

This safety data sheet was created pursuant to the requirements of:
UK REACH Regulations (SI 2019/758 as amended)

Supersedes date 24-Oct-2025

Revision date 15-Jul-2026

Revision Number 7

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

1.1. Product identifier

Product Code(s)	03464
Safety data sheet number	03464
Product Name	ZINC OXIDE
Index No	030-013-00-7
EC Number	215-222-5
CAS No	1314-13-2
Synonyms	C.I PIGMENT WHITE 4, PHARMA A, PHARMA B, PHARMA BP, ZINC OXIDE RED SEAL MIN 99.5%, GREEN SEAL, ZINC OXIDE WHITE SEAL, ELITE ZINC OXIDE ACTIVE S-70, ZINCOXYD AKTIV, OXMER, ZINC OXIDE EXTRA PURE, ZINC OXIDE WHITE SEAL SP, ZINC OXIDE WHITE SEAL PHARMA, ZINC OXIDE PHARMA 4, ZINC OXIDE GOLD LABEL, ZINC OXIDE RED SEAL DC, DC 340 HEAT SINK COMPOUND, ZINC OXIDE RAC, ZINC OXIDE PHARMA C, ZINC OXIDE NC105, ZINC OXIDE ZOCO 104, ZINC OXIDE ZOCO 112 USP, ZINC OXIDE PHARMA 8, ZINC OXIDE GMP1 S5, ZOCO 103 USP, ZINC OXIDE PHARMA GMP, NEIGE A, NEIGE B, NEIGE C, NEIGE S, ZINC OXIDE NEIGE, ZINC OXIDE PHARMA GMP1 S3, ZINC OXIDE 103, ZINC OXIDE ZOCO 102 USP, ZINC OXIDE PHARMA 4 EXCIPIENT, ZINC OXIDE PHARMA 4 HP, ZINC OXIDE PHARMA EP GMP S5, ZINC OXIDE PHARMA EP USP GMP, ZINC WHITE HARZSIEGEL CF, ZINC OXIDE GOLD SEAL A/B/C, ZINC OXIDE GOLD SEAL C 2043189, SUPER ZINC SHEER NATURAL, ZINC OXIDE MIN 99.7%, MFSORB NZ 021, ZINCOXYD AKTIV, ZINC OXIDE INDIRECT, ZINC OXIDE RED SEAL FR, ZINC OXIDE RED SEAL GRAN, ZINC OXIDE RED SEAL GRAN EVC, ZINC OXIDE RED LABEL, ZINC OXIDE SNOW A/B/C/S, ZINC OXIDE NEIGE SFT, ZINC OXIDE OXMER 141, ZINC OXIDE OXMER 142, ZINC OXIDE PH EP GMP, ZINC OXIDE PH EP-USP-GMP S5, ZINC OXIDE PHARMA-EP GMP S3, ZINC OXIDE PHARMA-EP GMP S5, ZINC OXIDE PHARMA-EP GMP S7
Pure substance/mixture	Substance
Formula	ZnO
Molecular weight	81.39

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

Recommended use	paint Rubber products Ceramics Glass Lubricant Agriculture Cosmetics Pharmaceuticals Plastics Pigment
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Laboratory chemicals
Formulation & (re)packing of substances and mixtures.
Manufacture of substance
For further information, see attached Exposure Scenario

1.3. Details of the supplier of the safety data sheet

Supplier

Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
GBR

For further information, please contact

E-mail address SDS.EMEA@univarsolutions.com
Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

1.4. Emergency telephone number

Emergency Telephone SGS - +32 (0)3 575 55 55 (24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Acute aquatic toxicity	Category 1 - (H400)
Chronic aquatic toxicity	Category 1 - (H410)

2.2. Label elements



Signal word
Warning

Hazard statements
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements
P273 - Avoid release to the environment
P391 - Collect spillage
P501 - Dispose of contents/ container to an approved waste disposal plant

2.3. Other hazards

The product does not contain any substance(s) classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
ZINC OXIDE 1314-13-2	<= 100%	215-222-5 (030-013-00-7)	-	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	-	1	1

Full text of H- and EUH-phrases: see section 16

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (UK REACH Article 59)

SECTION 4: First aid measures**4.1. Description of first aid measures**

General advice	First aid personnel should wear appropriate protective equipment during any rescue.
Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Rinse mouth thoroughly with water. Get medical attention if symptoms occur.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if symptoms occur.
Skin contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if symptoms occur.
Ingestion	Rinse mouth thoroughly with water. Do NOT induce vomiting. Get medical attention if symptoms occur.

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

Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system. Coughing and/or wheezing.
Eyes	None under normal conditions. Solid particles trapped behind the eyelid may cause abrasive damage,.
Dermal	Non-irritating during normal use. Dust may cause irritation in skin folds or by contact in combination with tight clothing.
Ingestion	None under normal conditions.

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

Note to doctors	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Dry chemical, CO2, alcohol-resistant foam or water spray.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	When heated and in case of fire, toxic vapours/gases may be formed.
Hazardous combustion products	Carbon oxides.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure adequate ventilation. Use personal protection recommended in Section 8. Avoid contact with eyes, skin and clothing. Do not breathe dust. Avoid generation of dust. Absorb spillage to prevent material damage. Keep unnecessary and unprotected personnel from entering.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	See Section 12 for additional Ecological Information.
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6.3. Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Remove spillage with vacuum cleaner. If not possible, collect spillage with shovel, broom or the like. Take up mechanically, placing in appropriate containers for disposal. Flush area with flooding quantities of water. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections	See section 8 for more information. See section 13 for more information.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Ensure adequate ventilation. Use personal protection recommended in Section 8. Avoid contact with eyes, skin and clothing. Do not breathe dust.

General hygiene considerations Do not eat, drink or smoke when using the product. Wash hands before breaks and immediately after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Keep away from heat. Protect from direct sunlight. Store away from the following materials. Strong oxidising agents. Strong acids. Strong bases.

Packaging materials Keep/store only in original container.

7.3. Specific end use(s)

Specific use(s)

See section 1 for more information.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
ZINC OXIDE 1314-13-2		83 mg/kg bw/day [4] [6]	5 mg/m ³ [4] [6] 0.5 mg/m ³ [5] [6]

[4] Systemic health effects.

[5] Local health effects.

[6] Long term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
ZINC OXIDE 1314-13-2	0.83 mg/kg bw/day [4] [6]	83 mg/kgbw/day [4] [6]	2.5 mg/m ³ [4] [6]

[4] Systemic health effects.

[6] Long term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
ZINC OXIDE 1314-13-2	20.6 µg/l		6.1 µg/l		

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
ZINC OXIDE 1314-13-2	117.8 mg/kg dwt	56.5 mg/kg dwt	100 µg/L	35.6 mg/kg dwt	

8.2. Exposure controls

Engineering controls	Ensure adequate ventilation. Ensure that eyewash stations and safety showers are close to the workstation location.
Personal protective equipment	
Eye/face protection	Wear safety glasses with side shields (or goggles). Use eye protection according to EN ISO 16321-1.
Hand protection	Wear suitable gloves. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Gloves must conform to standard EN 374.
Skin and body protection	Wear appropriate clothing to prevent reasonably probable skin contact.
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
General hygiene considerations	Do not eat, drink or smoke when using the product. Wash hands before breaks and immediately after handling the product.
Environmental exposure controls	Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Dusty powder Powder
Colour	white To yellow
Odour	Odourless.
Odour threshold	No information available

Property	Values	Remarks • Method
Melting point / freezing point	1970 - 1975 °C	@ 1013 hPa; EC Method A1. ECHA Disseminated REACH Dossier.
Initial boiling point and boiling range		Not applicable. Decomposes prior to boiling. ECHA Disseminated REACH Dossier.
Flammability		Not applicable.
Flammability Limit in Air		Not applicable.
Upper flammability or explosive limits		

Lower flammability or explosive limits		
Flash point		Not applicable.
Autoignition temperature		Not applicable.
Decomposition temperature		Not applicable.
pH	6	solution (2 %). ECHA Disseminated REACH Dossier.
pH (as aqueous solution)		No information available.
Kinematic viscosity		Not applicable.
Dynamic viscosity		No information available.
Water solubility	Insoluble in water 2.9mg/l @ 20°C soluble in Acids alkali Ammonia	OECD 105. ECHA Disseminated REACH Dossier.
Solubility(ies)		
Partition coefficient		Not applicable.
Vapour pressure	~ 0 Pa	ECHA Disseminated REACH Dossier.
Relative density	5.0 - 5.68	@ 22 °C. ECHA Disseminated REACH Dossier. EU A.3.
Bulk density		No information available
Liquid Density	No information available	No information available
Relative vapour density		Not applicable.
Particle characteristics		No information available.
Particle Size	No information available	
Particle Size Distribution	No information available	
Explosive properties	Not applicable	
Oxidising properties	Does not meet the criteria for classification as oxidising	
9.2. Other information		
Molecular weight	81.39	
VOC content	Not applicable	
Evaporation rate	Not applicable	

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Reacts violently with bases. Alkaline earth metals.

10.4. Conditions to avoid

Conditions to avoid Extremes of temperature and direct sunlight.

10.5. Incompatible materials

Incompatible materials Strong acids. Strong bases. Strong oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system. Coughing and/or wheezing.
Eye contact	None under normal conditions. Solid particles trapped behind the eyelid may cause abrasive damage,.
Skin contact	Non-irritating during normal use. Dust may cause irritation in skin folds or by contact in combination with tight clothing.
Ingestion	None under normal conditions.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms

Acute toxicity

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
ZINC OXIDE	> 5000 mg/kg (Rat)	> 5000 mg/kg (Rat)	> 5.7 mg/l (Rat) 4h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Based on available data the classification criteria are not met.
Serious eye damage/eye irritation	Based on available data the classification criteria are not met.
Respiratory or skin sensitisation	Based on available data the classification criteria are not met.
Germ cell mutagenicity	Based on available data the classification criteria are not met.
Carcinogenicity	Based on available data the classification criteria are not met.
Reproductive toxicity	Based on available data the classification criteria are not met.

STOT - single exposure Based on available data the classification criteria are not met.

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard Based on available data the classification criteria are not met.

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Very toxic to aquatic life with long lasting effects.

ZINC OXIDE (1314-13-2)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
Acute toxicity	Fish	LC50	0.215 mg/L		ECHA Disseminated REACH Dossier Read-across Zinc
Acute toxicity	Crustacea Daphnia magna	EC50	0.095 mg/L		ECHA Disseminated REACH Dossier Read-across Zinc
Acute toxicity	Algae Pseudokirchneriella subcapitata	ErC50	0.041 mg/L		ECHA Disseminated REACH Dossier Read-across Zinc
Chronic toxicity	Crustacea Daphnia magna	NOEC	0.041 mg/L		ECHA Disseminated REACH Dossier Read-across Zinc
Chronic toxicity	Algae Pseudokirchneriella subcapitata	NOEC	0.024 mg/L		ECHA Disseminated REACH Dossier Read-across Zinc

12.2. Persistence and degradability

Persistence and degradability The methods for determining biodegradability are not applicable to inorganic substances.

ZINC OXIDE (1314-13-2)

Method	Exposure time	Value	Results
			Not applicable

12.3. Bioaccumulative potential

Bioaccumulation Material does not bioaccumulate.

Bioconcentration factor (BCF) 177

12.4. Mobility in soil

Mobility in soil Insoluble.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

Chemical name	PBT and vPvB assessment
ZINC OXIDE	The substance is not PBT / vPvB PBT assessment does not apply

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

Waste from residues/unused products Waste is classified as hazardous waste. Disposal to licensed waste disposal site in accordance with the local Waste Disposal Authority.

Contaminated packaging Do not reuse empty containers. Empty remaining contents. Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information**IATA**

14.1 UN number or ID number	UN3077
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S.(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	
Special Provisions	A97, A158, A179, A197, A215
ERG Code	9L

IMDG

14.1 UN number or ID number	UN3077
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (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	
Special Provisions	274, 335, 966, 967, 969
EmS-No	F-A, S-F
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	UN3077
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (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	
Special Provisions	274, 335, 375, 601
Classification code	M7

ADR

14.1 UN number or ID number	UN3077
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (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	
Special Provisions	274, 335, 601, 375
Classification code	M7
Tunnel restriction code	(-)

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations****Authorisations and/or restrictions on use:**

This product does not contain substances subject to authorisation (UK REACH - Annex XIV).

This product does not contain substances subject to restriction (UK REACH - Annex XVII).

Persistent Organic Pollutants

Not applicable

Export Notification requirements

Not applicable

Dangerous substance category per COMAH Regulations 2015 (as amended)

E1 - Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1

Named dangerous substances per COMAH Regulations 2015 (as amended)

Not applicable

The Ozone-Depleting Substances Regulations 2015

Not applicable

The Biocidal Products Regulations 2001 (as amended)

Not applicable

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)

Not applicable

Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)

Not applicable

International Inventories

TSCA	Contact supplier for inventory compliance status
DSL/NDL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECI	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report

A Chemical Safety Assessment has been carried out for this substance

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

Legend

SVHC: Substances of Very High Concern for Authorisation:

PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances

vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances

Legend Section 8: Exposure controls/personal protection

TWA TWA (time-weighted average)

Ceiling Maximum limit value

+ Sensitisers

STEL

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STEL (Short Term Exposure Limit)

Skin designation

Revision Note **SDS sections updated 1 3 4 5 6 7 8 9 10 11 12 16**

Classification procedure

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

Acute oral toxicity

Acute dermal toxicity

Acute inhalation toxicity - gas

Acute inhalation toxicity - vapour

Acute inhalation toxicity - dust/mist

Skin corrosion/irritation

Serious eye damage/eye irritation

Respiratory sensitisation

Skin sensitisation

Mutagenicity

Carcinogenicity

Reproductive toxicity

STOT - single exposure

STOT - repeated exposure

Acute aquatic toxicity

Chronic aquatic toxicity

Aspiration hazard

Ozone

Method Used

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

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Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)

European Chemicals Agency (ECHA) (ECHA_API)

Environmental Protection Agency

Acute Exposure Guideline Level(s) (AEGl(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Prepared By Lisa Bland
Supersedes date 24-Oct-2025
Revision date 15-Jul-2026

This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended)
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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 process, unless specified in the text.

End of Safety Data Sheet

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Manufacture of substance
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC1 - Manufacture of substances
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
 PROC26 - Handling of solid inorganic substances at ambient temperature
 PROC28 - Manual maintenance (cleaning and repair) of machinery

Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

Amounts used

Type	Annual amount per site
Value	15000
Units	t(ons)/year

Type	Daily amount per site
Value	50
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10

Local marine water dilution factor	100
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Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation**Environmental release category(ies) - ERC1 - Manufacture of substances****Predicted No Effect Concentration (PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):**Remarks**

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

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Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

Amounts used

Type	Annual amount per site
Value	7500
Units	t(ons)/year

Type	Daily amount per site
Value	25
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	500

Local marine water dilution factor	100
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Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances**Predicted No Effect Concentration (PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):**Remarks**

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Manufacture of substance
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC1 - Manufacture of substances
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC28 - Manual maintenance (cleaning and repair) of machinery
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

Amounts used

Type	Annual amount per site
Value	1620
Units	t(ons)/year

Type	Daily amount per site
Value	5.7
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10

Local marine water dilution factor	100
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Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances**Predicted No Effect Concentration (PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):**Remarks**

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
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CAS No 1314-13-2
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Section 1 - Title

Title Manufacture of substance (nanoform)
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC1 - Manufacture of substances
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
 PROC26 - Handling of solid inorganic substances at ambient temperature

Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

Amounts used

Type	Annual amount per site
Value	3000
Units	t(ons)/year

Type	Daily amount per site
Value	10
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10

Local marine water dilution factor	100
------------------------------------	-----

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
---	---

Control measures to prevent releases

Air	Air emission controls are not applicable as there is no direct release to air
Water	Not applicable as there is no release to wastewater

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances**Predicted No Effect Concentration (PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):**Remarks**

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
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Section 1 - Title

Title Formulation & (re)packing of substances and mixtures : Fertilisers
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Process category(ies) PROC3 - Use in closed batch process (synthesis or formulation)
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC15 - Use as laboratory reagent
Product category(ies) PC12 - Fertilisers
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Amounts used

Type	Annual amount per site
Value	100
Units	t(ons)/year

Type	Daily amount per site
Value	1
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Not applicable as there is no release to wastewater

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
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Section 1 - Title

Title Formulation & (re)packing of substances and mixtures (Various)
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Process category(ies) PROC3 - Use in closed batch process (synthesis or formulation)
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising

Product category(ies) PROC26 - Handling of solid inorganic substances at ambient temperature
 PC0 - Other Products PC14 - Metal surface treatment products, including galvanic and electroplating products PC16 - Heat transfer fluids PC18 - Ink and toners PC24 - Lubricants, greases, release products PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC33 - Semiconductor(s)

Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Amounts used

Type	Annual amount per site
Value	25
Units	t(ons)/year

Type	Daily amount per site
Value	0.1
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
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Section 1 - Title

Title Formulation & (re)packing of substances and mixtures (Various)
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC0 - Other Products PC14 - Metal surface treatment products, including galvanic and electroplating products PC16 - Heat transfer fluids PC18 - Ink and toners PC24 - Lubricants, greases, release products PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC33 - Semiconductor(s)
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Amounts used

Type	Annual amount per site
Value	25
Units	t(ons)/year

Type	Daily amount per site
Value	0.1
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment	2000 m3/d
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plant flow	
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
---	---

Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
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E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures : Polymer preparations and compounds
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC3 - Formulation in materials
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC10 - Roller application or brushing
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC32 - Polymer preparations and compounds
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC3 - Formulation in materials

Amounts used

Type	Annual amount per site
Value	1500
Units	t(ons)/year

Type	Daily amount per site
Value	5
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment	2000 m3/d
-----------------------------------	-----------

plant flow	
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
---	---

Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC3 - Formulation in materials

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

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Section 1 - Title

Title Industrial use : Polymer preparations and compounds
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
Process category(ies) PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC6 - Calendaring operations
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC10 - Roller application or brushing
 PROC13 - Treatment of articles by dipping and pouring
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
 PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
Product category(ies) PC32 - Polymer preparations and compounds
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU11 - Manufacture of rubber products

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Amounts used

Type	Annual amount per site
Value	1500
Units	t(ons)/year

Type	Daily amount per site
Value	5
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
---	---

Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

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Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
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Section 1 - Title

Title	Consumer use : Rubber products
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Article categories	AC2 - Machinery, mechanical appliances, electrical/electronic articles AC10
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Predicted No Effect Concentration

(PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use (Rubber products: tyres)
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC10b - Wide dispersive outdoor use of long-life articles and materials with high or intended release ERC11b - Wide dispersive indoor use of long-life articles and materials with high or intended release
Article categories	AC1 AC10c - Rubber products: tires
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10b - Wide dispersive outdoor use of long-life articles and materials with high or intended release
- ERC11b - Wide dispersive indoor use of long-life articles and materials with high or intended release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC10b - Wide dispersive outdoor use of long-life articles and materials with high or intended release
- ERC11b - Wide dispersive indoor use of long-life articles and materials with high or intended release

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
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 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures : Polymer preparations and compounds (nanoform)
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC3 - Formulation in materials
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC10 - Roller application or brushing
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC32 - Polymer preparations and compounds
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC3 - Formulation in materials

Amounts used

Type	Annual amount per site
Value	1500
Units	t(ons)/year

Type	Daily amount per site
Value	5
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment	2000 m3/d
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plant flow	
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC3 - Formulation in materials

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures (nanoform) : Polymer preparations and compounds , Rubber products
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC6 - Calendaring operations
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC10 - Roller application or brushing
 PROC13 - Treatment of articles by dipping and pouring
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
 PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles

Product category(ies) PC32 - Polymer preparations and compounds
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU11 - Manufacture of rubber products

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Amounts used

Type	Annual amount per site
Value	1500
Units	t(ons)/year

Type	Daily amount per site
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Value	5
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use (nanoform) : Machinery, mechanical appliances, electrical/electronic articles , Rubber products
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Article categories	AC2 - Machinery, mechanical appliances, electrical/electronic articles AC10
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use (nanoform) : Rubber products: tyres
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC10b - Wide dispersive outdoor use of long-life articles and materials with high or intended release ERC11b - Wide dispersive indoor use of long-life articles and materials with high or intended release
Article categories	AC1 AC10c - Rubber products: tires
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10b - Wide dispersive outdoor use of long-life articles and materials with high or intended release
- ERC11b - Wide dispersive indoor use of long-life articles and materials with high or intended release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC10b - Wide dispersive outdoor use of long-life articles and materials with high or intended release
- ERC11b - Wide dispersive indoor use of long-life articles and materials with high or intended release

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures : Adhesives, sealants
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Specific Environmental Release Category FEICA SPERC 2.1a.v3 FEICA SPERC 2.2b.v3
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC15 - Use as laboratory reagent
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC1 - Adhesives, sealants PC9b - Fillers, putties, plasters, modelling clay
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)
Specific Environmental Release Category - FEICA SPERC 2.1a.v3
 - FEICA SPERC 2.2b.v3

Amounts used

Type	Annual amount per site
Value	50
Units	t(ons)/year

Type	Daily amount per site
Value	0.167
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Formulation activity is assumed to be a predominantly enclosed process Process optimised for highly efficient use of raw materials (very minimal environmental release) Provide extract ventilation to material transfer points and other openings
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Specific Environmental Release Category - FEICA SPERC 2.1a.v3

- FEICA SPERC 2.2b.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use : Roller application or brushing of adhesive and other coating (Automated task)
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category FEICA SPERC 5.1a.v3 FEICA SPERC 5.1c.v3
Process category(ies) PROC7 - Industrial spraying
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC10 - Roller application or brushing
Product category(ies) PC1 - Adhesives, sealants PC9b - Fillers, putties, plasters, modelling clay PC32 - Polymer preparations and compounds
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - FEICA SPERC 5.1a.v3
- FEICA SPERC 5.1c.v3

Amounts used

Type	Annual amount per site
Value	50
Units	t(ons)/year

Type	Daily amount per site
Value	0.167
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - FEICA SPERC 5.1a.v3
- FEICA SPERC 5.1c.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Professional use : Adhesives, sealants
Type Worker
Main user group Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies) ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category FEICA SPERC 8c.3.v3 FEICA SPERC 8f.1a.v2
Process category(ies) PROC10 - Roller application or brushing
Product category(ies) PC1 - Adhesives, sealants PC9b - Fillers, putties, plasters, modelling clay PC24 - Lubricants, greases, release products
Sector(s) of use SU22 - Professional uses SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
 - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Specific Environmental Release Category - FEICA SPERC 8c.3.v3
 - FEICA SPERC 8f.1a.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - FEICA SPERC 8c.3.v3
- FEICA SPERC 8f.1a.v2

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use : Sealant
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category	FEICA SPERC 8c.3.v3 FEICA SPERC 8f.1a.v2
Product category(ies)	PC1 - Adhesives, sealants PC9b - Fillers, putties, plasters, modelling clay
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
 - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - **FEICA SPERC 8c.3.v3**
- FEICA SPERC 8f.1a.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix

- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - FEICA SPERC 8c.3.v3
- FEICA SPERC 8f.1a.v2

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Consumer use : Adhesives, sealants
Type Consumer
Main user group Consumer uses: Private households (= general public = consumers)
Environmental release category(ies) ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
 ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Article categories AC1 AC2 - Machinery, mechanical appliances, electrical/electronic articles AC4 - Stone, plaster, cement, glass and ceramic articles AC6 - Leather articles AC7 - Metal articles AC8 - Paper articles AC10 AC11 - Wood articles AC13 - Plastic articles
Sector(s) of use SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
 - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
 - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures : Adhesives, sealants
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Specific Environmental Release Category FEICA SPERC 2.1a.v3 FEICA SPERC 2.2b.v3
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC15 - Use as laboratory reagent
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC1 - Adhesives, sealants PC9b - Fillers, putties, plasters, modelling clay
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)
Specific Environmental Release Category - FEICA SPERC 2.1a.v3
 - FEICA SPERC 2.2b.v3

Amounts used

Type	Annual amount per site
Value	10
Units	t(ons)/year

Type	Daily amount per site
Value	0.033
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Formulation activity is assumed to be a predominantly enclosed process Process optimised for highly efficient use of raw materials (very minimal environmental release) Provide extract ventilation to material transfer points and other openings
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Specific Environmental Release Category - FEICA SPERC 2.1a.v3

- FEICA SPERC 2.2b.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use (nanoform) : Adhesives, sealants
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category FEICA SPERC 5.1a.v3 FEICA SPERC 5.1c.v3
Process category(ies) PROC7 - Industrial spraying
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC10 - Roller application or brushing
Product category(ies) PC1 - Adhesives, sealants PC9b - Fillers, putties, plasters, modelling clay PC32 - Polymer preparations and compounds
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - FEICA SPERC 5.1a.v3
- FEICA SPERC 5.1c.v3

Amounts used

Type	Annual amount per site
Value	10
Units	t(ons)/year

Type	Daily amount per site
Value	0.033
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - FEICA SPERC 5.1a.v3
- FEICA SPERC 5.1c.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use (nanoform) : Adhesives, sealants
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category	FEICA SPERC 8c.3.v3 FEICA SPERC 8f.1a.v2
Process category(ies)	PROC10 - Roller application or brushing
Product category(ies)	PC1 - Adhesives, sealants PC9b - Fillers, putties, plasters, modelling clay PC24 - Lubricants, greases, release products
Sector(s) of use	SU22 - Professional uses SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - FEICA SPERC 8c.3.v3
- FEICA SPERC 8f.1a.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Low environmental release
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - FEICA SPERC 8c.3.v3
- FEICA SPERC 8f.1a.v2

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use (nanoform) : Sealant
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category	FEICA SPERC 8c.3.v3 FEICA SPERC 8f.1a.v2
Product category(ies)	PC1 - Adhesives, sealants PC9b - Fillers, putties, plasters, modelling clay
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
 - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - **FEICA SPERC 8c.3.v3**
- FEICA SPERC 8f.1a.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix

- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - FEICA SPERC 8c.3.v3
- FEICA SPERC 8f.1a.v2

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Consumer use (nanoform) : Adhesives, sealants
Type Consumer
Main user group Consumer uses: Private households (= general public = consumers)
Environmental release category(ies) ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
 ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Article categories AC1 AC2 - Machinery, mechanical appliances, electrical/electronic articles AC4 - Stone, plaster, cement, glass and ceramic articles AC6 - Leather articles AC7 - Metal articles AC8 - Paper articles AC10 AC11 - Wood articles AC13 - Plastic articles
Sector(s) of use SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
 - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
 - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
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Supplier Univar Solutions UK Ltd
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 6 Mid Point Business Park
 Bradford
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use : Manufacture of fabricated metal products, except machinery and equipment
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
Specific Environmental Release Category ESVOC SpERC 4.6a.v2 ESVOC SPERC 4.7a.v3
Process category(ies) PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Product category(ies) PC24 - Lubricants, greases, release products PC25 - Metal working fluids
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU15 - Manufacture of fabricated metal products, except machinery and equipment

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Specific Environmental Release Category - ESVOC SpERC 4.6a.v2
- ESVOC SPERC 4.7a.v3

Amounts used

Type	Annual amount per site
Value	999
Units	t(ons)/year

Type	Daily amount per site
Value	3.33
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
Sludge treatment	No application of sewage sludge to soil

Environmental factors not influenced by risk management

Receiving water dilution (fresh or	18000 m3/d
------------------------------------	------------

marine)	
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release)
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Specific Environmental Release Category - ESVOC SpERC 4.6a.v2
- ESVOC SPERC 4.7a.v3**

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use : Metal working fluids , Lubricants, greases, release products
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems ERC9a - Wide dispersive indoor use of substances in closed systems ERC9b - Wide dispersive outdoor use of substances in closed systems
Specific Environmental Release Category	ESVOC SpERC 8.6c.v2 ESVOC SPERC 8.7c.v2 ESVOC SpERC 9.6b.v2 ESVOC SPERC 9.13b.v2
Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10 - Roller application or brushing PROC11 - Non industrial spraying PROC13 - Treatment of articles by dipping and pouring PROC17 - Lubrication at high energy conditions and in partly open process PROC19 - Hand-mixing with intimate contact and only PPE available PROC21 - Low energy manipulation of substances bound in materials and/or articles
Product category(ies)	PC14 - Metal surface treatment products, including galvanic and electroplating products PC24 - Lubricants, greases, release products PC25 - Metal working fluids
Sector(s) of use	SU22 - Professional uses SU17 - General manufacturing SU18 - Manufacture of furniture

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems
 - ERC9a - Wide dispersive indoor use of substances in closed systems
 - ERC9b - Wide dispersive outdoor use of substances in closed systems
Specific Environmental Release Category - **ESVOC SpERC 8.6c.v2**
 - **ESVOC SPERC 8.7c.v2**
 - **ESVOC SpERC 9.6b.v2**
 - **ESVOC SPERC 9.13b.v2**

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Low environmental release
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

- ERC8d - Wide dispersive outdoor use of processing aids in open systems

- ERC9a - Wide dispersive indoor use of substances in closed systems

- ERC9b - Wide dispersive outdoor use of substances in closed systems

Specific Environmental Release Category - ESVOC SpERC 8.6c.v2

- ESVOC SPERC 8.7c.v2

- ESVOC SpERC 9.6b.v2

- ESVOC SPERC 9.13b.v2

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use : Lubricants, greases, release products , Metal working fluids , Metal surface treatment
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems
Specific Environmental Release Category	ESVOC SpERC 8.6e.v2
Product category(ies)	PC14 - Metal surface treatment products, including galvanic and electroplating products PC24 - Lubricants, greases, release products PC25 - Metal working fluids
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8d - Wide dispersive outdoor use of processing aids in open systems
Specific Environmental Release Category - ESVOC SpERC 8.6e.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8d - Wide dispersive outdoor use of processing aids in open systems
Specific Environmental Release Category - ESVOC SpERC 8.6e.v2

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures : Coatings , Inks
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Specific Environmental Release Category CEPE SPERC 2.4c.v2
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Product category(ies) PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC9c - Finger paints PC18 - Ink and toners
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)
Specific Environmental Release Category - CEPE SPERC 2.4c.v2

Amounts used

Type	Annual amount per site
Value	1000
Units	t(ons)/year

Type	Daily amount per site
Value	4.444
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or	18000 m3/d
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marine)	
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)
Specific Environmental Release Category - CEPE SPERC 2.4c.v2

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use : Coatings and paints, thinners, paint removers , Spraying in industrial settings and applications with local exhaust ventilation
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category CEPE SPERC 5.1a.v2
Process category(ies) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC7 - Industrial spraying
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Product category(ies) PC9a - Coatings and paints, thinners, paint removers
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU2b - Offshore industries SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU7 - Printing and reproduction of recorded media SU12 - Manufacture of plastics products, including compounding and conversion SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 5.1a.v2

Amounts used

Type	Annual amount per site
Value	1000
Units	t(ons)/year

Type	Daily amount per site
Value	4.444
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 5.1a.v2

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use : Coatings and paints, thinners, paint removers (with local exhaust ventilation)
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category CEPE SPERC 5.3.v2
Process category(ies) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC10 - Roller application or brushing
Product category(ies) PC9a - Coatings and paints, thinners, paint removers
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU2b - Offshore industries SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU7 - Printing and reproduction of recorded media SU12 - Manufacture of plastics products, including compounding and conversion SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 5.3.v2

Amounts used

Type	Annual amount per site
Value	4
Units	t(ons)/year

Type	Daily amount per site
Value	0.018
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 5.3.v2

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use : Coatings and paints, thinners, paint removers , Spraying
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category	CEPE SPERC 8c.3a.v2 CEPE SPERC 8f.3a.v2
Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC11 - Non industrial spraying
Product category(ies)	PC9a - Coatings and paints, thinners, paint removers
Sector(s) of use	SU22 - Professional uses SU2b - Offshore industries SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU7 - Printing and reproduction of recorded media SU12 - Manufacture of plastics products, including compounding and conversion SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 8c.3a.v2
- CEPE SPERC 8f.3a.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10

Local marine water dilution factor	100
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Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 8c.3a.v2
- CEPE SPERC 8f.3a.v2

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use : Coatings and paints, thinners, paint removers
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category	CEPE SPERC 8c.3a.v2 CEPE SPERC 8f.2a.v2
Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC10 - Roller application or brushing
Product category(ies)	PC9a - Coatings and paints, thinners, paint removers
Sector(s) of use	SU22 - Professional uses SU2b - Offshore industries SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU7 - Printing and reproduction of recorded media SU12 - Manufacture of plastics products, including compounding and conversion SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 8c.3a.v2
- CEPE SPERC 8f.2a.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10

Local marine water dilution factor	100
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Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix**

**Specific Environmental Release Category - CEPE SPERC 8c.3a.v2
- CEPE SPERC 8f.2a.v2**

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use : paint
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category	CEPE SPERC 8c.1a.v2 CEPE SPERC 8f.1a.v2
Product category(ies)	PC9a - Coatings and paints, thinners, paint removers PC9c - Finger paints PC18 - Ink and toners
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
 - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - **CEPE SPERC 8c.1a.v2**
- CEPE SPERC 8f.1a.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 8c.1a.v2
- CEPE SPERC 8f.1a.v2

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method Used EUSES model

Remarks Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Consumer use : Various Article categories
Type Consumer
Main user group Consumer uses: Private households (= general public = consumers)
Environmental release category(ies) ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
 ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Article categories AC1 AC2 - Machinery, mechanical appliances, electrical/electronic articles AC5 - Fabrics, textiles and apparel AC6 - Leather articles AC7 - Metal articles AC8 - Paper articles AC11 - Wood articles
Sector(s) of use SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
 - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
 - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures (nanoform) : Coatings , Inks
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Specific Environmental Release Category CEPE SPERC 2.4c.v2
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Product category(ies) PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC9c - Finger paints PC18 - Ink and toners
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)
Specific Environmental Release Category - CEPE SPERC 2.4c.v2

Amounts used

Type	Annual amount per site
Value	50
Units	t(ons)/year

Type	Daily amount per site
Value	0.222
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or	18000 m3/d
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marine)	
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)
Specific Environmental Release Category - CEPE SPERC 2.4c.v2

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use (nanoform) : Coatings and paints, thinners, paint removers , Spraying in industrial settings and applications with local exhaust ventilation
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category CEPE SPERC 5.1a.v2
Process category(ies) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC7 - Industrial spraying
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Product category(ies) PC9a - Coatings and paints, thinners, paint removers
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU2b - Offshore industries SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU7 - Printing and reproduction of recorded media SU12 - Manufacture of plastics products, including compounding and conversion SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 5.1a.v2

Amounts used

Type	Annual amount per site
Value	50
Units	t(ons)/year

Type	Daily amount per site
Value	0.222
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 5.1a.v2

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use (nanoform) : Coatings and paints, thinners, paint removers (with local exhaust ventilation)
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category CEPE SPERC 5.3.v2
Process category(ies) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC10 - Roller application or brushing
Product category(ies) PC9a - Coatings and paints, thinners, paint removers
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU2b - Offshore industries SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU7 - Printing and reproduction of recorded media SU12 - Manufacture of plastics products, including compounding and conversion SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 5.3.v2

Amounts used

Type	Annual amount per site
Value	4
Units	t(ons)/year

Type	Daily amount per site
Value	0.018
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 5.3.v2

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use (nanoform) : Coatings and paints, thinners, paint removers , Spraying
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category	CEPE SPERC 8c.3a.v2 CEPE SPERC 8f.3a.v2
Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC11 - Non industrial spraying
Product category(ies)	PC9a - Coatings and paints, thinners, paint removers
Sector(s) of use	SU22 - Professional uses SU2b - Offshore industries SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU7 - Printing and reproduction of recorded media SU12 - Manufacture of plastics products, including compounding and conversion SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 8c.3a.v2
- CEPE SPERC 8f.3a.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10

Local marine water dilution factor	100
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Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 8c.3a.v2
- CEPE SPERC 8f.3a.v2

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use (nanoform) : Coatings and paints, thinners, paint removers
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category	CEPE SPERC 8c.3a.v2 CEPE SPERC 8f.2a.v2
Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC10 - Roller application or brushing
Product category(ies)	PC9a - Coatings and paints, thinners, paint removers
Sector(s) of use	SU22 - Professional uses SU2b - Offshore industries SU6a - Manufacture of wood and wood products SU6b - Manufacture of pulp, paper and paper products SU7 - Printing and reproduction of recorded media SU12 - Manufacture of plastics products, including compounding and conversion SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Specific Environmental Release Category - CEPE SPERC 8c.3a.v2
- CEPE SPERC 8f.2a.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10

Local marine water dilution factor	100
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Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 8c.3a.v2
- CEPE SPERC 8f.2a.v2

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
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 6 Mid Point Business Park
 Bradford
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Consumer use (nanoform) : paint
Type Consumer
Main user group Consumer uses: Private households (= general public = consumers)
Environmental release category(ies) ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category CEPE SPERC 8c.1a.v2 CEPE SPERC 8f.1a.v2
Product category(ies) PC9a - Coatings and paints, thinners, paint removers PC9c - Finger paints PC18 - Ink and toners
Sector(s) of use SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
 - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - **CEPE SPERC 8c.1a.v2**
- CEPE SPERC 8f.1a.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - CEPE SPERC 8c.1a.v2
- CEPE SPERC 8f.1a.v2

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use (nanoform) : Various Article categories
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Article categories	AC1 AC2 - Machinery, mechanical appliances, electrical/electronic articles AC5 - Fabrics, textiles and apparel AC6 - Leather articles AC7 - Metal articles AC8 - Paper articles AC11 - Wood articles
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures : Cosmetics, personal care products
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC15 - Use as laboratory reagent
Product category(ies) PC39 - Cosmetics, personal care products
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Amounts used

Type	Annual amount per site
Value	900
Units	t(ons)/year

Type	Daily amount per site
Value	3.6
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use : Cosmetics, personal care products
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8a - Wide dispersive indoor use of processing aids in open systems
Process category(ies)	PROC0 - Other Process
Product category(ies)	PC39 - Cosmetics, personal care products
Sector(s) of use	SU22 - Professional uses SU0 - Other SU20 - Health services

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use : Cosmetics, personal care products
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC8a - Wide dispersive indoor use of processing aids in open systems
Product category(ies)	PC39 - Cosmetics, personal care products
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l

Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method	Used EUSES model
Remarks	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks	No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.
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Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures (nanoform) : Cosmetics, personal care products
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC15 - Use as laboratory reagent
Product category(ies) PC39 - Cosmetics, personal care products
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Amounts used

Type	Annual amount per site
Value	250
Units	t(ons)/year

Type	Daily amount per site
Value	1
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use (nanoform) : Cosmetics, personal care products
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8a - Wide dispersive indoor use of processing aids in open systems
Process category(ies)	PROC0 - Other Process
Product category(ies)	PC39 - Cosmetics, personal care products
Sector(s) of use	SU22 - Professional uses SU0 - Other SU20 - Health services

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use (nanoform) : Cosmetics, personal care products
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC8a - Wide dispersive indoor use of processing aids in open systems
Product category(ies)	PC39 - Cosmetics, personal care products
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l

Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method	Used EUSES model
Remarks	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks	No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.
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Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures : Fertilisers
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC15 - Use as laboratory reagent
 PROC28 - Manual maintenance (cleaning and repair) of machinery

Product category(ies) PC12 - Fertilisers
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Amounts used

Type	Annual amount per site
Value	2500
Units	t(ons)/year

Type	Daily amount per site
Value	8.333
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment	2000 m3/d
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plant flow	
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
---	---

Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Formulation & (re)packing of substances and mixtures : Fertilisers
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC3 - Formulation in materials
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC13 - Treatment of articles by dipping and pouring
 PROC15 - Use as laboratory reagent

Product category(ies) PC12 - Fertilisers
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC3 - Formulation in materials

Amounts used

Type	Annual amount per site
Value	2500
Units	t(ons)/year

Type	Daily amount per site
Value	8.333
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
---	---

Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC3 - Formulation in materials

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use : Fertilisers , Agriculture, forestry, fishery
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems
Specific Environmental Release Category	Fertilizers Europe SPERC 8e.1.v2 Fertilizers Europe SPERC 8e.2.v2 Fertilizers Europe SPERC 8e.3.v2 Fertilizers Europe SPERC 8e.4.v3
Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC11 - Non industrial spraying PROC15 - Use as laboratory reagent
Product category(ies)	PC12 - Fertilisers
Sector(s) of use	SU22 - Professional uses SU1 - Agriculture, forestry, fishery

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

Specific Environmental Release Category - Fertilizers Europe SPERC 8e.1.v2

- Fertilizers Europe SPERC 8e.2.v2

- Fertilizers Europe SPERC 8e.3.v2

- Fertilizers Europe SPERC 8e.4.v3

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10

Local marine water dilution factor	100
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Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Controlled application to agricultural soil
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems

- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

Specific Environmental Release Category - Fertilizers Europe SPERC 8e.1.v2

- Fertilizers Europe SPERC 8e.2.v2

- Fertilizers Europe SPERC 8e.3.v2

- Fertilizers Europe SPERC 8e.4.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use : Fertilisers
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems
Product category(ies)	PC12 - Fertilisers
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations Controlled application to agricultural soil
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

Predicted No Effect Concentration

(PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
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Supplier Univar Solutions UK Ltd
 Aquarius House
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use : Batteries
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category Eurometaux SPERC 5.2.v3
Process category(ies) PROC3 - Use in closed batch process (synthesis or formulation)
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
 PC42
Product category(ies) SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU0
Sector(s) of use - Other SU16 - Manufacture of computer, electronic and optical products, electrical equipment

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - Eurometaux SPERC 5.2.v3

Amounts used

Type	Annual amount per site
Value	10
Units	t(ons)/year

Type	Daily amount per site
Value	0.045
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10

Local marine water dilution factor	100
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Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
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Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - Eurometaux SPERC 5.2.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use : Ceramics
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Specific Environmental Release Category Eurometaux SPERC 6a.1.v3
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC0 - Other Products
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU0
 - Other SU13 - Manufacture of other non-metallic mineral products

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Specific Environmental Release Category - Eurometaux SPERC 6a.1.v3

Amounts used

Type	Annual amount per site
Value	120
Units	t(ons)/year

Type	Daily amount per site
Value	0.659
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
---	---

Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Specific Environmental Release Category - Eurometaux SPERC 6a.1.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
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Section 1 - Title

Title Industrial use : Glass
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Specific Environmental Release Category Eurometaux SPERC 6a.1.v3
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC0 - Other Products
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU0
 - Other SU13 - Manufacture of other non-metallic mineral products

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Specific Environmental Release Category - Eurometaux SPERC 6a.1.v3

Amounts used

Type	Annual amount per site
Value	25
Units	t(ons)/year

Type	Daily amount per site
Value	0.14
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases
---	---

Control measures to prevent releases

Air	Exhaust air scrubber. Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Specific Environmental Release Category - Eurometaux SPERC 6a.1.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
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E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use : Surface treatment (Glass)
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category Eurometaux SPERC 5.1.v3
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC6 - Calendaring operations
 PROC26 - Handling of solid inorganic substances at ambient temperature

Product category(ies) PC0 - Other Products
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU0
 - Other

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - Eurometaux SPERC 5.1.v3

Amounts used

Type	Annual amount per site
Value	2.5
Units	t(ons)/year

Type	Daily amount per site
Value	0.011
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
---	---

Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - Eurometaux SPERC 5.1.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
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Section 1 - Title

Title Industrial use : Use as an intermediate
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC15 - Use as laboratory reagent
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
 PROC26 - Handling of solid inorganic substances at ambient temperature

Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU13 - Manufacture of other non-metallic mineral products

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Amounts used

Type	Annual amount per site
Value	500
Units	t(ons)/year

Type	Daily amount per site
Value	2
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or	18000 m3/d
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marine)	
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
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E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use : Use as an intermediate , Manufacture of basic metals, including alloys
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting

Product category(ies) PC7 - Base metals and alloys
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU14 - Manufacture of basic metals, including alloys

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Amounts used

Type	Annual amount per site
Value	1000
Units	t(ons)/year

Type	Daily amount per site
Value	2.75
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
---	---

Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
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Section 1 - Title

Title Industrial use : Use as an intermediate , Manufacture of basic metals, including alloys (Thermal treatment - distillation / rectification)
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting

Product category(ies) PC7 - Base metals and alloys
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU14 - Manufacture of basic metals, including alloys

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Amounts used

Type	Annual amount per site
Value	1000
Units	t(ons)/year

Type	Daily amount per site
Value	2.75
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
---	---

Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
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Section 1 - Title

Title Industrial use : Laboratory activities
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Process category(ies) PROC15 - Use as laboratory reagent
Product category(ies) PC21 - Laboratory chemicals
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Amounts used

Type	Annual amount per site
Value	0.05
Units	t(ons)/year

Type	Daily amount per site
Value	0.0025
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
---	---

Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

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Section 1 - Title

Title Industrial use
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Process category(ies) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising

Product category(ies) PC0 - Other Products
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU13 - Manufacture of other non-metallic mineral products SU17 - General manufacturing

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Amounts used

Type	Annual amount per site
Value	100
Units	t(ons)/year

Type	Daily amount per site
Value	0.46
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10

Local marine water dilution factor	100
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Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
---	---

Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use : Manufacture of computer, electronic and optical products, electrical equipment
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Process category(ies) PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC7 - Industrial spraying
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
 PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC0 - Other Products PC30 - Photo-chemicals PC33 - Semiconductor(s)
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU0 - Other SU16 - Manufacture of computer, electronic and optical products, electrical equipment

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Amounts used

Type	Annual amount per site
Value	216
Units	t(ons)/year

Type	Daily amount per site
Value	1
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

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Section 1 - Title

Title Industrial use (nanoform) : Manufacture of computer, electronic and optical products, electrical equipment
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Process category(ies) PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC7 - Industrial spraying
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
 PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC0 - Other Products PC30 - Photo-chemicals PC33 - Semiconductor(s)
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU0 - Other SU16 - Manufacture of computer, electronic and optical products, electrical equipment

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Amounts used

Type	Annual amount per site
Value	5
Units	t(ons)/year

Type	Daily amount per site
Value	0.023
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
---	---

Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

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Section 1 - Title

Title Industrial use : Glazes , Glass Coatings
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category Eurometaux SPERC 5.1.v3
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC7 - Industrial spraying
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC10 - Roller application or brushing
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
Product category(ies) PC0 - Other Products
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU0
 - Other SU6a - Manufacture of wood and wood products

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - Eurometaux SPERC 5.1.v3

Amounts used

Type	Annual amount per site
Value	2.5
Units	t(ons)/year

Type	Daily amount per site
Value	0.011
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - Eurometaux SPERC 5.1.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

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Section 1 - Title

Title Industrial use : Adhesive - Dental Care
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Process category(ies) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC13 - Treatment of articles by dipping and pouring
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC29 - Pharmaceuticals
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU0
 - Other SU20 - Health services

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Amounts used

Type	Annual amount per site
Value	5
Units	t(ons)/year

Type	Daily amount per site
Value	0.02
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Control measures to prevent releases

Air	Air emission controls are not applicable as there is no direct release to air
Water	Not applicable as there is no release to wastewater

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

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Section 1 - Title

Title Industrial use : Polymer production
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC6 - Calendaring operations
 PROC7 - Industrial spraying
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC10 - Roller application or brushing
 PROC13 - Treatment of articles by dipping and pouring
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
 PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC32 - Polymer preparations and compounds
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Amounts used

Type	Annual amount per site
Value	100
Units	t(ons)/year

Type	Daily amount per site
Value	0.46
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
---	---

Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

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Pure substance/mixture Substance
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Section 1 - Title

Title Industrial use : Manufacture of plastics products, including compounding and conversion
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC6 - Calendaring operations
 PROC7 - Industrial spraying
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC10 - Roller application or brushing
 PROC13 - Treatment of articles by dipping and pouring
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
 PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
 PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies) PC32 - Polymer preparations and compounds
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU12 - Manufacture of plastics products, including compounding and conversion

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Amounts used

Type	Annual amount per site
Value	100
Units	t(ons)/year

Type	Daily amount per site
Value	0.46
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

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Section 1 - Title

Title Industrial use : Catalyst
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC6b - Industrial use of reactive processing aids
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC6 - Calendaring operations
 PROC7 - Industrial spraying
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC28 - Manual maintenance (cleaning and repair) of machinery
Product category(ies) PC0 - Other Products PC2 - Adsorbent(s) PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC40 - Extraction agents

Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
 - ERC6b - Industrial use of reactive processing aids

Amounts used

Type	Annual amount per site
Value	100
Units	t(ons)/year

Type	Daily amount per site
Value	50
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Control measures to prevent releases

Air	Air emission controls are not applicable as there is no direct release to air
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC6b - Industrial use of reactive processing aids

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

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Section 1 - Title

Title Industrial use (nanoform) : Catalyst
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC6b - Industrial use of reactive processing aids
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC6 - Calendaring operations
 PROC7 - Industrial spraying
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC28 - Manual maintenance (cleaning and repair) of machinery
Product category(ies) PC0 - Other Products PC2 - Adsorbent(s) PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC40 - Extraction agents

Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
 - ERC6b - Industrial use of reactive processing aids

Amounts used

Type	Annual amount per site
Value	100
Units	t(ons)/year

Type	Daily amount per site
Value	50
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Control measures to prevent releases

Air	Air emission controls are not applicable as there is no direct release to air
Water	Not applicable as there is no release to wastewater

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC6b - Industrial use of reactive processing aids

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use : Coatings
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category Eurometaux SPERC 5.1.v3
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC7 - Industrial spraying
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC10 - Roller application or brushing
Product category(ies) PC0 - Other Products PC9a - Coatings and paints, thinners, paint removers PC33 - Semiconductor(s)
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU0 - Other

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - Eurometaux SPERC 5.1.v3

Amounts used

Type	Annual amount per site
Value	2.5
Units	t(ons)/year

Type	Daily amount per site
Value	0.011
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
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Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - Eurometaux SPERC 5.1.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
EC No (EU Index No) 215-222-5
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use (nanoform) : Coatings
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category Eurometaux SPERC 5.1.v3
Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC7 - Industrial spraying
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC10 - Roller application or brushing
Product category(ies) PC0 - Other Products PC9a - Coatings and paints, thinners, paint removers PC33 - Semiconductor(s)
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU0 - Other

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - Eurometaux SPERC 5.1.v3

Amounts used

Type	Annual amount per site
Value	2.5
Units	t(ons)/year

Type	Daily amount per site
Value	0.011
Units	tonnes

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Carefully handle the substance to minimise releases Process optimised for highly efficient use of raw materials (very minimal environmental release) Automate activity where possible
---	---

Control measures to prevent releases

Air	Precipitation Filtration
Water	Precipitation Filtration Ion exchange and/or Adsorption process or Equivalent.

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
Specific Environmental Release Category - Eurometaux SPERC 5.1.v3

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use : Explosives
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC8d - Wide dispersive outdoor use of processing aids in open systems
Product category(ies)	PC11 - Explosives
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8d - Wide dispersive outdoor use of processing aids in open systems

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations Controlled application to agricultural soil
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8d - Wide dispersive outdoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt

Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method Used EUSES model

Remarks Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use Service life - workers: : Glazes , Glass Coatings
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Process category(ies)	PROC21 - Low energy manipulation of substances bound in materials and/or articles
Article categories	AC4 - Stone, plaster, cement, glass and ceramic articles
Sector(s) of use	SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Controlled application to agricultural soil
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
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Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use Service life - workers: : Stone, plaster, cement, glass and ceramic articles
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Process category(ies)	PROC21 - Low energy manipulation of substances bound in materials and/or articles
Article categories	AC4 - Stone, plaster, cement, glass and ceramic articles
Sector(s) of use	SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Controlled application to agricultural soil
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
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Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use (nanoform) Service life - workers: : Stone, plaster, cement, glass and ceramic articles
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Process category(ies)	PROC21 - Low energy manipulation of substances bound in materials and/or articles
Article categories	AC4 - Stone, plaster, cement, glass and ceramic articles
Sector(s) of use	SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Controlled application to agricultural soil
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Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method Used EUSES model

Remarks Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use : Batteries
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Specific Environmental Release Category	Eurometeaux SPERC 11A.2.v2
Article categories	AC3b - Electrical batteries and accumulators
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Specific Environmental Release Category - Eurometeaux SPERC 11A.2.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Specific Environmental Release Category - Eurometeaux SPERC 11A.2.v2

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
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Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use : Various Article categories
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Article categories	AC0 - Other Articles AC1
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Predicted No Effect Concentration

(PNEC)

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
REACH registration number 01-2119463881-32-XXXX
CAS No 1314-13-2
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Supplier Univar Solutions UK Ltd
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 6 Mid Point Business Park
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Consumer use : Machinery, mechanical appliances, electrical/electronic articles , Stone, plaster, cement, glass and ceramic articles , Metal articles
Type Consumer
Main user group Consumer uses: Private households (= general public = consumers)
Environmental release category(ies) ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Specific Environmental Release Category Eurometaux SPERC 11A.3.v1
Article categories AC2 - Machinery, mechanical appliances, electrical/electronic articles AC4 - Stone, plaster, cement, glass and ceramic articles AC7 - Metal articles
Sector(s) of use SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Specific Environmental Release Category - Eurometaux SPERC 11A.3.v1

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
--	-----------

Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
----------	--

Section 3 - Exposure estimation

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Specific Environmental Release Category - Eurometaux SPERC 11A.3.v1

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name ZINC OXIDE
Pure substance/mixture Substance
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Consumer use (nanoform) : Machinery, mechanical appliances, electrical/electronic articles , Stone, plaster, cement, glass and ceramic articles , Metal articles
Type Consumer
Main user group Consumer uses: Private households (= general public = consumers)
Environmental release category(ies) ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Specific Environmental Release Category Eurometaux SPERC 11A.3.v1
Article categories AC2 - Machinery, mechanical appliances, electrical/electronic articles AC4 - Stone, plaster, cement, glass and ceramic articles AC7 - Metal articles
Sector(s) of use SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Specific Environmental Release Category - Eurometaux SPERC 11A.3.v1

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Specific Environmental Release Category - Eurometaux SPERC 11A.3.v1

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	ZINC OXIDE
Pure substance/mixture	Substance
REACH registration number	01-2119463881-32-XXXX
CAS No	1314-13-2
EC No (EU Index No)	215-222-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use : Stone, plaster, cement, glass and ceramic articles
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Specific Environmental Release Category	Eurometeaux SPERC 10A.1.v2
Article categories	AC4 - Stone, plaster, cement, glass and ceramic articles
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Specific Environmental Release Category - Eurometeaux SPERC 10A.1.v2

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release

- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Specific Environmental Release Category - Eurometeaux SPERC 10A.1.v2

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

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Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use : Plastic articles
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Article categories	AC1 AC2 - Machinery, mechanical appliances, electrical/electronic articles AC13 - Plastic articles
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
Local freshwater dilution factor	10
Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Predicted No Effect Concentration
(PNEC)**

Freshwater	24.5 ug/l
Freshwater sediment	182.8 mg/kg dwt
Marine water	9.6 ug/l
Marine sediment	201.9 mg/kg dwt
Soil	83.1 mg/kg dwt
Impact on Sewage Treatment	12.5 ug/l

Calculation method

Used EUSES model

Remarks

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

Derived No Effect Level (DNEL):

Remarks

No exposure assessment presented for human health. As no toxicological hazard was identified, no human-related (worker/consumer) exposure assessment and risk characterisation was performed.

Section 4 - Guidance to check compliance with the exposure scenario

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Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use (nanoform) : Plastic articles
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Article categories	AC1 AC2 - Machinery, mechanical appliances, electrical/electronic articles AC13 - Plastic articles
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	2000 m3/d
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Environmental factors not influenced by risk management

Receiving water dilution (fresh or marine)	18000 m3/d
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Local marine water dilution factor	100

Conditions and measures related to external treatment of waste for disposal

Disposal	Dispose of waste product or used containers according to local regulations
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Section 3 - Exposure estimation

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Remarks

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