Zinc Oxide, USP

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

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1 PRODUCT & COMPANY IDENTIFICATION

Product Name: Zinc Oxide, USP
Synonyms: Chinese White
INCI Name: Zinc Oxide
CAS Number: 1314-13-2
Formula: No data available
Product Form: Solid
Product Use: Cosmetic use

Distributor: MakingCosmetics Inc.
Address: 10800 231st Way NE
Redmond, WA 98053 (USA)
Phone / Fax: 425-292-9502 / 425-292-9601
Web: **www.makingcosmetics.com**

Emergency Telephone Number: 1-800-424-9300 (Chemtrec)

2 HAZARDS IDENTIFICATION

GHS Classification: Aquatic Acute 1: H400 Very toxic to aquatic life.
Aquatic Chronic 1: H410 Very toxic to aquatic life with long lasting effects.

GHS Labeling: Not a dangerous substance according to GHS

GHS Hazard Pictograms:

GHS Hazard Statements: Harmful is swallowed.
Serious eye damage/eye irritation.
Suspected of damaging the unborn child.
May form combustible dust concentrations when mixed with air.

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 an irritant.
Skin: Not expected to be irritant
Ingestion: Not expected to be irritant

NFPA Ratings (704):

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

Component	CAS No.	Weight %	Molecular Weight
Zinc Oxide	1314-13-2	99% - 100%	Not Available

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

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:	Not applicable to inorganic substances.
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

Personal precautions, protective equipment & emergency procedures:	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 and public water. If leak occurs, stop leak if safe to do so. Notify environmental authorities in case of large leak.
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

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).
Additional Information:	Germany TRGS 510 Annex 4, Class 13 Non-combustible solids that cannot be assigned to other storage classes.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Component	Exposure Limits	Basis	Entity
Zinc Oxide	5 mg/m3 (fumes)	TWA (8h)	USA (Zinc Oxide)
	5 mg/m3 (dust, respirable)	TWA (8h)	USA (Lead)
	15 mg/m3 (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

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
Appropriate Engineering Controls:	**Measures at process level to prevent release**: Process enclosures closed circuits or semi-enclosures where appropriate. Local exhaust ventilation with potential dust and fumes generation. Containment of liquid volumes in sumps to collect/prevent accidental spillage. **Control Dispersion from source toward the workers**: Cyclones/filters to minimize dust emissions. Good general housekeeping and maintenance practices. **Organizational measure to prevent/limit releases, dispersion, and exposure:** Management system (i.e. ISO9001 or OSHAS8000) for good work, training, cleaning, PPE, and hygiene practices.

Environmental exposure control: Process enclosures and closed circuits where relevant and possible. Local exhaust ventilation with potential dust generation, dust capturing and removal techniques. Containment of liquid volumes in sumps to collect/prevent accidental spillage.
Measures to reduce discharges, air emissions, and releases to soil: On-site waste water treatment techniques. Containment of liquid volumes in sumps to collect/precent accidental spillage. Air emissions are controlled by use of bag-house filters or other air emissions abatement devices.
Organizational measures to prevent release from site: Management system (i.e ISO9001 or OSHAS18000) for good work, training, cleaning, PPE, and hygiene practices.

9 PHYSICAL AND CHEMICAL PROPERTIES

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	**Granulometry:**	D50 1.05µm, D80 <20µm
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:	N/A (the substance decomposes before boiling)	**Specific Gravity/Density:**	5.68 g/cm3
Melting Point:	Will not melt. Malleable above 300°C/57°2F. Sublimation temp 1975°C	**Water Solubility/Solubility:**	Water solubility: Negligible (solubility of Zn in ZnO is 2.9 mg/l) Soluble: In bases and acids
Relative Density:	5.68 g/cm3	**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 Limits/Properties:**	No data available
Oxidizing Properties:	No data available	**Freezing Point:**	Will not freeze. Malleable above 300°C/57°2F. Sublimation temp 1975°C.

10 STABILITY AND REACTIVITY

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

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 Huygevort, 1999e; Thijssen, 1978; Löser, 1977)
Respiratory:	Not irritant (Klimi-sh et al, 1982)

	LC50 (Inhalation Dust & Mists): >5.7 mg/L (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,
Routes of Entry:	Inhalation, Dermal, Eyes, Digestion.

12 ECOLOGICAL INFORMATION

Ecotoxicity	
Aquatic Vertebrate:	Acute EC50: 0.413 mg/L Zn (48h) (Ceriodaphnia dubia).
Aquatic Invertebrate:	Acute EC50: 0.136 mg/L Zn (72h) (Selenastrum capricornutum).
Terrestrial:	No data available.
Persistence and Degradability:	N/A, zinc is an element
Bioaccumulative Potential:	N/A, ZnO does not bioaccumulate or biomagnify
Mobility in Soil:	N/A
PBT and vPvB Assessment:	N/A, zinc oxide is not a PBT or vPvB.
Other Adverse Effects:	Nono

13 DISPOSAL CONSIDERATIONS

Waste Residues:	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies, if necessary, before disposing of waste product container.
Product Containers:	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies, if necessary, before disposing of waste product container.

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

14 TRANSPORT INFORMATION

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

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.
Japan ENCS:	Yes, listed.
Philippines PICCS:	Yes, listed.
Korea K-REACH:	Listed, KE-65565
New Zealand NZIoC:	No data available
Korea KECL/TCCL:	Yes, listed.
New Zealand HSNO:	Yes, listed.
Taiwan TCSI:	Yes, listed (Up to 100kg/yr without Taiwan REACH registration.
U.S. 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.
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)
P.R.C. Inventory List:	Zinc oxide is listed on P.R.C. IECSC and meets P.R.C. REACH as an existing substance.

16 OTHER INFORMATION

Revision Date:	15-Feb-2024
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 suitableness & completeness of such information for his own particular use.