



# MATERIAL SAFETY DATA SHEET

In Accordance with regulation 2015/830  
 Product Name: **ZnO Dispersion 3020**

Page: 2 of 6  
 Issue Date: September 2019  
 Version: 3

Company Supplier: Micronisers Australasia Pty Ltd., 6-8 England Street, Dandenong VIC 3175, Australia;  
 Telephone +613 9768 3277. Replaces Data Sheet of February 2016

Classified as Hazardous

## SECTION 3: Composition/information on ingredients

3.1 **Substances**  
 n. ap.

3.2 **Mixtures**  
**Chemical Characterization:** Zinc oxide dispersion in water  
**Components listed in TSCA**

**Ingredients:**

CAS - No.	EEC - No.	Material	m% - range	H - phrases
1314-13-2	215-222-5	Nano-Zinc oxide particle size < 100 nm REACH_01-2119463881-32-xxxx	40 - 50%	Aquatic Acute I; H400 Aquatic Chronic 1; H410

Text of H- phrases: see section 16

## SECTION 4: First aid measures

4.1 **Description of first aid measures**

4.1.1 **Inhalation:**

After inhalation of product / fumes of fire leave contaminated area and provide for fresh air. In the event of symptoms occurring, seek medical treatment.

4.1.2 **Skin Contact:**

Wash away with water.

In the event of symptoms occurring, seek medical treatment.

4.1.3 **Eye Contact:**

Flush eyes out immediately with large amounts of water with eye lids lifted. In the event of symptoms occurring, seek medical treatment.

4.1.4 **Ingestion:**

Do not cause vomiting. Rinse mouth out and drink plenty of water afterwards. Consult physician.

4.2 **Most important symptoms and effects, both acute and delayed**

None known.

4.3 **Indication of any immediate medical attention and special treatment needed**

Symptomatic treatment.

## SECTION 5: Firefighting measures

5.1 **Extinguishing media**

5.1.1 **Suitable Extinguishing Media:**

Use dry chemical, CO<sub>2</sub>, water spray or "alcohol" foam.

5.1.2 **Extinguishing Media to Avoid:**

None.

5.2 **Special hazards arising from the substance or mixture**

In the case of fire, the following product(s) may form: carbon oxide, inorganic dust, phosphorus oxides (e.g. P<sub>2</sub>O<sub>5</sub>)

5.3 **Advice for firefighters**

5.3.1 **Special Protective Equipment:**

Wear positive pressure self-contained breathing apparatus. Wear full protective clothing.

5.3.2 **Additional Information:**

This material is not combustible; use extinguishing media appropriate for surrounding fire. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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## SECTION 6: Accidental release measures

- 6.1 **Personal precautions, protective equipment and emergency procedures**  
 See chapter 8.2.2
- 6.2 **Environmental precautions**  
 Do not allow to enter drainage / surface-water / ground-water.  
 Inform responsible authorities in the case of accidental release.  
 Prevent spread over a wide area (e.g. by containment or oil barriers).
- 6.3 **Methods and material for containment and cleaning up**  
 Take up with suitable absorbent material. Dispose of absorbed material in accordance with the regulations.
- 6.4 **Reference to other sections**  
 None.

## SECTION 7: Handling and storage

- 7.1 **Precautions for safe handling**
- 7.1.1 **Precautions for Safe Handling:**  
 Avoid contact with eyes and skin. Do not inhale vapours.  
 Remove contaminated, saturated clothing immediately. Do not eat, drink or smoke during work. Wash hands before breaks and after work.  
 Do not inhale aerosol. Product contains nanoparticles.  
 During spraying respirable aerosol containing nanoparticles may be formed.
- 7.1.2 **Precautions in Case of Fire and Explosion:**  
 Normal measures for preventive fire protection.  
 Of the contained nano-particles there is no higher combustibility to be expected
- 7.2 **Conditions for safe storage, including any incompatibilities**
- 7.2.1 **Storage Instructions:**  
 Keep container tightly closed in a dry and well-ventilated place. Avoid subsoil penetration. Store in original container.
- 7.2.2 **Store away from:**  
 Store away from oxidizing agents.
- 7.2.3 **Further Information on Storage Conditions:**  
 None.
- 7.3 **Specific end use(s)**  
 n.av.

## SECTION 8: Exposure controls/personal protection

- 8.1 **Control parameters**
- | <b>Material</b>                       | <b>Limit Value</b>  |
|---------------------------------------|---|
| Nano-Zinc oxide particle size < 100nm | MAK-Wert (SUVA) 1 mg / m <sup>3</sup> (Respirable fraction)<br>The value for free ZnO nanoparticles is 0.1 mg / m <sup>3</sup> .<br>In the product however, the nanoparticles are dispersed in water. |
- 8.2 **Exposure controls**
- 8.2.1 **Appropriate engineering controls**  
 Provide appropriate exhaust ventilation at machinery.
- 8.2.2 **Individual protection measures**
- 8.2.2a **Respiratory Protection:** Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust) . Recommended filter type: P2
- 8.2.2b **Hand Protection:** In case of prolonged skin contact use protective gloves.  
 Protective gloves complying with EN 374 butyl-rubber break through time > 8h. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
- 8.2.2c **Eye Protection:** Goggles
- 8.2.2d **Skin Protection:** No.
- 8.2.2e **Further Information:** Observe wearing time limits:
- 8.2.3 **Environmental exposure controls:**  
 Do not contaminate water. Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

9.1.1	<b>Form:</b> liquid	<b>Colour:</b> beige	<b>Odour:</b> almost odourless
			<b>Odour threshold:</b> n.av.
9.1.2	pH-value, undiluted:	8,6 - 8,9, pH-value, 1% aqueous solution: n.av.	
9.1.3	Boiling point / Boiling - range (°C):	n.av., Melting point / Melting range (°C): n.av.	
9.1.4	Flash point (°C):	n.ap., closed cup	
9.1.5	Flammability (EEC A10/A13):	No.	
9.1.6	Ignition temperature (°C):	n.av.	
9.1.7	Autoflammability (EEC A16):	None.	
9.1.8	Oxidising properties:	No.	
9.1.9	Explosion hazard:	No.	
9.1.10	Explosion limits (Vol.%) lower:	n.av., upper: n.av.	
9.1.11	Vapour pressure: / Vapour density (Air = 1):	n.ap. / n.av.	
9.1.12	Density (g/ml):	1,6 - 1,7	
9.1.13	Solubility (in Water):	Partially miscible	
9.1.14	Partition coefficient, n-Octanol / Water:	n.ap.	
9.1.15	Viscosity:	n.av.	
9.1.16	Solvent content (m %):	Not relevant	
9.1.17	Thermal decomposition (°C):	n.av.	
9.1.18	Evaporation rate:	n.av.	
9.2	<b>Other information</b>		
	Nano-ZnO:	Particle size < 100 nm Redox activity: n.av. Photocatalytic Activity: n.av.	

## SECTION 10: Stability and reactivity

10.1	<b>Reactivity</b>	None.
10.2	<b>Chemical stability</b>	Stable under recommended storage conditions. The basic material contained nanoparticles (zinc oxide) is stable.
10.3	<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
10.4	<b>Conditions to avoid</b>	No conditions to be specially mentioned.
10.5	<b>Incompatible materials</b>	Reactions with strong oxidising agents.
10.6	<b>Hazardous decomposition products</b>	No decomposition if stored and applied as directed. To avoid thermal decomposition, do not overheat.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Acute Health Effects:

Inhalation:	Nano-ZnO Alveolar dust fraction: Prolonged or repeated exposure may cause injuries to liver, kidneys, lungs, nerves. In the product however the nanoparticles are dispersed in water.
Ingestion:	ZnO: High dose (1 - 5 g / kg): May cause damage to organs.
Skin Contact:	Dangerous amounts can't be absorbed through the skin.
Skin corrosion / irritation:	Mildly irritating - not to be labelled.
Serious eye damage / irritation	Mildly irritation – not to be labelled.
Respiratory or Skin sensitization	n.av.
Germ cell Mutagenicity:	n.av.
Carcinogenicity:	n.av.
Reproductive toxicity:	n.av.
STOT – single exposure	n.av.
STOT – repeated exposure	n.av.
Aspiration hazard:	n.av.

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## 11.1.1 Practical Experience

11.1.11 n.av.

## 11.1.12 Practical experience

Observations relevant for classification:

None.

Further Observations:

None.

Classification of the preparation has been done by calculation in accordance with EEC directives.

## SECTION 12: Ecological information

### 12.1 Toxicity

Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Zinc oxide: LC<sub>50</sub> (96 h) rainbow trout < 0,1 mg /L

Nano-ZnO: Toxicity to bacteria (*Vibrio fischeri*) : 0,18 mg / l

Toxicity to daphnia. 1,9 mg / l

but: solution of Zn<sup>2+</sup> was identified as crucial.

### 12.2 Persistence and degradability

The organic component of the product is biodegradable.

### 12.3 Bioaccumulative potential

Assimilation of ZnO in *Daphnia magna*. Bioaccumulation is likely.

### 12.4 Mobility in soil

Immobilization EC<sub>50</sub>/ 4 h / daphnia = 0,622 mg / l

### 12.5 Results of PBT and vPvB assessment

\* This mixture contains no substances which are assessed to be PBT or vPvB.

### 12.6 Other adverse effects

12.6.1 COD-Value, mg/g: n.av.

12.6.2 BOD<sub>5</sub>-Value, mg/g: n.av.

12.6.3 AOX-Remarks: Not relevant

12.6.4 Significant Components: Zinc oxide

12.6.5 Other adverse effects: None.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

13.1.1 Recommendation: D 10

Waste - Code - No.: 08 02 99

The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.



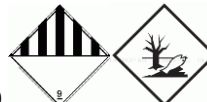
In addition comply with the regional authorities.

### 13.2 Contaminated Packaging

13.2.1 Recommendation: Wash with suitable cleaner. Otherwise as described under Residues.

13.2.2 Safe Handling: As described under Residues.

## SECTION 14: Transport information

ADR	IMDG	IATA
14.1 <b>UN number</b> 3082	3082	3082
14.2 <b>UN proper shipping name</b> UN 3082 Environmentally hazardous substance, liquid, n.o.s. (Contains: Zinc oxide)	Environmentally hazardous substance, liquid, n.o.s. (Contains: Zinc oxide) MARINE POLLUTANT	Environmentally hazardous substance, liquid, n.o.s. (Contains: Zinc oxide)
* 14.3 <b>Transport hazard class(es)</b>		
		

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14.4	<b>Packing group</b>		
	III	III	III
14.5	<b>Environmental hazards</b>		
		Yes.	
14.6	<b>Special precautions for user</b>		
	Transport-category: 3	F-A, S-F	Packing Instructions (Passenger)
	Classification Code: M6		964
	Hazard - No.: 90		Packing Instructions (Cargo)
	LQ: 5 L		964
14.7	<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>		
		n.av.	

## SECTION 15: Regulatory information

- 15.1 **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No data available.
- 15.2 **Chemical safety assessment:**  
A chemical safety assessment has not been carried out.

## SECTION 16: Other information

### Text of H phrases mentioned in Section 3

H 400: Very toxic to aquatic life.  
H 410: Very toxic to aquatic life with long lasting effects.

This datasheet has been compiled in accordance with Regulation 2015/830.  
The statements in this Material Safety Data Sheet were made to the best of our knowledge and are as accurate as possible. They are given for information only. They do not constitute a contractual guarantee of a product's properties. They must neither be altered nor transferred to other products.

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