

1. Product and Company Identification

Material name	ZINC OXIDE
Version #	02
Revision date	08-30-2011
CAS #	1314-13-2
Product Codes	J.T.Baker: 4358 Macron: 32600, 8824, 8825, 8832, 8843
Synonym(s)	Chinese white; zinc white; flowers of zinc; calamine
Manufacturer	Avantor Performance Materials, Inc.
Address	3477 Corporate Parkway Suite #200 Center Valley, PA 18034 US
Customer Service	855-282-6867
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	CAUTION Product dust may be irritating to eyes, skin and respiratory system.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Skin contact. Eye contact. Ingestion.
Eyes	Dust or powder may irritate eye tissue. If irritation should occur, it is expected to be transient.
Skin	Dust or powder may irritate the skin.
Inhalation	Inhalation of dusts may cause respiratory irritation. Inhalation of powder or fumes may cause metal fume fever.
Ingestion	Expected to be a low ingestion hazard. May cause temporary irritation of the throat, stomach, and gastrointestinal tract.
Target organs	Respiratory system.
Chronic effects	None known.
Potential environmental effects	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
ZINC OXIDE	1314-13-2	99 - 100

4. First Aid Measures

First aid procedures	
Eye contact	Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention if irritation develops and persists.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Inhalation	Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.
Ingestion	Seek medical advice.
Notes to physician	Treat symptomatically.

General advice Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties This product is not flammable.

Extinguishing media

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media None known.

Protection of firefighters

Protective equipment and precautions for firefighters Firefighters should wear full protective gear. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Special protective equipment for fire-fighters 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 Keep unnecessary personnel away. Keep upwind. Ventilate the area. Avoid inhalation of dust from the spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods for containment If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up Avoid dust formation.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Large Spills: Collect dust or particulates using a vacuum cleaner with a HEPA filter. Reduce airborne dust and prevent scattering by moistening with water.

Never return spills in original containers for re-use. Clean contaminated surface thoroughly. Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling Keep formation of airborne dusts to a minimum. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.

Storage Keep container tightly closed. Store in a well-ventilated place.

8. Exposure Controls / Personal Protection

ACGIH

Material	Type	Value	Form
ZINC OXIDE (1314-13-2)	STEL	10.0000 mg/m3	Respirable fraction.
	TWA	2.0000 mg/m3	Respirable fraction.

Occupational exposure limits

U.S. - OSHA

Material	Type	Value	Form
ZINC OXIDE (1314-13-2)	PEL	5.0000 mg/m3	Respirable fraction.
		15.0000 mg/m3	Total dust.
		5.0000 mg/m3	Fume.

Engineering controls	Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL, suitable respiratory protection must be worn.
Personal protective equipment	
Eye / face protection	Use tight fitting goggles if dust is generated.
Skin protection	Wear appropriate clothing to prevent repeated or prolonged skin contact.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: High-efficiency particulate respirator.
General hygiene considerations	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	Powder.
Color	White to Yellowish
Odor	Odorless.
Odor threshold	Not available.
Physical state	Solid.
Form	Solid.
pH	6.9 - 7.4
Melting point	3587 °F (1975 °C)
Freezing point	3587 °F (1975 °C)
Flash point	Not available.
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor density	Not available.
Specific gravity	5.607
Relative density	Not available.
Solubility (water)	0.004 g/l at 64°F
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available.
Molecular weight	81.39 g/mol
Molecular formula	O-Zn

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under normal temperature conditions.
Conditions to avoid	Excessive heat.
Incompatible materials	Strong oxidizing agents. Chlorinated compounds. Magnesium.
Hazardous decomposition products	Vapors/gases/fumes of: Zinc oxide.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product

ZINC OXIDE (1314-13-2)

Test Results

Acute Inhalation LC50 Mouse: > 5.7 mg/l 4.00 Hours

Acute Oral LD50 Rat: > 5 g/kg

Sensitization

Not a skin sensitizer.

Acute effects

Low hazard for usual industrial or commercial handling.

Local effects

May cause eye irritation. May cause skin irritation. May cause irritation to the respiratory system.

Chronic effects

None known.

Carcinogenicity

This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Skin corrosion/irritation

May irritate and cause redness and pain.

Epidemiology

No epidemiological data is available for this product.

Mutagenicity

No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Neurological effects

None known.

Reproductive effects

Contains no ingredient listed as toxic to reproduction

Teratogenicity

No data available to indicate product or any components present at greater than 0.1% may cause birth defects.

Symptoms and target organs

Irritant effects.

Further information

Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.

12. Ecological Information

Ecotoxicological data

Product

ZINC OXIDE (1314-13-2)

Test Results

LC50 Striped bass (*Morone saxatilis*): 0.25 mg/l 48.00 hours

LC50 Water flea (*Daphnia magna*): 0.098 mg/l 48.00 hours

Ecotoxicity

Expected to be very toxic to aquatic organisms. May cause long-term adverse effects in the environment.

Persistence and degradability

The product is not readily biodegradable.

Partition coefficient (n-octanol/water)

Not available

13. Disposal Considerations

Disposal instructions

Dispose of contents/container in accordance with local/regional/national/international regulations. Incinerate the material under controlled conditions in an approved incinerator.

Contaminated packaging

Offer rinsed packaging material to local recycling facilities. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

ZINC OXIDE (CAS 1314-13-2) 1.0 % N982

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

ZINC OXIDE (CAS 1314-13-2) Listed. N982

CERCLA (Superfund) reportable quantity

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 311 hazardous chemical Yes

Clean Water Act (CWA) Priority pollutant
Toxic pollutant

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

ZINC OXIDE (CAS 1314-13-2) 500 LBS

US - Pennsylvania RTK - Hazardous Substances: Listed substance

ZINC OXIDE (CAS 1314-13-2) Listed.

Saf-T-Data Health: 2 - Moderate
Flammability: 0 - None
Reactivity: 0 - None
Contact: 1 - Slight
Lab Protective Equip: B - GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES
Storage Color Code: G - Green (General Storage)

16. Labeling Info

Label Hazard Warning

CAUTION

Product dust may be irritating to eyes, skin and respiratory system.

Label Precautions

Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed.

Label First Aid

Immediately flush eyes with plenty of water for at least 15 minutes. Flush skin thoroughly with water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. If ingestion of a large amount does occur, call a poison control center immediately.

17. Other Information

NFPA ratings

Health: 1
Flammability: 0
Instability: 0

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