

# Material Safety Data Sheet

## ZANO

The product contains particles of less than 0.5 micrometer in diameter.  
 Avoid exposure via inhalation since these small particles are capable of reaching  
 the lower respiratory tract.

### Section 1. Chemical product and company identification

<b>Common name</b>	: ZANO	
<b>Material uses</b>	: Coatings: Clear coatings. Industrial applications: Raw materials for production of plastics. Food additive. Manufacture of glass. Electronic Industry Pharmaceutical industry: Sunbathing creams. Cosmetics. Textile industry: Textiles.	
<b>IPDS Code</b>	: 58928190	
<b>Validation date</b>	: <b>04 / 13 / 2005</b>	United States
<b><u>In case of emergency</u></b>	: Emergency telephone number North America : 1-800-567-7455 Emergency telephone number IPDS Umicore : 011 32 2 2277026	
<b>Supplier</b>	: Umicore Marketing Services USA Form Sogem USA Inc Magnolia Bldg Ste 110 3120 Highwoods Boulevard 27604 Raleigh, NC US USA Phone : +1 9198747171	

### Section 2. Composition, Information on Ingredients

<u>Name</u>	<u>CAS #</u>	<u>% by weight</u>	<u>Exposure limits</u>
zinc oxide	1314-13-2	>99.8	<b>ACGIH TLV (United States, 1/2004).</b> STEL: 10 mg/m <sup>3</sup> 15 minute(s). Form: All forms TWA: 2 mg/m <sup>3</sup> 8 hour(s). Form: All forms <b>NIOSH REL (United States, 12/2001).</b> CEIL: 15 mg/m <sup>3</sup> Form: Dust STEL: 10 mg/m <sup>3</sup> 15 minute(s). Form: Fume TWA: 5 mg/m <sup>3</sup> 10 hour(s). Form: Dust and fumes <b>OSHA PEL (United States, 8/1997).</b> TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: Fume TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hour(s). Form: Total dust <b>OSHA PEL 1989 (United States, 3/1989).</b> STEL: 10 mg/m <sup>3</sup> 15 minute(s). Form: Fume TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: Fume TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 8 hour(s). Form: Total dust

### Section 3. Hazards identification

- Remarks** : The product contains particles of less than 0.5 micrometer in diameter. Avoid exposure via inhalation since these small particles are capable of reaching the lower respiratory tract.
- Physical State and Appearance** : Solid. (Very fine solid powder. Particle size less than 0.5 micrometer)
- Emergency overview** : No specific hazard.  
Not applicable.  
Not applicable.
- Routes of entry** : Not available.
- Potential acute health effects**
- Eyes** : No known significant effects or critical hazards.
  - Skin** : No known significant effects or critical hazards.
  - Inhalation** : No known significant effects or critical hazards.
  - Ingestion** : No known significant effects or critical hazards.
- Potential chronic health effects** : **CARCINOGENIC EFFECTS**: Classified A4 (Not classifiable for human or animal.) by ACGIH [zinc oxide].  
**MUTAGENIC EFFECTS**: Not available.  
**TERATOGENIC EFFECTS**: Not available.
- Over-exposure signs/symptoms** : Not available.
- See toxicological Information (section 11)

### Section 4. First aid measures

- Eye Contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
- Skin Contact** : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
- Inhalation** : If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
- Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

### Section 5. Fire fighting measures

- Flammability of the product** : Non-flammable.
- Auto-ignition Temperature** : Not applicable.
- Flash Points** : Not applicable.
- Flammable limits** : Not applicable.
- Products of combustion** : Not applicable.
- Fire hazards in presence of various substances** : Not applicable.

- Explosion hazards in presence of various substances** : Not considered as a product presenting risks of explosion.
- Fire fighting media and instructions** : Use an extinguishing agent suitable for surrounding fires.
- No specific hazard.  
See section 11 for more detailed information on health effects and symptoms.
- Special protective equipment for fire-fighters** : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.
- Special remarks on fire hazards** : Not available.
- Special remarks on explosion hazards** : Not available.

## Section 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable vacuum or carefully scoop up spilled materials and place in an appropriate container for disposal. Avoid creating dusty conditions and prevent wind dispersal.

## Section 7. Handling and storage

- Handling** : Avoid exposure. Use suitable protective equipment (Section 8). Avoid generation of dust.
- Storage** : Keep container tightly closed. Keep container in a well-ventilated area.
- Additional information** : Keep away from acids and alkalis .

## Section 8. Exposure Controls, Personal Protection

- Engineering controls** : Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Personal protection**
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.  
Recommended:  
EU : splash goggles or face shield (EN 166) .  
USA : Wear ANSI compliant safety glasses with side shields or face shield or splash goggles .  
Canada : Wear CSA approved safety glasses with side shields. Mono goggles provide better protection in dusty conditions.
- Skin protection / Hand protection** : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Body: Recommended:

Gloves: Protective gloves should be worn under normal conditions of use. Rubber gloves. PVC gloves.

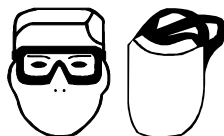
**Respiratory** : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Recommended: Wherever possible use this product in a fume-cupboard or in an area where other engineering measures have been taken to reduce exposure to very low levels.

If exposure cannot be avoided by technical measures, use locally approved respiratory equipment which provides protection against ultra-fine particulate material.

**Personal protective equipment (Pictograms)**

:



**Personal protection in case of a large spill**

: Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Product Name**

zinc oxide

**Exposure limits**

**ACGIH TLV (United States, 1/2004). Notes: Respirable fraction. The concentration of respirable dust for the application of this limit is to be determined for the fraction passing a size-selector with the characteristics defined in the "C." paragraph of Appendix D. ACGIH 2003 Adoption**

STEL: 10 mg/m<sup>3</sup> 15 minute(s). Form: All forms

TWA: 2 mg/m<sup>3</sup> 8 hour(s). Form: All forms

**NIOSH REL (United States, 12/2001).**

CEIL: 15 mg/m<sup>3</sup> Form: Dust

STEL: 10 mg/m<sup>3</sup> 15 minute(s). Form: Fume

TWA: 5 mg/m<sup>3</sup> 10 hour(s). Form: Dust and fumes

**OSHA PEL (United States, 8/1997).**

TWA: 5 mg/m<sup>3</sup> 8 hour(s). Form: Fume

TWA: 5 mg/m<sup>3</sup> 8 hour(s). Form: Respirable fraction

TWA: 15 mg/m<sup>3</sup> 8 hour(s). Form: Total dust

**OSHA PEL 1989 (United States, 3/1989).**

STEL: 10 mg/m<sup>3</sup> 15 minute(s). Form: Fume

TWA: 5 mg/m<sup>3</sup> 8 hour(s). Form: Fume

TWA: 5 mg/m<sup>3</sup> 8 hour(s). Form: Respirable fraction

TWA: 10 mg/m<sup>3</sup> 8 hour(s). Form: Total dust

**Consult local authorities for acceptable exposure limits.**

**Hygiene measures**

**General information**

: Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking.

## Section 9. Physical and chemical properties

<b>Physical State and Appearance</b>	: Solid. (Very fine solid powder. Particle size less than 0.5 micrometer)
<b>Color</b>	: White.
<b>Odor</b>	: Odorless.
<b>Taste</b>	: Not available.
<b>Molecular Weight</b>	: Not applicable.
<b>Molecular formula</b>	: ZnO
<b>pH</b>	: Not applicable.
<b>Boiling/condensation point</b>	: Not available.
<b>Melting/freezing point</b>	: Sublimation temperature: 1975°C (3587°F)
<b>Critical temperature</b>	: Not available.
<b>Specific Gravity</b>	: 5.61 (Water = 1)
<b>Vapor pressure</b>	: Not available.
<b>Vapor density</b>	: Not available.
<b>Volatility</b>	: Not available.
<b>Odor threshold</b>	: Not available.
<b>Evaporation rate</b>	: Not available.
<b>VOC</b>	: Not available.
<b>Viscosity</b>	: Not available.
<b>LogK<sub>ow</sub></b>	: Not available.
<b>Ionicity (in water)</b>	: Not available.
<b>Dispersion properties</b>	: Not available.
<b>Solubility</b>	: Insoluble in cold water.
<b>Physical chemical comments</b>	: Not available.

## Section 10. Stability and reactivity

<b>Stability and Reactivity</b>	: The product is stable.
<b>Conditions of instability</b>	: Not available.
<b>Incompatibility with various substances</b>	: Reactive with acids, alkalis.

Keep away from acids and alkalis .

## Section 11. Toxicological information

### Toxicity data

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
zinc oxide	LD50	7950 mg/kg	Oral	Mouse
	LD50	>2000 mg/kg	Dermal	Rat
	LDLo	500 mg/kg	Oral	human

- Chronic effects on humans** : **CARCINOGENIC EFFECTS:** Classified A4 (Not classifiable for human or animal.) by ACGIH [zinc oxide].
- Special remarks on chronic effects on humans** : Long-term exposure to these particles may result in permanent damage to the lungs.
- Special remarks on other toxic effects on humans** : The product contains particles of less than 0.5 micrometer in diameter. Avoid exposure via inhalation since these small particles are capable of reaching the lower respiratory tract.
- Specific effects**
- Carcinogenic effects** : No known significant effects or critical hazards.
- Mutagenic effects** : No known significant effects or critical hazards.
- Reproduction toxicity** : No known significant effects or critical hazards.

## Section 12. Ecological information

### Ecotoxicity data

<u>Ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
zinc oxide	Daphnia magna (EC50)	48 hour(s)	>1000 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	1.1 mg/l
	Lepomis macrochirus (LC50)	96 hour(s)	>320 mg/l
	Pimephales promelas (LC50)	96 hour(s)	2246 mg/l
	Selenastrum capricornutum. (EC50)	72 hour(s)	0.17 mg/l

- BOD and COD** : Not available.
- Biodegradable/OECD** : Not available.
- Mobility** : Not available.
- Products of degradation** : Some metallic oxides.
- Special remarks on the products of biodegradation** : Not available.

## Section 13. Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
- Waste stream** : Not available.
- Consult your local or regional authorities.**

## Section 14. Transport information

Regulatory Information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
ADR/RID Class	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

## Section 15. Regulatory information

**HCS Classification** : Not regulated.

**U.S. Federal regulations** : TSCA 8(b) inventory: zinc oxide

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: zinc oxide

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: zinc oxide: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

Clean Water Act (CWA) 307: zinc oxide

Clean Water Act (CWA) 311: No products were found.

Clean air act (CAA) 112 accidental release prevention: No products were found.

Clean air act (CAA) 112 regulated flammable substances: No products were found.

Clean air act (CAA) 112 regulated toxic substances: No products were found.

### SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
<b>Form R - Reporting requirements</b>	: zinc oxide	1314-13-2	>99.8
<b>Supplier notification</b>	: zinc oxide	1314-13-2	>99.8

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

**State regulations** : Pennsylvania RTK: zinc oxide: (environmental hazard, generic environmental hazard)  
Massachusetts RTK: zinc oxide  
New Jersey: zinc oxide

**WARNING:** This product contains chemical(s) known to the State of California to cause reproductive harm (female): No products were found.

### International regulations

**DSCL (EEC)** : This product is not classified according to the EU regulations.

**International lists** : Australia (NICNAS): zinc oxide

China: zinc oxide

Germany water class: zinc oxide

Japan (METI): zinc oxide

Korea (TCCL): zinc oxide

Philippines (RA6969): zinc oxide

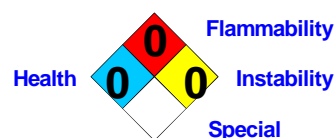
CEPA DSL: zinc oxide

**WHMIS (Canada)** : Not controlled under WHMIS (Canada).

## Section 16. Other information

<b>Hazardous Material Information System (U.S.A.)</b>	Health	0
	Fire hazard	0
	Reactivity	0
	Personal protection	C

**National Fire Protection Association (U.S.A.)** :



**References** : Not available.

**Date of issue** : 04 / 13 / 2005

**Date of previous issue** : No Previous Validation

**Version** : 1

### Notice to reader

To the best of our knowledge, the information contained in this Material Safety Data Sheet is accurate and reliable on presently available resources. However, neither the seller nor any of its subsidiaries assumes any responsibility or liability whatsoever for the accuracy or completeness of the information contained herein.

This Material Safety Data Sheet shall not constitute a guarantee for any specific product features. Final determination of suitability of this material is the sole responsibility of the user.

All materials may present unknown hazards and should be used and handled with caution and following reasonable safety procedures. Consequently the buyer assumes all risks in connection with the use and handling of this material.