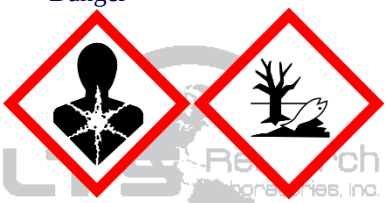
LTS Research Laboratories, Inc.
Safety Data Sheet
Zinc Silicon Oxide

1. Product and Company Identification

Trade Name:	Zinc Silicon Oxide
Chemical Formula:	$ZnO\text{-}SiO_2$
Recommended Use:	Scientific research and development
Manufacturer/Supplier:	LTS Research Laboratories, Inc.
Street:	37 Ramland Road
City:	Orangeburg
State:	New York
Zip Code:	10962
Country:	USA
Tel #:	855-587-2436 / 855-lts-chem
24-Hour Emergency Contact:	800-424-9300 (US & Canada) +1-703-527-3887 (International)

2. Hazards Identification

Signal Word: Danger



Hazard Statements:
H350: May cause cancer
H372: Causes damage to organs through prolonged or repeated exposure
H410: Very toxic to aquatic life with long lasting effects

Precautionary Statements:
P260: Do not breathe dust/fume/gas/mist/vapours/spray
P264: Wash skin thoroughly after handling
P270: Do not eat, drink or smoke when using this product
P273: Avoid release to the environment
P280: Wear protective gloves/protective clothing/eye protection/face protection
P308+P313: IF exposed or concerned: Get medical advice/attention
P391: Collect spillage
P405: Store locked up
P501: Dispose of contents/container in accordance with local/regional/national/international regulations

HMIS Health Ratings (0-4):

Health:	2
Flammability:	0
Physical:	0

3. Composition

Chemical Family:	Ceramic
Additional Names:	None
Zinc oxide (ZnO):	
Percentage:	0-100 wt%
CAS #:	1314-13-2
EC #:	215-222-5
Silicon oxide (SiO_2):	
Percentage:	0-100 wt%
CAS #:	14808-60-7
EC #:	238-878-4

4. First Aid Procedures

General Treatment:	Seek medical attention if symptoms persist.
Special Treatment:	None
Important Symptoms:	None
Inhalation:	Remove victim to fresh air. Supply oxygen if breathing is difficult. Keep patient warm. Seek immediate medical attention.
Ingestion:	Seek immediate medical attention.
Skin:	Immediately wash affected area with mild soap and water. Remove any contaminated clothing. Seek immediate medical attention.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek immediate medical attention.

LTS Research Laboratories, Inc.

5. Firefighting Measures

Flammability:	Non-flammable
Extinguishing Media:	No special restrictions – use suitable extinguishing agent for surrounding material and type of fire.
Spec. Fire Fighting Procedure:	Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

6. Accidental Release Measures

If Material Is Released/Spilled:	Wear appropriate respiratory and protective equipment specified in special protection information. Keep unprotected persons away. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.
Environmental Precautions:	Isolate runoff to prevent environmental pollution.

7. Handling and Storage

Handling Conditions:	Avoid contact with skin and eyes. Wash thoroughly after handling. Open and handle container with care.
Storage Conditions:	Store in a cool dry place in a tightly sealed container. Store apart from materials and conditions listed in section 10.
Work/Hygienic Maintenance:	Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.
Ventilation:	Provide sufficient ventilation to maintain concentration at or below threshold limit.

8. Exposure Controls and Personal Protection

Permissible Exposure Limits:	0.05 mg/m^3 as SiO_2, long-term value
Threshold Limit Value:	0.025 mg/m^3 as SiO_2, long-term value
Special Equipment:	Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Respiratory Protection:	Dust Respirator
Protective Gloves:	Nitrile rubber gloves with minimum thickness of 0.11 mm
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

9. Physical and Chemical Characteristics

Color	N/A
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	Odorless
Water Solubility:	N/A
Boiling Point:	N/A
Melting Point:	N/A
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	N/A
Molecular weight:	N/A

10. Reactivity

Stability:	Stable under recommended storage conditions
Reacts With:	Oxidizing agents
Incompatible Conditions:	None
Hazardous Decomposition Products:	Metal oxide fume, zinc/zinc oxides, silicon oxides

11. Toxicological Information

Potential Health Effects:

Eyes:	May cause irritation
Skin:	May cause irritation
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	Zinc compounds have variable low toxicity. Zinc is not inherently a toxic element. However, when heated it evolves a fume of zinc oxide which, when inhaled fresh can cause a disease known as “brass founders” “ague”, or brass chills”. Zinc dust which is not freshly formed is virtually innocuous. There is no cumulative effect from the inhalation of zinc fumes. SiO_2: May cause damage to the lung, the spleen, the blood and the endocrine system through prolonged or repeated exposure. Route of exposure: Inhalative
Signs & Symptoms:	N/A
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	7,950 mg/kg for mouse by mouth as ZnO 3,160 mg/kg for mouse by mouth as SiO_2
Carcinogen:	Human carcinogen (SiO_2) IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity. ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by routes of administration, at sites, of histologic types, or by mechanisms considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans. NTP-K: Known to be carcinogenic: sufficient evidence from human studies.

12. Ecological Information

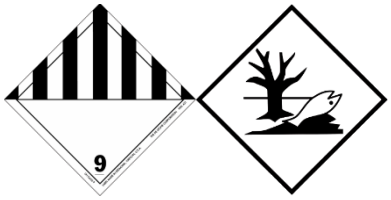
Aquatic Toxicity:	ZnO - Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 1.1 mg/l - 96.0 h Toxicity to daphnia and other aquatic invertebrates - EC50 - Daphnia magna (Water flea) - 0.098 mg/l - 48 h
Persistent Bioaccumulation Toxicity:	N/A
Very Persistent, Very Bioaccumulative:	N/A
Notes:	Very toxic for aquatic organisms. Do not allow product to reach ground water, water course or sewage system. Do not allow material to be released to the environment without proper governmental permits. Danger to drinking if even small quantities leak into the ground. May cause long lasting harmful effects to aquatic life Avoid transfer into the environment

13. Disposal Considerations

Dispose of in accordance with local, state, national, and international regulations.

14. Transportation Data

Hazardous:	Hazardous as powder only.



Hazard Class:	9 Miscellaneous hazardous materials
Packing Group:	III
UN Number:	UN3077
Proper Shipping Name:	Environmentally hazardous substance, solid, n.o.s. (Zinc Silicon oxide)

15. Regulatory Information

Sec 302 Extremely Hazardous:	No
Sec 304 Reportable Quantities:	N/A
Sec 313 Toxic Chemicals:	No

16. Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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