ZINC OXIDE Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) Annex II
Date of issue: 01/11/2011 Revision date: 20/12/2012

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

1.1. Product identifier

Product name : Zinc Oxide
EC No : 2015-222-5
CAS No. : 1314-13-2
REACH registration No. : 01-2119463881-32-0039
Formula : ZnO
Synonyms: Zinc white, Chinese white

1.2. Relevant identified uses of the substance or mixture and uses advised against 1.2.1.

Relevant identified uses

Paint, rubber, ink, plastics, enamel, glass, astringent topical protectant, antiseptics, electronics, adhesives, chemical products, cosmetics.

Uses advised against
No information available

1.3. Details of the supplier of the safety data sheet

Keramikos

Oudeweg 153

2031 CC Haarlem

1.4. Emergency telephone

023 – 542 44 16

2.1. Classification of the substance or mixture

Product definition: Substance

ZINC OXIDE Safety

Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) Annex II Date of issue: 01/11/2011 Revision date: 20/12/2012

SECTION 2: Hazards identification.

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

Aquatic Acute 1, H400

Aquatic Chronic 1, H410

Classification according to Directive 67/548/EEC

(DSD) N; R50

Full text of R-phrases: see section 16

See Section 11 for more detailed information on health effects and symptoms.

2.2. Label elements Labelling according to Regulation (EC) No. 1272/2008 (CLP)

Hazard pictograms (CLP):

GHS-09

Signal word (CLP): Warning

Hazard statements (CLP) :

H400: Very toxic to aquatic life.

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

Precautionary statements (CLP) :

P273: Avoid release to the environment. P391: Collect spillage.

2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH, annex XIII.

This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

SECTION 3: Composition/information on ingredients.

3.1. Substances

Chemical Name	EC-No	CAS-No.	Weight %	Classification (67/548/EEC)	Classification (1272/2008/EC)	Reach Registration Number
Zinc Oxide	215-222-5	1314-13-2	60 -100	N; R50	Aquatic Acute 1 H400 Aquatic Chronic 1 H410	01-2119463881-32-0039

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

For the full text of the R-Phrases mentioned in this Section, see Section 16

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures.

4.1. Description of first aid measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention if irritation occurs.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation..

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

Eye contact: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Inhalation: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact: No known significant effects or critical hazards. Ingestion: No known significant effects or critical hazards.

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

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

SECTION 5: Firefighting measures.

5.1. Extinguishing media

Suitable extinguishing media: Use extinguishing media suitable for surrounding fire.

Unsuitable extinguishing media: High volume water jet

5.2. Special hazards arising from the substance or mixture

Fire hazard: Not flammable.

Explosion hazard: No data available.

Reactivity: Stable under normal conditions of handling and storage.

Special hazard: Hazardous decomposition products formed under fire conditions: Carbon oxides, Lithium oxide. Do not allow run-off from fore fighting to enter drains or water courses.

5.3. Advice for firefighters

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Keep public away from danger area. See section 8.2. Keep away from heat source.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent entry to sewers and soil. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Sweep or shovel spills into appropriate container for disposal. Avoid dust production.

6.4. Reference to other sections

See section 8 and 13 for more information.

SECTION 7: Handling and storage.

7.1. Precautions for safe handling

Precautions for safe handling: Do not breathe dust. Wash hands plentifully and other exposed areas with water after handling. Remove contaminated clothing and shoes. Wash clothing before re-using.

Packaging: Even those that have been emptied, will retain product residue. Always obey safety warnings and handle empty packaging as if they were full. Avoid all contact with this substance.

Hygiene measures: When using do not eat, drink or smoke. Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Remove contaminated clothing and shoes.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in dry, cool, well-ventilated area. Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)

No further information available

SECTION 8: Exposure controls/personal protection.

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1. Control parameters

Occupational exposure limits:

Chemical Name	Exposure limit values (EH40-OES)
Zinc Oxide	STEL: 10mg/m^3 15 minute(s).Form : Fume TWA: 5mg/m^3 8 hour(s). Form : Fume

Recommended monitoring practice:

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Derived effect levels:
No DELs available.

Predicted effect concentrations:
No PECs available.

8.2. Exposure controls

Local vacuuming is recommended to maintain the emissions of dust or fumes at the lowest admissible level for exposure.
Periodical controls should be done to working environment.

Appropriate engineering controls: If handling conditions produce dust, it should be necessary to use personal protective equipments. Do not eat, drink or smoke while handling the product. At the end of work, wash or shower. Before breaks, wash hands. After work shower or wash. Change work clothes after handling the product. Remove soiled or splashed clothing and wash it before re-using it. Shower and washroom facilities should be separate from changing rooms. The substance must be kept away from food, drink and condiments.

Individual protection measures, such as personal protective equipment:

Eye/face protection: Well-fitted chemical protective goggles with plastic lenses (e.g. Clear PVC). Or facial safety screen. It is generally known that contact lenses must not be worn when working with chemicals because they may contribute to the severity of possible damage to the eyes.

Hand protection: Protective gloves: Nitrile rubber (EN374). Glove thickness: 0.11 mm. Break through time:

Skin and body protection: Long sleeved clothing.

Respiratory protection: In the case of dust or aerosol formation use respirator with an approved filter (EN143).

Recommended filter type: P2

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.
Provide regular cleaning of equipment, work area and clothing.

Environmental Exposure Controls: Do not allow material to contaminate ground water system.

SECTION 9: Physical and chemical; properties.

Revision 3

Physical state	Solid white.
Colour	odourless.
Odour	Not applicable
Odour threshold pH	Neutral
Relative evaporation rate (butylacetate=1)	No data available
Melting point	Sublimation temperature 1,975^{0}C
Freezing point	No data available
Boiling point	No data available Not
Flash point	explosive.
Self ignition temperature	No data available
Decomposition temperature	No data available.
Flammability (solid, gas)	Not flammable Not
Vapour pressure	applicable No data
Relative vapour density at 20 °C	available
Relative density	5.61
Density	No data available.

SECTION 10: Stability and reactivity.

10.1. Reactivity

No information available.

10.2. Chemical stability

Solubility	Very slightly soluble in the following materials: cold and hot water.	Stable under normal
Partition coefficient (n-octanol/water)	No data available	
Viscosity, kinematic	No data available	
Viscosity, dynamic	No data available	
Explosive properties	Not explosive	
Oxidising properties	No data available.	
Explosive limits	Not applicable	

9.2. Other information

No additional information.
conditions of handling and storage.

10.3. Possibility of hazardous reactions

Under normal conditions of storae and use, hazardous reactions will not occur.

10.4. Conditions to avoid

No specific data available.

10.5. Incompatible materials

Chlorinated rubber: Violent reaction or possible explosion with zinc oxide at 215^{0}C Flax oil:

Exothermic reactionnn with possibility of ignition.

Magnesium: If heated:explosive reaction.

Strong bases and acids: Possibility of violent reaction.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information.

11.1. Information on toxicological effects

Acute toxicity

There is no data available.

Irritation corrosion:

Zinc Oxide: Eyes ─ Mild irritant (Rabbit 24hours exposure 500mg).

Skin ─ Mild irritant (Rabbit 24 hours exposure 500mg).

Sensitisation:

There is no data available.
Mutagenicity:
There is no data available.
Carcinogenicity:
There is no data available. Reproductive toxicity:
There is no data available. STOT-single exposure:
There is no data available. STOT-repeated exposure:
There is no data available.
Aspiration hazard:
There is no data available.

SECTION 12: Ecocological information.

12.1. Toxicity

Chemical Name	Result	Species	Exposure
Zinc Oxide	Acute EC50: 0.042 mg/L Fresh water	Algae - Pseudokirchneriella subcapitata Exponential growth phase	72 hours
	Acute LC50: 98 ug/L Fresh water	Daphnia - Daphnia magna - Neonate <24 hours	48 hours
	Acute LC50: 1.1 to 2.5 ppm Fresh water	Fish - Oncorhynchus mykiss <24 hours	96 hours

12.2. Persistence and degradability
There is no data available.

12.3. Bioaccumulative potential
There is no data available.

12.4. Mobility in soil
There is no data available.

12.5. Results of PBT and vPvB assessment
This substance/mixture does not meet the PBT criteria of REACH, annex XIII.
This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

12.6. Other adverse effects
No known significant effects or critical hazards.

SECTION 13: Disposal considerations.

13.1. Waste treatment methods Product:

Methods of disposal: The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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.

Hazardous waste: The classification of the product may meet the criteria for a hazardous waste.

Packaging:

Methods of disposal: The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions:This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information.

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

UN3077

14.2. UN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID N.O.S (ZINC OXIDE).MARINE POLLUTANT (ZINC OXIDE)

14.3. Transport hazard class(es) 9

14.4. Packing group

III

14.5. Environmental hazards Yes.

14.6. Special precautions for user Not available.

Additional information: Tunnel Code (E)

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not available.

SECTION 15: Regulatory information.

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

EU Regulation (EC) No. 1907/2006 (REACH) Annex XIV - List of substances subject to authorisation

Substances of very high concern None of the components are listed.

15.2. Chemical safety assessment Not available.

SECTION 16: Other information.

Abbreviations/acronyms
ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No.1272/2008] DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 (CLP/GHS)

Classification	Justification
Aquatic Acute 1 ,H400	Expert judgement
Aquatic Chronic 1 , H410	Expert judgement

Full text of H-Statements

H400 ─ Very toxic to aquatic life.

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

Full text of classifications (CLP/GHS)

Aquatic Acute 1,H400 ─ AQUATIC TOXICITY (ACUTE) ─ Category 1.

Aquatic Chronic 1 H410 ─ AQUATIC TOXICITY (CHRONIC) ─ Category 1.

Full text of R-phrases

R50 ─ Very toxic to aquatic organisms.

Full text of classifications (DSD/DPD)

N - Dangerous for the environment

Training advice:

Workers must be trained in the proper use and handling of this product as required under applicable regulations.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 (REACH). Label element according to Regulation (EC) No 1272/2008 (CLP), 453/2010

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. Any chemical product may be handled in safe conditions if its physicochemical and toxicological properties are known, and technical methods and appropriate organising measures are used, as well as adequate personal protective equipment.

This safety data sheet has been prepared based on Regulation 453/2010 of the Commission on May 20. 2010 for the preparation of Safety Data Sheet for amending Regulation (EC) No. 1907/2006 of the European parliament and Council concerning the Registration, Evaluation, Authorisation and Restriction of substances and Chemicals (REACH)

DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable