

Zinc Oxide, USP

Safety Data Sheet according to Federal Register / Vol. 77, No. 58 /
March 26, 2012 / Rules and Regulation


Revision Date: 07-Feb-2023
Supersedes: 14-Jan-2019

1 PRODUCT & COMPANY IDENTIFICATION

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| Product Name: Zinc Oxide, USP | Distributor: MakingCosmetics.com Inc. |
| Synonyms: Not available | Address: 10800 231 st Way NE |
| INCI Name: Zinc Oxide | Redmond, WA 98053 (USA) |
| CAS Number: 1314-13-2 | Phone / Fax: 425-292-9502 / 425-292-9601 |
| Formula: ZnO | Web: www.makingcosmetics.com |
| Product Form: Powder | |
| Product Use: Cosmetic use | Emergency Telephone Number: 1-800-424-9300 (Chemtrec) |

2 HAZARDS IDENTIFICATION

GHS Classification: Aquatic Acute 1, Aquatic Chronic 1
GHS Labeling: Not a dangerous substance according to GHS

GHS Hazard Pictograms: 

GHS Hazard Statements: H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long-lasting effects.

GHS Precautionary Statements: P273: Avoid release to the environment.
P391: Collect Spillage.

Potential Health Hazards: Eyes: Not expected to be irritant.
Inhalation: Not expected to be irritant.
Skin: Not expected to be irritant.
Ingestion: Not expected to be irritant.

NFPA Ratings (704):

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| Health | 1 | Slight |
| Flammability | 0 | Minimal |
| Reactivity | 0 | Minimal |
| Specific Hazard | E | Mask, gloves, and goggles are recommended in bulk dust concentrations |

3 COMPOSITION/INFORMATION ON INGREDIENTS

| <u>Component</u> | <u>CAS No.</u> | <u>Weight %</u> | <u>Molecular Weight</u> |
|------------------|----------------|-----------------|-------------------------|
| Zinc Oxide | 1314-13-2 | 100% | 81.38 g/mol |

Other naturally occurring impurities below SDS threshold limits.
After manufacturing during handling & storage, product degrades with exposure to air acquiring some moisture and zinc carbonate (ZnCO₃) & carbonate.

4 FIRST AID MEASURES

Eyes: In case of eye contact, rinse with plenty of water and seek medical advice.
Inhalation: Move to fresh air. Keep warm and at rest. Seek medical attention if necessary.
Skin: Wash with soap and water. Seek medical attention if necessary.
Ingestion: Drink plenty of water. Do Not Induce Vomiting! Never give anything by mouth to an unconscious person. Call a physician.
Most Important Symptoms: Acute: dry cough, headache
Chronic: none (overexposure has no lasting effects)
Indication of any immediate treatment needed: Bad cough or headache. In these instances, move person to fresh air. No special treatment known.

5 FIRE-FIGHTING MEASURES

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| Suitable (and unsuitable) extinguishing media: | Product is not flammable. Use appropriate media for adjacent fire. Cool unopened containers with water. |
| Special protective equipment & precautions for firefighters: | Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots. |
| Flash Points: | None known |
| Specific hazards arising from the chemical: | None known. Avoid release of fire control water containing zinc oxide to the environment. See also Stability and Reactivity section. |

6 ACCIDENTAL RELEASE MEASURES

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| Personal precautions: | Wear protective clothing, dust respirator, and goggles in bulk excess dust conditions. Shovel up spills into appropriate labeled container. Dry spills, not mixed with other chemicals, may be recyclable. See section 8 for recommendations on the use of personal protective equipment. |
| Environmental precautions: | Avoid liquid release into sewers/public water. Notify environmental authorities in case of large leaks. |
| Methods and material for containment and cleaning up: | Recover the product by vacuum. Use damp cloth for small area. Avoid sweeping to reduce creation of airborne dust. Dispose of all waste and cleanup materials in accordance with regulations |

7 HANDLING & STORAGE

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| Precautions for safe handling: | Wear protective clothing, dust respirator, and goggles in bulk excess dust conditions. See section 8 for recommendations on the use of personal protective equipment. Keep container closed when not in use. |
| Conditions for safe storage, incl. any incompatibilities: | Store in cool, dry well-ventilated area. Keep away from heat and incompatible materials (see section 10 for incompatibilities). |

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

| <u>Component</u> | <u>Exposure Limits</u> | <u>Basis</u> | <u>Entity</u> |
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| Zinc Oxide | 5 mg/m ³ (fumes) | TWA (8h) | USA (Zinc Oxide) |
| | 5 mg/m ³ (dust, respirable) | TWA (8h) | USA (Lead) |
| | 15 mg/m ³ (total dust) | TWA (8h) | USA (Cadmium) |

TWA: Time Weighted Average over 8 hours of work.
 TLV: Threshold Limit Value over 8 hours of work.
 REL: Recommended Exposure Limit
 PEL: Permissible Exposure Limit

STEL: Short Term Exposure Limit during x minutes.
 IDLH: Immediately Dangerous to Life or Health
 WEEL: Workplace Environmental Exposure Levels
 CEIL: Ceiling

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| Personal Protection: | |
| Eyes: | Recommend safety glasses in bulk dust conditions. |
| Inhalation: | Recommend dust filter mask in bulk dust conditions. Must wear respiratory of proper type if exposure above 8hr TWA PEL. |
| Skin: | Recommend long sleeves in bulk dust conditions. Recommend gloves to reduce drying of skin. |
| Other: | Use good personal hygiene practices. Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling. |
| Routes of Entry: | Inhalation; Dermal; Eyes; Digestion |

9 PHYSICAL AND CHEMICAL PROPERTIES

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| Appearance: | Solid, powder or pellet, granular | Vapor Pressure: | Not applicable (melting point above 300° C) |
| Odor: | Odorless | Vapor Density: | Not applicable |
| Odor Threshold: | No data available | Evaporation Rate: | No data available |
| Color: | White, off-white, cream, grayish, or yellowish | Flammability: | Not flammable. Will not burn |
| Molecular Weight: | 81.38 (ZnO) | Upper/lower Explosive Limit: | Not applicable |
| pH: | Neutral, 6.8-8 (7.37 nominal) | Flash Point: | Not applicable to inorganic substances |
| Boiling Point: | Not applicable; substance decomposes before boiling | Specific Gravity: | 5.68 g/cm ³ |

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| Melting Point: | Will not melt. Malleable above 300°C/57°F. Sublimation temp 1975°C. | Solubility: | In bases and acids |
| Relative Density: | 5.68 g/cm ³ | Auto-Ignition Temperature: | Not auto-flammable |
| Partition Coefficient: n-octanol/water: | Not applicable to inorganic substances | Decomposition Temperature: | Not applicable |
| Viscosity: | No data available | Explosive Properties: | No data available |
| Oxidizing Properties: | No data available | Freezing Point: | Will not freeze. Malleable above 300°C/57°F. Sublimation temp 1975°C. |
| Granulometry: | D50 1.05µm, D80 <20µm | | |

10 STABILITY AND REACTIVITY

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| Reactivity: | Stable under normal dry air conditions. |
| Chemical Stability: | Product is stable |
| Possibility of Hazardous Reactions: | None. |
| Conditions to Avoid: | Keep from getting wet (will damage substance usefulness) |
| Hazardous Decomposition Products: | None |
| Incompatible Materials: | Heated magnesium. Chlorinated rubber above 25°C. |
| Decomposition: | Product decomposes in acids and bases. |
| Degradation: | Slow degrade to zinc carbonate (not hazardous)* |

*ZnO + CO₂ in ambient air -> ZnCO₃ zinc carbonate. Rate accelerated with higher m²/g surface area or damp storage conditions. Shelf life: One year from date of manufacturing for rubber applications (due to potential dispersion problems with ZnCO₃ hard particulate formation), eighteen months for USP, EP, and most other applications.

11 TOXICOLOGICAL INFORMATION

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| Acute Toxicity: | With LD50 values consistently exceeding 2000 mg/kg bw, slightly soluble compounds such as, zinc oxide (LD50 ranges between 5000-15000 mg/kg bw) show low level of acute oral toxicity, not leading to classification for acute oral toxicity. Zinc oxide is shown to be of low acute inhalation toxicity (i.e., LC50 values of >5.7 mg/L/4hrs), not leading to classification for acute inhalation toxicity. |
| Skin: | Not irritant (Löser, 1977; Lansdown, 1991) |
| Eyes: | Not irritant (Van Huygevoort, 1999e; Thijssen, 1978; Löser, 1977) |
| Respiratory: | Not irritant (Klimi-sh et al, 1982) LC50 (Inhalation): >5.7 mg/L (4h) (Klimisch and Freisberg (1982)) LC50 (dusts and mists): >5700 mg/m ³ (4h) (Klimisch and Freisberg (1982)) |
| Ingestion: | Not irritant (zinc oxide is used as a human vitamin supplement) LD50: 15000 mg/kg (Löser (1972)) LD50: >5000 mg/kg (Löser (1977)) |
| Carcinogenicity: | Not a NTP/IARC Carcinogen |
| Teratogenicity: | No data available |
| Germ Cell Mutagenicity: | No biologically relevant genotoxic activity. |
| Embryotoxicity: | No data available |
| Specific Target Organ Toxicity: | Repeated exposure: None (Lam et al., 1985, 1988; Conner et al., 1988) Single exposure: None (Heydon and Kagan, 1990; Gordon et al., 1992; Mueller and Seger, 1985) |
| Reproductive Toxicity: | No evidence of reproductive toxicity |
| Respiratory/Skin Sensitization: | No data available |
| Corrosivity: | No data available |
| Sensitization: | No sensitizing effects known (Van Huygevoort, 1999g, h) |
| Irritation: | No data available |
| Repeated Dose Toxicity: | No data available |

12 ECOLOGICAL INFORMATION

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| Ecotoxicity: | |
| Aquatic Vertebrate: | Acute EC50: 0.413 mg/L Zn (48h) (<i>Ceriodaphnia dubia</i>) |
| Aquatic Invertebrate: | Acute EC50: 0.136 mg/L Zn (72h) (<i>Selenastrum capricornutum</i>) 62% solubilization capacity at 1mg/L at pH 8: For pH <7: 0.67 mg Zn/L (based on 48h <i>Ceriodaphnia dubia</i> test cf. above) |

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| Terrestrial: | For pH >7-8.5: 0.21 mg Zn/L (based on 72h <i>Selenastrum capricornutum</i> test cf. above) |
| Persistence and Degradability: | No data available |
| Bioaccumulative Potential: | N/A, zinc is an element |
| Mobility in Soil: | N/A, ZnO does not bioaccumulate or biomagnify |
| PBT and vPvB Assessment: | N/A |
| Other Adverse Effects: | N/A, zinc oxide is not a PBT or vPvB. |
| | None |

13 DISPOSAL CONSIDERATIONS

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| Waste Residues: | USEPA Law: waste zinc oxide must be TCLP testing to determine proper disposal classification. Substance will generally pass TCLP. State Law: Material may be regulated locally as industrial or special waste. Recyclable: Waste material not commingles with other substances may be recyclable. Contact Zinc Oxide LLC for further information. This material, if sent for recycling, is exempt from US Federal, State, and local waste regulations and TRI transfer reporting. |
| Product Containers: | Empty used packaging is not regulated waste. |

The information in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods

14 TRANSPORT INFORMATION

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| DOT (Dept. of Transportation, USA): | Not regulated |
| IATA (International Air Transport Association): | UN 3077 Proper Shipping Name: ENIRONMETALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S (Zinc Oxide) Transport Hazard Classes(es): 9 Hazard identification Number: 90 Packing Group: III Environmental Hazards: Yes, Dangerous to the environment |
| ICAO (International Civil Aviation Organization): | No data available |

15 REGULATORY INFORMATION

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| TSCA Inventory Status: | Yes, listed, notification not required. |
| DSCL (EEC): | Yes, listed. |
| NDSL (Canada): | No, not listed, notification not required. |
| EU EINECS/ELINCS/NLP: | EINECS: Yes, on inventory. ELINCS: No, notification/reporting not required. |
| China IECSC: | Yes, listed. |
| China IECIC (06.30.2014): | No data available |
| Australia AICS: | Yes, listed. |
| ASIA-PAC: | Yes, listed. |
| SWISS: | Yes, listed. |
| Philippines PICCS: | Yes, listed. |
| Japan ENCS: | Yes, listed. |
| Korea KECI: | Yes, listed. |
| New Zealand: | Yes, listed. |
| Taiwan: | Yes, listed. |
| US Regulations: | Not transport regulated in the US (USDOT 49CFR172), Canada, or Mexico. |
| Transportation: | HS Tariff Class#: 2817.00.0000, preference B |
| SARA 302: | Name listed (zinc). RQ = None, TPQ = None. |
| SARA 312: | Yes, acute hazard, EPCRA Tier 2 must be filed with state and local agencies. |
| SARA 313: | Yes, TRI on Form R must be filed for Zn & Pb Compounds if usage is above threshold. |
| CA. Prop 65: | No, ZnO is not a Prop 65 listed substance. Impurities Pb & Cd listed. |
| CAA 112, 61 HAP: | No, not regulated, no Hazardous Air Pollutants (HAP's) |
| FIFRA 152 et seq: | No, product is not subject to FIFRA registration. |
| CERCLA 102/103: | Zinc is on Name List, RQ = None. |
| CONEG: | Compliant. |

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| ODS/ODC 82: | No ozone depleting substances. |
| USFDA: | Approved by FDA. Substance is listed as GRAS as 21CFR182.8991 (GRAS = Generally Recognized as Safe) and may be used in any FDA regulation where use of a GRAS substance is authorized including an ingredient in food and in food contact in rubber articles ad 21CFR177.2600(c)(1); Food can linings and coatings at 21CFR175.300(b)(2), and Plastics at 21CFR170.30(d). |
| REACH (EEA): | 17-2120064320-70-0000 REACH Pre-Registration valid for tonnage band till June 1, 2018. OR Information: ROR, UK, +44(0) 1565 724241, email: alerts@RORltd.com |
| Transportation: | This product tis listed by EU regulation as transport regulated in EU/EEA member countries by EU regulations. |
| SVHC: | Zinc oxide is not an SVHC. Impurities are below SVHC or candidate SVHC thresholds. |
| Nano: | This product is not nano (per EU definition of nano as 50% particles <0.1um) |

16 OTHER INFORMATION

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| Revision Date: | 07-Feb-2023 |
| Compliance: | This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 |
| 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 other process. Such information is to be the best of the company's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee of any kind, express or implied, is made as to its accuracy, reliability or completeness and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of use. It is the user's responsibility to satisfy himself as to the suitability & completeness of such information for his own particular use. |