

SAFETY DATA SHEET

TersOx™ Granular



Revision date: 2019-06-08
Version 1.0

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name: TersOx Granular

Synonyms: Calcium Peroxide, Calcium Superoxide, and TesOx™ Peroxygen

Product Form: Mixture

Recommended use of the chemical and restrictions on use

Recommended Use: For use in stimulating biological activity in soils and sludges
Remediation of contaminated groundwater and soils

Restrictions on Use: Use as recommended by the label

Details of the supplier and of the safety data sheet

Supplier Tersus Environmental, LLC
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Wake Forest, NC 27587
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Emergency telephone number

For leak, fire, spill or accident emergencies, call:

+1-919-453-5577 (Tersus Office Hours, 8:00 AM to 5:00 PM Eastern)
+1-800-424-9300 (Chemtrec 24 Hour Service – Emergency Only)
+1-703-527-3887 (Chemtrec Outside United States 24 Hour Service – Emergency Only)
+1-919-638-7892 Gary M. Birk (Outside office hours)

2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

| | |
|--|------------|
| Serious eye damage/eye irritation | Category 1 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Oxidizing Solids | Category 2 |

GHS Label elements, including precautionary statements**Label elements****Hazard Pictograms****Signal word**

Danger

Hazard Statements

Causes serious eye damage (H318)
 May cause respiratory irritation (H335)
 May intensify fire; oxidizer (H272)

Precautionary statements - Prevention

P280 - Wear eye protection/ face protection
 P261 - Avoid breathing dust.
 P271 - Use only outdoors or in a well-ventilated area
 P210 - Keep away from heat
 P220 - Keep/Store away from clothing/combustible materials
 P221 - Take any precaution to avoid mixing with combustibles P362 + P364 –
 Take off contaminated clothing and wash it before reuse.

Precautionary statements - Response

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 P310 - Immediately call a POISON CENTER or doctor
 P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
 P312 - Call a POISON CENTER or doctor if you feel unwell
 P370 + P378 - In case of fire: Use water spray for extinction

Precautionary statements - Storage

P403 - Store in a well-ventilated place

Precautionary Statements - Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Other hazards

Reacts with moisture to liberate oxygen

Unknown acute toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity

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| 3. COMPOSITION/INFORMATION ON INGREDIENTS |
|--|

Chemical FormulaCa(O₂)

Hazardous components

| Chemical Name | CAS Number | Concentration (wt. %) |
|-----------------------------------|------------|-----------------------|
| Calcium peroxide | 1305-79-9 | >60 |
| Calcium hydroxide | 1305-62-0 | 35 |
| Other inorganic calcium compounds | | <5 |

Synonyms are provided in Section 1.

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

4. FIRST AID MEASURES

| | |
|--|---|
| General Information | In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. |
| Eye Contact | Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention. |
| Skin Contact | Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser. |
| Inhalation | Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth. |
| Ingestion | If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting. |
| Most important symptoms and effects, both acute and delayed | Corneal lesions and irreversible damage if contact with the eyes. |
| Indication of any immediate medical attention and special treatment needed | Treat symptomatically |

5. FIRE-FIGHTING MEASURES

| | |
|--|--|
| Suitable Extinguishing Media | Flood with water |
| Unsuitable extinguishing media | Dry chemical. Foam. |
| <u>Explosion Data</u> | |
| Sensitivity to Mechanical Impact | Not sensitive. |
| Sensitivity to Static Discharge | Not sensitive. |
| Specific Hazards Arising from the chemical or mixture | Decomposes under fire conditions to release oxygen that intensifies the fire. |
| Special Fire Fighting Procedures | As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Move containers from fire area if you can do it without risk. |

6. ACCIDENTAL RELEASE MEASURES

| | |
|----------------------------------|---|
| Personal Precautions | Put on appropriate personal protective equipment (see Section 8). |
| Environmental Precautions | Do not allow spills to enter drains or waterways. Use good personal hygiene practices. Wash hands before eating, drinking, smoking or |

Methods for Containment and Clean Up

using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

Oxidizer. Eliminate all sources of ignition. Evacuate unprotected personnel from equipment recommendations found in Section 8. Never exceed any occupational exposure limit. Shovel or sweep material into plastic bags or vented containers for disposal. Do not return spilled or contaminated material to inventory. Flush remaining area with water to remove trace residue and dispose of properly. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs. Do not touch or walk through spilled material. Keep away from combustibles (wood, paper, oils, etc.). Do not return any product to container because of the risk of contamination.

7. HANDLING AND STORAGE**Precautions for safe handling**

- Avoid contact by using personal protective equipment.
- Use respiratory protective equipment when release of airborne dust is expected. exclude moisture.
- Avoid dust formation.
- Ensure adequate ventilation
- Keep away from heat and sources of ignition.
- Use only clean and dry utensils.
- Never return unused material to storage receptacle.

Hygiene measures

- Keep away from incompatible products
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.
- Do not ingest.
- Eye wash bottles or eye wash stations in compliance with applicable standards.

Conditions for safe storage, including any incompatibilities

- Keep only in the original container.
- Store in a receptacle equipped with a vent.
- Keep in a well-ventilated place.
- Keep at temperature not exceeding 40°C
- Keep in a dry place.
- Keep in properly labeled containers.
- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Keep away from incompatible products.
- Avoid dust formation.

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

Exposure guidelines, ingredients with workplace control parameters.

Exposure

| CAS No. | Ingredient | Source | Value |
|-----------|---|----------|--|
| 1305-62-0 | Calcium hydroxide (Ca(OH) ₂) | OSHA | TWA 15 mg/m ³ (total) 5 mg/m ³ (resp) |
| | | ACGIH | TWA: 5 mg/m ³ |
| | | NIOSH | TWA 5 mg/m ³ |
| | | Supplier | No Established Limit |

| CAS No. | Ingredient | Source | Value |
|-----------|---|----------|----------------------|
| 1305-79-9 | Calcium peroxide (Ca(O ₂)) | OSHA | No Established Limit |
| | | ACGIH | No Established Limit |
| | | NIOSH | No Established Limit |
| | | Supplier | No Established Limit |

Carcinogen Data

| CAS No. | Ingredient | Source | Value |
|-----------|---|--------|--|
| 1305-62-0 | Calcium hydroxide (Ca(OH) ₂) | OSHA | Select Carcinogen: No |
| | | NTP | Known: No Suspected: No |
| | | IARC | Group 1: No Group 2a: No Group 2b: No Group 3: No Group 4: No; |
| 1305-79-9 | Calcium peroxide (Ca(O ₂)) | OSHA | Select Carcinogen: No |
| | | NTP | Known: No Suspected: No |
| | | IARC | Group 1: No Group 2a: No Group 2b: No Group 3: No Group 4: No; |

Exposure Control

| | |
|----------------------------------|---|
| Appropriate engineering controls | Provide adequate ventilation. Where reasonably practicable this should be achieved using local exhaust ventilation and good general extraction. If these are not enough to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn. |
| Eye/face protection | Wear chemical safety goggles and a full-face shield while handling this product. |
| Respiratory protection | For many conditions, no respiratory protection may be needed; however, in dusty or unknown atmospheres or when exposures exceed limit values, wear a NIOSH approved respirator. |
| Skin | Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Chemical-resistant (Recommended materials: PVC, neoprene or rubber). |
| Hand protection | Wear suitable gloves. Suitable material: <ul style="list-style-type: none"> • PVC • Neoprene • Natural Rubber |
| Hygiene measures | <ul style="list-style-type: none"> • When using do not eat, drink or smoke. • Wash hands before breaks and at the end of workday. • Handle in accordance with good industrial hygiene and safety practice. • Do not ingest. • Eye wash bottles or eye wash stations in compliance with applicable standards. |
| Other work Practices | Ensure showers and eyewash stations are available. Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse. |

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | |
|--|---|
| Appearance | White-yellow Solid |
| Odor | None |
| Odor threshold | Not determined |
| pH | Approximately 12 |
| Melting point / freezing point | Not Measured |
| Initial boiling point and boiling range | Not Measured |
| Flash Point | Not Measured |
| Evaporation rate (Ether = 1) | Not Measured |
| Flammability (solid, gas) | Not Applicable |
| <u>Upper/lower flammability or explosive limits</u> | |
| Lower Explosive Limit: | Not Measured |
| Upper Explosive Limit: | Not Measured |
| Vapor pressure (Pa) | Not Measured |
| Vapor Density | Not Measured |
| Specific Gravity | Not Measured |
| Solubility in Water | Insoluble |
| Partition coefficient n-octanol/water (Log Kow) | Not Measured |
| Auto-ignition temperature | Not Measured |
| Decomposition temperature | Self-accelerating decomposition with oxygen release starting from 275°C |
| Viscosity (cSt) | Not Measured |
| Bulk Density | 500-650 g/L |

10. STABILITY AND REACTIVITY

| | |
|---|---|
| Reactivity | <ul style="list-style-type: none"> • Decomposes when moist. • Decomposes on heating. |
| Chemical stability | Stable under normal circumstances. |
| Possibility of hazardous reactions | <ul style="list-style-type: none"> • Contact with combustible material may cause fire. • Contact with flammables may cause fire or explosions. • Risk of explosion if heated under confinement. • Fire or intense heat may cause violent rupture of packages. |
| Conditions to avoid | <ul style="list-style-type: none"> • Exposure to moisture. • To avoid thermal decomposition, do not overheat. |
| Incompatible materials | Water, acids, bases, salts of heavy metals, reducing agents, organic materials, and flammable substances. |
| Hazardous decomposition products | Oxygen |

11. TOXICOLOGICAL INFORMATION**Acute Toxicity**

| Ingredient | Oral LD50, mg/kg | Skin LD50, mg/kg | Inhalation Vapor LC50, mg/L/4hr | Inhalation Dust/Mist LC50, mg/L/4hr | Inhalation Gas LC50, ppm |
|--|------------------------------|-------------------|---------------------------------|-------------------------------------|--------------------------|
| Calcium peroxide (Ca(O ₂)) (1305-79-9) | No data available | No data available | No data available | No data available | No data available |
| Calcium hydroxide (Ca(OH) ₂) (1305-62-0) | 7,340.00, Rat - Category: NA | No data available | No data available | No data available | No data available |

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

| Classification | Category | Hazard Description |
|-------------------------------|----------|-----------------------------------|
| Acute toxicity (oral) | --- | Not Applicable |
| Acute toxicity (dermal) | --- | Not Applicable |
| Acute toxicity (inhalation) | --- | Not Applicable |
| Skin corrosion/irritation | 2 | Causes skin irritation. |
| Serious eye damage/irritation | 1 | Causes serious eye damage. |
| Respiratory sensitization | --- | Not Applicable |
| Skin sensitization | --- | Not Applicable |
| Germ cell mutagenicity | --- | Not Applicable |
| Carcinogenicity | --- | Not Applicable |
| Reproductive toxicity | --- | Not Applicable |
| STOT-single exposure | 3 | May cause respiratory irritation. |
| STOT-repeated exposure | --- | Not Applicable |
| Aspiration hazard | --- | Not Applicable |

12. ECOLOGICAL INFORMATION**Aquatic Ecotoxicity**

| Ingredient | 96 hr LC50 fish, mg/l | 48 hr EC50 crustacea, mg/l | ErC50 algae, mg/l |
|--|----------------------------|----------------------------|-------------------|
| Calcium peroxide (Ca(O ₂)) - (1305-79-9) | Not Available | Not Available | Not Available |
| Calcium hydroxide (Ca(OH) ₂) - (1305-62-0) | 33.884, Clarias gariepinus | Not Available | Not Available |

Persistence and degradability

Biodegradability does not pertain to inorganic substances.

Bioaccumulative potential

Does not bioaccumulate.

Mobility in Soil

Information not available.

Other adverse effects

Information not available.

13. DISPOSAL CONSIDERATIONS

| | |
|-------------------------------|--|
| Waste Disposal Methods | This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). Dispose of in accordance with local regulations. |
| US EPA Waste Number | D001 |
| Contaminated Packaging | Empty remaining contents. Empty containers should be taken to an approved waste handling site for recycling or disposal. |

14. TRANSPORTATION INFORMATION**DOT**

| | |
|----------------------|--------------------------|
| UN/ID no | UN 1457 |
| Proper Shipping Name | CALCIUM PEROXIDE MIXTURE |
| Hazard class | 5.1 |
| Packing Group | II |

TDG

| | |
|----------------------|--------------------------|
| UN/ID no | UN 1457 |
| Proper Shipping Name | CALCIUM PEROXIDE MIXTURE |
| Hazard class | 5.1 |
| Packing Group | II |

ICAO/IATA

Oxidizers are prohibited from aircraft.

IMDG/IMO

| | |
|----------------------|--------------------------|
| UN/ID no | UN 1457 |
| Proper Shipping Name | CALCIUM PEROXIDE MIXTURE |
| Hazard class | 5.1 |
| Packing Group | II |

ADR/RID

| | |
|----------------------|--|
| UN/ID no | UN 1457 |
| Proper Shipping Name | OXIDIZING SOLID, n.o.s. (Calcium Peroxide) |
| Hazard class | 5.1 |
| Packing Group | II |

Other Information

This material is shipped in 25 kg bags or 50 kg fiber drums.

**15. REGULATORY INFORMATION****Regulatory Overview**

The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

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

- | | |
|-------------------------------------|-----|
| • Acute health hazard | Yes |
| • Chronic health hazard | No |
| • Fire hazard | Yes |
| • Sudden release of pressure hazard | No |
| • Reactive Hazard | No |

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)

WHMIS Hazard Class

- C - Oxidizing materials
- E - Corrosive material

16. OTHER INFORMATION**NFPA (National Fire Protection Association) - Classification**

- | | |
|-----------------------------|-------------|
| • Health | 2 |
| • Flammability | 0 |
| • Instability or Reactivity | 0 |
| • Special Notices | OX Oxidizer |

HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

- | | |
|----------------|---|
| • Health | 2 moderate |
| • Flammability | 0 minimal |
| • Reactivity | 1 slight |
| • PPE | Determined by User; dependent on local conditions |

Key or legend to abbreviations and acronyms used in the safety data sheet

- | | |
|---------|---|
| • PEL | Permissible exposure limit |
| • TWA | 8-hour, time-weighted average |
| • ACGIH | American Conference of Governmental Industrial Hygienists |
| • OSHA | Occupational Safety and Health Administration |
| • NTP | National Toxicology Program |
| • IARC | International Agency for Research on Cancer |
| • NIOSH | National Institute for Occupational Safety and Health |

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End of Safety Data Sheet