

SAFETY DATA SHEET

TersOx™ Powder



Revision date: 2019-06-08
Version 1.0

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name: TersOx Powder

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
1116 Colonial Club Rd
Wake Forest, NC 27587
Phone: +1-919-453-5577
Email: info@tersusenv.com

Contact Person: David F. Alden
Phone: +1-919-453-5577 x2002
Email: david.alden@tersusenv.com

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

3. COMPOSITION/INFORMATION ON INGREDIENTS
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Chemical FormulaCa(O₂)**Hazardous components**

Chemical Name	CAS Number	Concentration (wt. %)
Calcium peroxide	1305-79-9	75
Calcium hydroxide	1305-62-0	25

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.
Explosion Data	
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 using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.
Methods for Containment and Clean Up	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
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 |

Disclaimer: This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. All recommendations for the use of our products, whether given by us, orally or to be implied from data or lab tests results by us, are based on the current state of our knowledge at the time those recommendations are made. When additional information is obtained, these recommendations may be updated. They may also be influenced by circumstances outside our control. Notwithstanding, such recommendation the user is responsible that the product as supplied by us is suitable to the process or purpose he intends to use it. The user of the product is solely responsible for compliance with all laws and regulations applying to the use of this product. Since we cannot control the application, use or processing of the product, we do not accept

responsibility. Therefore, the user should assure that the intended use of the product will not infringe in any party's intellectual property right.



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End of Safety Data Sheet