ANTARIA
an advanced materials world

MATERIAL SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade Name(s)	ZinClear XP
Product Name	Zinc oxide

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Cosmetics raw material for sunscreen, & skin protection, industrial transparent UV resistant coatings, antibacterial application

1.3 Details of the supplier of the safety data sheet

Company	Antaria Limited, 108 Radium Street, Welshpool, Western Australia 6106, Australia
Responsible Department	Quality Assurance, info@antaria.com

1.4 Emergency telephone number

+61 8 9258 1610 Mon-Fri: 8.00 – 17.00

SECTION 2: Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP/GHS)

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H410

Classification according to Directive 67/548/EEC (DSD)

N; R50/53

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP/GHS)

Hazard pictograms

GHS09: environment

Signal word

Warning

Hazard statements

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P273 Avoid release to the environment.

Labelling according to Directive 67/548/EEC (DSD)

Hazardous Symbol	N	Dangerous for the environment.
Risk Phrase	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Phrase	S60	This material and its container must be disposed of as hazardous waste.
	S61	Avoid release to the environment. Refer to special instructions / safety data sheet.

2.3 Other hazards

None known.

SECTION 3: Composition/information on ingredients

Ingredient	Weight %	CAS	EINECS	Classification according to 67/548/EEC	Classification according to (EC) 1278/2008 (CLP)
Zinc oxide	>99	1314-13-2	215-222-5	N; R50/53	H410

SECTION 4: First aid measures

4.1 Description of first aid measures

Skin — Wash affected areas with water and soap. Seek medical attention if irritation develops.

Eyes — Flush gently for 10 – 15 min with running water. Seek medical attention if irritation develops.

Inhalation — If over exposure occurs, remove to fresh air. If irritation or discomfort persists seek medical attention.

Ingestion — Drink plenty of water to dilute. Do NOT induce vomiting without first seeking medical advice. Get medical attention if person feels unwell.

4.2 Most important symptoms and effects, both acute and delayed

Irritant effects.

Zinc compounds are only slightly absorbable via the gastrointestinal tract.

4.3 Indication of immediate medical attention and special treatment needed

None known.

SECTION 5: Fire fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surroundings.

Unsuitable extinguishing media

None known.

5.2 Special hazards arising from the substance or mixture

Not combustible.

5.3 Advise for fire fighters

Special protective equipment for fire fighters

In the event of fire, wear self-contained breathing apparatus and protective clothing.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Avoid inhaling of dust.

Clear area of personnel.

For emergency responders

Avoid inhaling of dust.

Protective equipment, see section 8.

6.2 Environmental precautions

Do not allow entering sewage and drainage systems.

Avoid soil contamination.

6.3 Methods and materials for containment and cleaning up

Clean up all spills immediately.

Contain spill with sand or other non-combustible materials. Use bunding and cover drains.

Collect recoverable material into labelled containers for recycling.

6.4 Reference to other sections

Indications on waste treatment see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Observe label precautions.

7.2 Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in a dry area, removed from foodstuff and incompatible materials such as acids and bases.

7.3 Specific end uses

As identified in section 1.2.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Exposure limits

Australia (NOHSC)	TWA:	10 mg/m^3 (dust)
	TWA:	5 mg/m^3 (fumes)
United States (ACGIH)	TWA:	10 mg/m^3 (dust)
	TWA:	5 mg/m^3 (fumes)
United States (OSHA)	TWA:	5 mg/m^3 (dust, respirable)
	TWA:	15 mg/m^3 (total dust)
	TWA:	5 mg/m^3 (fumes)
Germany (DFG)	TWA:	5 mg/m^3 (fumes)
	TWA:	6 mg/m^3 (dust)

8.2 Exposure controls

Appropriate engineering control

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing is specially selected for the workplace and depends on the concentration and quantity of the substance handled.

Hygiene measures

Change contaminated clothing. Wash hands after working with substance.

Eye/face protection
Safety glasses.

Hand protection
Rubber gloves.

Respiratory protection
Required when dust is generated.

Environmental exposure control
Do not empty into drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	White powder
Odour	Odourless
Odour threshold	No information available
pH	No information available
Melting point /freezing point	1970^{o}C
Initial boiling point and boiling range	No information available
Flash point	Does not flash
Evaporation rate	No information available
Flammability	Not combustible
Upper/lower flammability limits	No information available
Vapour pressure	No information available
Vapour density	No information available
Relative density	5.6 g/cm^{3}
Solubility	Insoluble in water
Partition coefficient	No information available
Auto ignition temperature	No information available
Decomposition temperature	No information available
Viscosity	No information available
Explosive properties	Not to be expected
Oxidising properties	Not to be expected

9.2 Other data
None

SECTION 10: Stability and reactivity

10.1 Reactivity
Dangerous reactions are not expected when handling the product according to its intended use.

10.2 Chemical stability
Under storage at ambient conditions the product is stable.

10.3 Possibility of hazardous reactions
Violent reactions possibly with strong oxidising agents.

10.4 Conditions to avoid
No information available.

10.5 Incompatible materials
Incompatible with strong oxidising agents, strong acids and alkalis.

10.6 Hazardous decomposition products

No information available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity, oral	LD50 (mouse) 15000 mg/kg (Löser, 1972)
	LD50 (rat) >5000 mg/kg (Löser, 1977)
Acute toxicity, inhalation	LC50 (mouse) >5.7 mg/L in 4 hr (Klimish & Freisberg)
Skin irritation	Not irritant (Löser, 1977, Lansdown, 1991)
Eye Irritation	Not irritant (Van Huygevoort, 1999; Thijssen, 1978; Löser, 1977)
Sensitisation	No sensitising effects known (Van Huygevoort, 1999)
Germ cell mutagenicity	No biologically relevant genotoxic activity (CSR ZnO, 2010)
Carcinogenicity	No evidence for carcinogenicity activity (CSR ZnO, 2010)
Reproductive toxicity	No evidence for reproductive or developmental toxicity (CSR ZnO, 2010)
STOT – single exposure	No evidence for specific target organ toxicity (single exposure), (CSR ZnO, 2010)
STOT – repeated exposure	No evidence for specific target organ toxicity (repeated exposure), (CSR ZnO, 2010)
Aspiration hazard	Not available

SECTION 12: Ecological information

12.1 Toxicity

Fish	Oncorhynchus mukiss (rainbow trout): LC50 1.1 mg/l in 4 days (ECOTOX)
Daphnia	Daphnia magna (water flea): EC50 >2.0 mg/l in 2 days (ECOTOX)
Algae	Pseudokirchneriella subcapitata (green algae): IC50 0.63 mg/l in 3 days (ECOTOX)

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

No data available.

12.6 Other adverse effects

Do not allow to enter waters, waste water or soil.

SECTION 13: Disposal consideration

Dispose of contents/containers as hazardous waste in accordance to local regulations.

SECTION 14: Transport information

ADR/RID, IMDG and IATA/ICAO

14.1 UN Number

UN3077

14.2 UN proper shipping name

Environmentally Hazardous Substance, Solid, NOS (Contains Zinc Oxide)

14.3 Transport Hazard Class

Miscellaneous Dangerous Goods Class 9

14.4 Packing group

Packing Group III

14.5 Environmental hazards

Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

14.6 Special precautions for user

Avoid release to the environment.

Collect spillage.

Dispose of contents / container as hazardous waste.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable

14.8 Transport by Australian Road and Rail

Not classified as dangerous goods when transported by road or rail in Australia or the United States pursuant to Australian Special Provision AU01 and the United States Code of Federal Regulations 49 CFR 171.4 paragraph (c).

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

German WGK-category Zinc oxide is classified as WGK 2 (hazard to waters)

15.2 Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Full text of H-statements

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Full text of R-phrases

R50/53	Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.