



SAFETY DATA SHEET

PRODUCT NAME: ZINC OXIDE
 EFFECTIVE DATE: JULY 16, 2015
 SCOPE: THIS SDS IS VALID GLOBALLY INCLUDING IN THE U.S.A. AND BRAZIL.
 THIS SDS IS NOT VALID IN THE EEA MEMBER COUNTRIES OR IN OTHER COUNTRIES WHERE
 TRANSPORTATION OF ZINC OXIDE IS REGULATED BY LEGISLATION.

1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Trade Name: Zinc Oxide
Trade code/grade: This SDS is valid for all product grades
CAS number: 1314-13-2
EINECS number: 215-222-5
Reach Registration: 01-2119463881-32-0075 (Tonnage Band >1000 t/yr)

1.2 Common Uses

Rubber compounding, zinc chemical manufacturing, paint and coating, pharmaceuticals, agriculture, electronics, ceramics

1.3 Details of the supplier of the data sheet

| | | | |
|---|--|--|---|
| Supplier Address U.S. Zinc Corporation 2727 Allen Parkway; Suite 800 Houston TX 77019 | Supplier Phone +001 713 926 1705 | Supplier Contact John Williams | |
| | Supplier Fax +001 713 924 4829 | Contact Email HSE@USZinc.com | Contact Phone +001 281 840 5376 |

1.4 Emergency Contact

Phone Number: +001 832 723 0322
 +001 888 464 2958 (24 Hour Answering Service)

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not transport regulated in the U. S. A.

2.2 GHS Classification

Aquatic Chronic 1, H410

2.3 GHS Labeling

Zinc Oxide. Signal word: Warning.

H410: Very toxic to aquatic life with long lasting effects.

P273: Avoid release to the environment.

P391: Collect spillage.

P501: Dispose of contents/container as hazardous or special waste in accordance with applicable law.



3 COMPOSITION/INFORMATION ON INGREDIENTS

| Component Name | Identifiers | % Composition |
|------------------|-------------------------------|---------------|
| Zinc Oxide (ZnO) | CAS: 1314-13-2 EC215-222-5 | 95-100 |

Note: all other constituents are found at trace levels, for further information please consult the individual product grade TDS.

4 FIRST AID MEASURES

4.1 Description of first aid measures

| | |
|---------------------|---|
| Skin Contact | Immediately wash with soap and water. Seek medical attention if irritation occurs. |
| Eye Contact | Immediately flush eyes with plenty of water. Get medical attention if irritation occurs. |
| Ingestion | Drink plenty of water. Do not induce vomiting. Seek medical attention or contact Poison Control. |
| Inhalation | Remove victim to fresh air. Seek medical attention if feeling unwell or experiencing respiratory distress |

4.2 Most important symptoms and effects, both acute and delayed

Acute: Dry cough, headache, throat irritation

Delayed: No delayed symptoms or effects expected

4.3 Indication of any immediate medical attention and special treatment needed

Bad cough, headache, and/or nausea. Move effected individual to fresh air.

5 FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

| | |
|---------------------------------------|--|
| Suitable Extinguishing Media | Use an extinguishing media suitable for the surrounding fire |
| Unsuitable Extinguishing media | None Known |

5.2 Special hazards arising from the substance or mixture

| | |
|---|--|
| Hazards from the substance | Water contaminated with this material must be contained and prevented from being discharged to environment |
| Hazardous thermal decomposition products | Decomposition products may include Zinc Oxide fumes at high temperatures |

5.3 Advice for fire-fighters

| | |
|---|------------------------------|
| Special protective actions for fire-fighters | No special measures required |
| Special protective equipment for fire-fighters | Suitable breathing apparatus |

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions

Avoid breathing dust. Refer to Section 7 and Section 8 for advice on handling/storage and PPE

6.2 Environmental Precautions

Prevent contamination of soil, drains, and surface water. Inform relevant authorities of spill where required.

6.3 Spill Cleanup Recommendation

Avoid dry sweeping or other methods which raise dust. Vacuum or wet-sweep and place into a suitable closable, labeled container for disposal. Dispose of waste via licensed waste disposal contractor.

7 HANDLING AND STORAGE

7.1 Precautions for Safe Handling

This product should be used in accordance with good industrial safety practices and industrial hygiene standards and all local, state, federal, and international regulations. Avoid creating airborne dust. Ensure adequate exhaust ventilation. Workers who handle material should wear gloves and thoroughly wash hands/forearms after exposure. See Section 8.2 if exposure exceeds limits.

7.2 Conditions for Safe Storage/Instabilities

This product should be stored in accordance with all local, state, federal and international regulations. Store in a cool, dry, well-ventilated space sealed tightly in the original containers. Protect containers from damage and repair if damage occurs. Use all product within 1 year.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Occupational Exposure Limits

| Product/Ingredient Name | Exposure limit values (8 hour TWA) |
|--------------------------------|--|
| Zinc Oxide (U.S.A. OSHA PEL) | 5 mg/m ³ (fumes) 15mg/m ³ (dust; total) 5 mg/m ³ (dust; respirable) |
| Zinc Oxide (U.S.A. NIOSH IDLH) | 500 mg/m ³ |

8.2 Exposure Controls

| | |
|--|---|
| Respiratory Protection | Avoid creating dust. If exposure levels exceed limits, respiratory protection approved for the work being performed must be worn. |
| Hand Protection | Always wear glove approved for the work being performed when handling Zinc Oxide. |
| Skin Protection | Wear normal chemical work clothing. |
| Eye Protection | Always wear approved protective eyewear if there is a potential for dust being created while handling the material. |
| General Protective Hygiene Measures | Use local exhaust ventilation to pro-actively reduce dust levels. |

8.3 Other

| | |
|---------------------------------------|---|
| Route(s) of entry | Inhalation and mechanical irritation of eyes and skin |
| Carcinogen Status | Not a NTP/IARC carcinogen |
| Signs and symptoms of exposure | Dry throat, cough, and dry itchy skin |
| Notes | Excess bulk exposure may cause acute respiratory irritation or dry skin |

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|-------------------------------|----------------------------------|
| Appearance: | White, cream, or yellowish color |
| Description: | Fine powder or pelletized powder |
| Typical Particle Size: | 0.1 µm – 5 µm |
| Flammability Limits: | Zinc Oxide is not flammable |
| Explosive Limits: | Zinc Oxide is not explosive |
| Odor: | Odorless |

| | |
|-----------------------------|-------------------|
| Vapor Pressure: | @1500C = 12 mm HG |
| Odor Threshold: | Odorless |
| Vapor Density: | n/a |
| pH: | Neutral |
| Relative Density: | Varies |
| Melting point: | 1975 °C |
| Solubility in water: | Negligible |
| Boiling Point: | n/a |
| Flash Point: | Not flammable |
| Evaporation Rate | n/a |
| Specific Gravity: | 5.68 |
| Molecular Weight: | 81.38 |
| Suggested Solvents: | Acids and bases |
| Fire qualities: | Will not burn |
| Explosive Qualities: | Not explosive |
| Volatile: | 0.3% nominal |

10 STABILITY AND REACTIVITY

| | |
|--|--|
| Reactivity | Stable under normal, dry conditions |
| Chemical stability | This product is stable |
| Possibility of hazardous reactions | None |
| Conditions to avoid or incompatible materials | Heated magnesium. Chlorinated rubbers above 215C |
| Hazardous decomposition products | Potential for ZnO fumes at elevated temperatures |

11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

| | |
|-------------------------|---|
| Routes of Entry | Oral, Inhalation |
| Acute Toxicity | LD ₅₀ (rat, Inhalation): 7,950 mg/kg (Encyclopedia of Toxicology: Reference Book 2005) |
| Chronic Toxicity | NOAEL: 50 mg/day (based on human clinical studies) |
| Mutagenicity | No data available |
| Carcinogenicity | No data available. Not listed as an IARC Carcinogen. Not listed in the NTP report on carcinogens. |

11.2 Acute Exposure Symptoms

| | |
|---------------------|--|
| Eye Contact | Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes. |
| Inhalation | Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the respiratory tract |
| Skin Contact | No known significant effects or critical hazards |
| Ingestion | No known significant effects or critical hazards |

12 ECOLOGICAL INFORMATION

12.1 Toxicity

| Product Name | Result | Species | Dose | Exposure | Reference |
|--------------|--|---------|----------------|----------|--|
| Zinc Oxide | LC50 Inhalation Dusts and mists | Rat | >5.7mg/L | 4 Hours | Klimisch and Freisberg (1982) |
| Zinc Oxide | LD50 Oral | Rat | 15000 mg/kg | N/A | Löser (1972) |
| Zinc Oxide | LD50 Oral | Rat | >5000 mg/kg | N/A | Löser (1977) |

12.2 Persistence and degradability

Not rapidly degradable

12.3 Bioaccumulative potential

No evidence to indicate significant bioaccumulative potential

12.4 Mobility in soil

No evidence to indicate significant mobility in soil

12.5 Results of PBT and vPvB assessment

ZnO is not PBT or vPvB.

12.6 Other adverse effects

None

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Generation of product waste should be minimized wherever possible. Disposal of product, solutions, and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional or local authority requirements. Dispose of surplus and non-recyclable products via licensed waste disposal contractor. Waste should not be released into sewer system unless regulations permit such release

Containers/Packaging

Generation of packaging waste should be minimized wherever possible. Waste packaging should be recycled when possible. Incineration and/or landfill dumping should only be considered when recycling isn't feasible. Make sure to follow all local, state, federal, and international regulations when disposing of packaging materials.

14 TRANSPORTATION INFORMATION

| | |
|---|--------------------------------|
| NAFTA Tariff Class | 2817.00.0000, Sched. B. |
| Country of Origin | U.S.A. |
| Responsible party | U.S. Zinc, Houston Texas USA |
| Classification code | M7 (Formerly: Item Number 12C) |
| Hazard identification/reconnaissance # | 90 |
| NMFC Class | 55 |
| USDOT Information | This material is not regulated |

15 REGULATORY INFORMATION

15.1 U.S.A. Regulations

| | |
|--------------------------|---|
| USDOT | Not Transport regulated, 49CFR172 |
| SARA 302 | Yes, name listed (Zinc). RQ= None, TPQ= None |
| SARA311/312 | Yes, acute hazard, 29CFR1200 |
| SARA313 | Yes, Zn & Pb compounds |
| CA Prop.65 | Yes, Pb & Cd |
| CAA 112, 61 HAP | No, not regulated, no HAP's |
| FIFRA 152 et seq. | No (product is not subject to FIFRA) |
| CERCLA 102/103 | Name List, RQ=None |
| NSF 60/61 | Submitted NSF, UL |
| FCC | Listed |
| CONEG | Compliant |
| ODS/ODC 82 | No |
| TSCA | Yes, on Inventory, Compliant with TSCA, Notification not required |
| RCRA 261 | If governing spec is >1000 ppm Pb or >20 ppm Cd, product must be TCLP tested for Pb and Cd to determine if waste product is subject to RCRA |
| USFDA | Listed as GRAS at 21CFR182.8991 |

15.2 TSCA Equivalent 'inventory' regulations

| | |
|-----------------|---|
| AICS | Yes |
| SWISS | Yes |
| PICCS | Yes |
| DSL | Yes |
| NDSL | No |
| ASIA-PAC | Yes |
| EINECS | Yes, on inventory |
| ELINCS | No, notification/reporting not required |

15.3 EU REACH Information

| | |
|----------------------------------|--|
| Product Origin | 01-2119463881-32-0075 (Tonnage >1000 t/year) |
| P.R.C. Pre-Registration # | 05-2114620034-66-0000 |
| Brazil Pre-Registration # | 05-2114626885-37-0000 |

16 OTHER INFORMATION

16.1 HMIS Hazard Rating (Paint and Coating Industry)

| | |
|----------------------------|---|
| Health | 1 (Slight) |
| Flammability | 0 |
| Reactivity | 0 |
| Personal Protection | E (in bulk dust conditions only. Gloves, mask, and goggles are recommended. |

16.2 GHS Labeling

Zinc Oxide. Signal word: Warning.

H410: Very toxic to aquatic life with long lasting effects.

P273: Avoid release to the environment.

P391: Collect spillage.

P501: Dispose of contents/container as hazardous or special waste in accordance with applicable law.



16.3 Notes

This Safety Data Sheet (SDS) provides information on the safety requirements for working with this material. This SDS is not a guarantee of the product's properties. The information presented here is believed to be accurate by the preparer utilizing reasonably available published data. We are not responsible for any inadvertent error or omission. Use of this product will include many factors beyond our control and we cannot accept liability for any accident, injury or damage cause by its use.