr>
</tbody>
</table>

Chronic toxicity

Sensitization: No information available.
Neurological effects: None known.
Carcinogenicity: Contains no ingredient listed as a carcinogen.
Mutagenicity: This product is not recognized as mutagenic by Research Agencies

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

The environmental impact of this product has not been fully investigated. Not expected to have significant environmental effects.
The organic components are biodegradable and can be expected to contribute to BOD.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely.

12.4. Mobility in soil

Is not likely mobile in the environment due its low water solubility.

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  Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.

Product / Packaging disposal  Dispose of as hazardous waste in compliance with local and national 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

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>TSCA (United States)</th>
<th>DSL (Canada)</th>
<th>EINECS/ELINCS (Europe)</th>
<th>ENCS (Japan)</th>
<th>China (IECSC)</th>
<th>KECL (Korea)</th>
<th>PICCS (Philippines)</th>
<th>AICS (Australia)</th>
<th>NZIoC (New Zealand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecithin 8002-43-5</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Iron 7439-89-6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Organic amendment</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
15.2. Chemical Safety Report

Not Applicable.

16. OTHER INFORMATION

Issuing Date: 2015-07-14
Restrictions on Use
This product’s foreseen or recommended applications are: Remediation of contaminated soil and groundwater

Revision date: 2019-05-14
Revision note
*** Indicates updated section
SDS sections updated: 9

List of Abbreviations and Acronyms

ATE Acute Toxicity Estimate
ADR European Agreement concerning the International Carriage of Dangerous Goods by Road
AND European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
CE50 Concentración Efectiva Media CEN European Committee for Standardisation
C&L Classification and Labelling
CLP Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
CLV Ceiling Limit Value Par CAS# Chemical Abstracts Service number
CMR Carcinogen, Mutagen, or Reproductive Toxicant
CSA Chemical Safety Assessment
CSR Chemical Safety Report
DNEL Derived No Effect Level
DOT Department of Transportation
DPD Dangerous Preparations Directive 1999/45/EC
DSD Dangerous Substances Directive 67/548/EEC
DU Downstream User
EC European Community
ECHA European Chemicals Agency
EC-Number EINECS and ELINCS Number (see also EINECS and ELINCS)
EEA European Economic Area (EU + Iceland, Liechtenstein and Norway)
EEC European Economic Community
EINECS European Inventory of Existing Commercial Substances
ELINCS European List of notified Chemical Substances
EN European Standard
EQS Environmental Quality Standard
EU European Union
Euphrac European Phrase Catalogue EWC
European Waste Catalogue (replaced by LoW – see below)
FDS Ficha de Datos de Seguridad
GES Generic Exposure Scenario
GHS Globally Harmonized System
IATA International Air Transport Association
ICAO-TI Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG International Maritime Dangerous Goods
IMO International Maritime Organization
IMSBC International Maritime Solid Bulk Cargoes
IT Information Technology
IUCLID International Uniform Chemical Information Database
IUPAC International Union for Pure Applied Chemistry
JRC Joint Research Centre
Kow octanol-water partition coefficient
LC50 Lethal Concentration to 50 % of a test population Lethal Dose to 50% of a test population (Median Lethal Dose)
LE Legal Entity
LLV Level Limit Value
LoW List of Wastes (see http://ec.europa.eu/environment/waste/framework/list.htm)
LR Lead Registrant M/I Manufacturer / Importer MS Member States
Disclaimers

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
DARAMEND - Trademark of Peroxychem
© 2019 PeroxyChem. All Rights Reserved.