

Material Safety Data Sheet

Zinc oxide

ACC# 25490

Section 1 - Chemical Product and Company Identification

MSDS Name: Zinc oxide

Catalog Numbers: AC194890000, AC194890010, AC315790000, AC315790250, AC422740000, AC422740010, AC422740050, S80249, Z50-12, Z50-212, Z50-500, Z52-10, Z52-500

Synonyms: Zinc white; Chinese white; C.I. Pigment White 4; C.I. 77947.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
1314-13-2	Zinc oxide	>99	215-222-5

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white or yellow-white solid.

Caution! May cause eye, skin, and respiratory tract irritation. Inhalation of fumes may cause metal-fume fever. The toxicological properties of this material have not been fully investigated.

Target Organs: No data found.

Potential Health Effects

Eye: Dust may cause mechanical irritation.

Skin: Prolonged and/or repeated contact may cause irritation and/or dermatitis.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Moderately toxic to humans by ingestion. The toxicological properties of this substance have not been fully investigated.

Inhalation: Effects may be delayed. May cause respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. The toxicological properties of this substance have not been fully investigated. Can produce delayed pulmonary edema. Zinc oxide dust is considered to be of low toxicity and is classified as a nuisance particulate by the ACGIH. However, inhalation fumes or very fine dust may cause "zinc fume fever", which is characterized by flu-like symptoms with metallic taste, coughing, weakness, fatigue, muscular pain, and nausea, followed by fever and chills. Onset of symptoms occurs about 4-12 hours after exposure.

Chronic: Effects may be delayed.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Material will not burn.

Extinguishing Media: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 1; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Use with adequate ventilation. Wash clothing before reuse. Avoid breathing dust.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Zinc oxide	2 mg/m ³ TWA (respirable fraction); 10 mg/m ³ STEL (respirable fraction)	5 mg/m ³ TWA (dust and fume) 500 mg/m ³ IDLH	5 mg/m ³ TWA (fume); 15 mg/m ³ TWA (total dust); 5 mg/m ³ TWA (respirable fraction)

OSHA Vacated PELs: Zinc oxide: 5 mg/m³ TWA (fume); 10 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Appearance: white or yellow-white

Odor: odorless

pH: Not applicable.

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point: 1975 deg C

Decomposition Temperature: Sublimes.

Solubility: Negligible in water

Specific Gravity/Density: 5.6

Molecular Formula: ZnO

Molecular Weight: 81.37

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: Dust generation.

Incompatibilities with Other Materials: Magnesium, chlorinated rubber.

Hazardous Decomposition Products: Toxic fumes of zinc oxide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 1314-13-2; ZH4810000; ZH4817000

LD50/LC50:

CAS# 1314-13-2:

Draize test, rabbit, eye: 500 mg/24H Mild;
Draize test, rabbit, skin: 500 mg/24H Mild;
Inhalation, mouse: LC50 = 2500 mg/m³;
Oral, mouse: LD50 = 7950 mg/kg;

Carcinogenicity:

CAS# 1314-13-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found

Teratogenicity: No information found

Reproductive Effects: No information found

Mutagenicity: No information found

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: No information available.

Physical: Testing of aquatic toxicity is not meaningful as solubility is poor.

Other: After exposing rainbow trout to zinc for a period of 30 days in river water, it was concluded that zinc accumulates in the gills, liver, kidney and opercular bone, but not the muscle.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	NOT REGULATED FOR DOMESTIC TRANSPORT	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOL
Hazard Class:	XCP	9
UN Number:		UN3077
Packing Group:		III

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 1314-13-2 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 1314-13-2: immediate.

Section 313

This material contains Zinc oxide (listed as Zinc compounds), >99%, (CAS# 1314-13-2) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA. CAS# 1314-13-2 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 1314-13-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

N

Risk Phrases:

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 1314-13-2: 0

Canada - DSL/NDSL

CAS# 1314-13-2 is listed on Canada's DSL List.

Canada - WHMIS

not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 1314-13-2 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 12/12/1997

Revision #10 Date: 3/15/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.