

**SAFETY DATA SHEET
DARAMEND® Reagent**

SDS # : DARR-C
Revision date: 2018-03-28
Format: NA
Version 2.01



1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name DARAMEND® Reagent

Recommended use of the chemical and restrictions on use

Recommended Use: Remediation of contaminated soil and groundwater

Restrictions on Use No uses to be advised against were identified.

Manufacturer/Supplier

PeroxyChem LLC
2005 Market Street
Suite 3200
Philadelphia, PA 19103
Phone: +1 267/ 422-2400 (General Information)
E-Mail: sdsinfo@peroxychem.com

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

Classification

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the 2015 Workplace Hazardous Materials Information System (WHMIS)

Combustible dust

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Warning

Hazard Statements

May form combustible dust concentrations in air

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.

Hazards not otherwise classified (HNOC)

No hazards not otherwise classified were identified.

Other Information 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

| Chemical name | CAS-No | Weight % |
|-------------------|-------------|----------|
| Iron | 7439-89-6 | 40-50 |
| Organic amendment | Proprietary | 50-60 |

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

4. FIRST AID MEASURES

| | |
|---|--|
| Eye Contact | In case of contact, immediately flush skin with plenty of water. Get medical attention if irritation develops and persists. |
| Skin Contact | Wash off with soap and water. In the case of skin irritation or allergic reactions see a physician. |
| 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. |
| Most important symptoms and effects, both acute and delayed | Coughing and/ or wheezing. |
| Indication of immediate medical attention and special treatment needed, if necessary | Treat symptomatically |

5. FIRE-FIGHTING MEASURES

| | |
|--|---|
| Suitable Extinguishing Media | Dry chemical, CO2, sand, earth, water spray or regular foam. |
| Specific Hazards Arising from the Chemical | Dry or powdered ingredients are combustible. Dispersal of finely divided dust from products into air may form mixtures that are ignitable and explosive. Minimize airborne dust generation and eliminate sources of ignition. |
| Flammable properties | Combustible material |
| Explosion data | |
| Sensitivity to Mechanical Impact | Not sensitive. |
| Sensitivity to Static Discharge | Fine dust dispersed in air, in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. |
| Protective equipment and precautions for firefighters | As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. |

6. ACCIDENTAL RELEASE MEASURES

| | |
|----------------------------------|---|
| Personal Precautions | Avoid dust formation. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). For personal protection see Section 8. |
| Other | For further clean-up instructions, call PeroxyChem Emergency Hotline number listed in Section 1 "Product and Company Identification" above. |
| Environmental Precautions | No special environmental precautions required. |
| Methods for Containment | Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. |
| Methods for cleaning up | Sweep or vacuum up spillage and return to container. |

7. HANDLING AND STORAGE

| | |
|------------------------------|---|
| Handling | Minimize dust generation and accumulation. Keep away from open flames, hot surfaces and sources of ignition. Refer to Section 8. |
| 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. |
| Incompatible products | Oxidizing agents. Strong acids. |

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control parameters**

Exposure Guidelines Local nuisance dust standards apply.

Appropriate engineering 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.

Individual protection measures, such as personal protective equipment

| | |
|---------------------------------|--|
| Eye/Face Protection | Safety glasses with side-shields. |
| Skin and Body Protection | No special precautions required. |
| Hand Protection | No special precautions required |
| Respiratory Protection | Whenever dust in the worker's breathing zone cannot be controlled with ventilation or other engineering means, workers should wear respirators or dust masks approved by NIOSH/MSHA, EU CEN or comparable organization to protect against airborne dust. |
| Hygiene measures | Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. |

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

| | |
|-----------------------|--------------------------|
| Appearance | Flakes |
| Physical State | Solid |
| Color | Tan Brown |
| Odor | No information available |

| | |
|------------------------------|---|
| Odor threshold | No information available |
| pH | 6.0 |
| Melting point/freezing point | No information available Not applicable |
| Boiling Point/Range | Decomposes upon heating |
| Flash point | No information available |
| Evaporation Rate | No information available |
| Flammability (solid, gas) | Combustible material |
| Flammability Limit in Air | |
| Upper flammability limit: | No information available |
| Lower flammability limit: | No information available |
| Vapor pressure | No information available |
| Vapor density | No information available |
| Density | 0.97 kg/L |
| Specific gravity | No information available |
| Water solubility | Insoluble in water |
| Solubility in other solvents | No information available |
| Partition coefficient | No information available |
| Autoignition temperature | No information available |
| Decomposition temperature | No information available |
| Viscosity, kinematic | No information available (Solid) |
| Viscosity, dynamic | No information available |
| Explosive properties | Low level dust explosion hazard |
| K _{st} | 17 bar-m/sec: St1 Class dust |
| Oxidizing properties | No information available |
| Molecular weight | No information available |
| Bulk density | No information available |

10. STABILITY AND REACTIVITY

| | |
|------------------------------------|---|
| Reactivity | None under normal use conditions |
| Chemical Stability | Stable. |
| 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. |
| Hazardous polymerization | Hazardous polymerization does not occur. |
| Conditions to avoid | Heat, flames and sparks. |
| Incompatible materials | Oxidizing agents. Strong acids. |
| Hazardous Decomposition Products | Burning produces obnoxious and toxic fumes |

11. TOXICOLOGICAL INFORMATION

Product Information

| | |
|-----------------------------------|--|
| LD50 Oral | Iron:: 98.6 g/kg (rat) |
| LD50 Dermal | No information available |
| LC50 Inhalation | Iron: > 100 mg/m ³ 6 hr (rat) |
| Serious eye damage/eye irritation | Not expected to be irritating based on the components. |
| Skin corrosion/irritation | Not expected to be irritating based on the components. |
| Sensitization | No information available. |

| Chemical name | LD50 Oral | LD50 Dermal | LC50 Inhalation | NOAEL Oral Value |
|---------------------|---------------------|-------------|-----------------|------------------|
| Iron (7439-89-6) | 98600 mg/kg (Rat) | | | |

Information on toxicological effects

Symptoms Dust is irritating eyes, nose, throat, and lungs.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Not expected to be irritating based on the components.
corrosivity Not applicable.
Chronic toxicity No known chronic effects of components present at greater than 1%.

Carcinogenicity Contains no ingredient listed as a carcinogen.

Mutagenicity This product is not recognized as mutagenic by Research Agencies

Neurological effects None known

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

STOT - single exposure No information available.
STOT - repeated exposure No information available.

Aspiration hazard No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects The environmental impact of this product has not been fully investigated Not expected to have significant environmental effects

| Chemical name | Toxicity to algae | Toxicity to fish | Toxicity to Microorganisms | Toxicity to daphnia and other aquatic invertebrates |
|---------------|-------------------|--|----------------------------|---|
| Iron | | 96 h LC50: = 13.6 mg/L (Morone saxatilis) static | | |

Persistence and degradability The organic components are biodegradable and can be expected to contribute to BOD.

Bioaccumulation Bioaccumulation is unlikely.

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

Other Adverse Effects None known.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods Recovery/recycling recommended. Can be landfilled or incinerated, when 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

DOT NOT REGULATED

15. REGULATORY INFORMATION**U.S. Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

This product has the following hazards that are reportable under The Emergency Planning and Community Right-to-Know rule (EPCRA Tier II):

- Combustible dust

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA/EPCRA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations**U.S. State Right-to-Know Regulations**

This product contains the following substances regulated under state Right-to-Know laws:

California Proposition 65

This product does not contain any Proposition 65 chemicals

CANADA**Environmental Emergencies**

This product contains no substances listed under Canada's Environmental Emergency regulations.

Canadian National Pollutant Release Inventory

This product contains no substances reportable under Canada's National Pollutant Release Inventory regulations.

International Inventories

| Component | TSCA (United States) | DSL (Canada) | EINECS/EL INCS (Europe) | ENCS (Japan) | China (IECSC) | KECL (Korea) | PICCS (Philippines) | AICS (Australia) | NZIoC (New Zealand) |
|-----------------------------------|----------------------------|-----------------|-------------------------------|-----------------|------------------|-----------------|----------------------------|---------------------|---------------------------|
| Lecithin 8002-43-5 (3) | X | X | X | | X | X | X | X | X |
| Iron 7439-89-6 (40-50) | X | X | X | | X | X | X | X | X |
| Organic amendment (50-60) | | X | X | | X | | X | X | X |
| Alfalfa | | X | X | | X | | | X | X |

| | | | | | | | | | |
|---------------------|--|--|--|--|--|--|--|--|--|
| 84082-36-0 (28.5) | | | | | | | | | |
|---------------------|--|--|--|--|--|--|--|--|--|

Mexico

Mexico - Grade Minimum risk, Grade 0

16. OTHER INFORMATION

| | | | | |
|-------------|-------------------------|-----------------------|--------------------------|------------------------------|
| NFPA | Health Hazards 1 | Flammability 1 | Stability 0 | Special Hazards - |
| HMIS | Health Hazards 1 | Flammability 1 | Physical hazard 0 | Special precautions - |

NFPA/HMIS Ratings Legend Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0

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End of Safety Data Sheet