

# SAFETY DATA SHEET

Zinc clincer

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

### 1.1 Product identifier

**Product name** : Zinc clincer**EC number** : 273-760-6**REACH Registration number**

Registration number	Legal entity
01-2119480405-39-0014	-

**CAS number** : 69012-63-1**Product code** : Not available.**Product description** : Not available.**Product type** : Powder.**Other means of identification** : Flue dust, zinc refining; Baghouse dust; Baghouse fume, secondary nonferrous plant; Boiler ash, slag fuming; Zinc baghouse fume; Zinc cadmium fume; Zinc furnace baghouse dust; Zinc oxide enriched flue dust; waelz oxide; Kaminstaub, Zinkaufbereitung; Zinc-cadmium fume

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

Identified uses
For use only as intermediate

### 1.3 Details of the supplier of the safety data sheet

Boliden Commercial  
Box 750  
SE-101 35 Stockholm  
Sweden  
Tel +46 8 610 15 00

**e-mail address of person responsible for this SDS** : info.market@boliden.com

### 1.4 Emergency telephone number

**National advisory body/Poison Centre****Telephone number** :

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : UVCB**Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

Skin Irrit. 2, H315

Eye Dam. 1, H318

Muta. 2, H341

Carc. 1A, H350

Repr. 1A, H360FD (oral)

STOT RE 1, H372 (central nervous system (CNS), haematopoietic system, kidneys) (inhalation)

Aquatic Chronic 3, H412

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

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## SECTION 2: Hazards identification

See Section 16 for the full text of the H statements declared above.

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

### 2.2 Label elements

#### Hazard pictograms



#### Signal word

: Danger

#### Hazard statements

: Causes skin irritation.  
 Causes serious eye damage.  
 Suspected of causing genetic defects.  
 May cause cancer.  
 May damage fertility. May damage the unborn child. (oral)  
 Causes damage to organs through prolonged or repeated exposure. (central nervous system (CNS), haematopoietic system, kidneys) (inhalation)  
 Harmful to aquatic life with long lasting effects.

#### Precautionary statements

##### Prevention

: Obtain special instructions before use. Wear protective gloves, protective clothing and eye or face protection. Avoid release to the environment. Do not breathe dust or mist. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

##### Response

: IF exposed or concerned: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

##### Storage

: Not applicable.

##### Disposal

: Dispose of contents and container in accordance with all local, regional, national and international regulations.

#### Hazardous ingredients

: Flue dust, zinc-refining

#### Supplemental label elements

:  Contains tin monoxide. May produce an allergic reaction.

#### Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

: Restricted to professional users.  
 People under the age of 18 must not be exposed to this product cf. Council Directive 94/33/EC. Only for industrial use.

#### Special packaging requirements

##### Containers to be fitted with child-resistant fastenings

: Not applicable.

##### Tactile warning of danger

: Not applicable.

### 2.3 Other hazards

#### Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

	PBT	P	B	T	vPvB	vP	vB
Not applicable. (Inorganic)		N/A	N/A	Yes	Not applicable. (Inorganic)	N/A	N/A

#### Other hazards which do not result in classification

: May form combustible dust concentrations in air.

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### SECTION 3: Composition/information on ingredients

3.1 Substances : UVCB

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Flue dust, zinc-refining	REACH #: 01-2119480405-39 EC: 273-760-6 CAS: 69012-63-1	100	Skin Irrit. 2, H315 Eye Dam. 1, H318 Muta. 2, H341 Carc. 1A, H350 Repr. 1A, H360FD (oral) STOT RE 1, H372 (central nervous system (CNS), haematopoietic system, kidneys) (inhalation) Aquatic Chronic 3, H412	[*]
zinc oxide	EC: 215-222-5 CAS: 1314-13-2 Index: 030-013-00-7	72	Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10)	[A]
lead compounds	EC: 215-267-0 CAS: 1317-36-8 Index: 082-001-00-6	6	Acute Tox. 4, H302 Acute Tox. 4, H332 Carc. 2, H351 Repr. 1A, H360Df Lact., H362 STOT RE 1, H372 (blood, central nervous system (CNS), kidneys) Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[A]
iron oxide	EC: 215-721-8 CAS: 1345-25-1	0.9	Not classified.	[A]
tin monoxide	EC: 244-499-5 CAS: 21651-19-4	0.8	Acute Tox. 4, H302 Eye Irrit. 2, H319 Skin Sens. 1, H317 STOT RE 1, H372 (kidneys, respiratory tract) (inhalation)	[A]
copper(II) oxide	EC: 215-269-1 CAS: 1317-38-0 Index: 029-016-00-6	0.2	Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=1)	[A]
diarsenic trioxide	EC: 215-481-4 CAS: 1327-53-3 Index: 033-003-00-0	0.1	Acute Tox. 2, H300 Skin Corr. 1B, H314 Eye Dam. 1, H318 Carc. 1A, H350 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[A]
zinc sulphate (anhydrous)	EC: 231-793-3 CAS: 7733-02-0 Index: 030-006-00-9	0.1	Acute Tox. 4, H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=1)	[A]
antimony trioxide	EC: 215-175-0 CAS: 1309-64-4 Index: 051-005-00-X	0.07	Carc. 2, H351	[A]

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### SECTION 3: Composition/information on ingredients

			See Section 16 for the full text of the H statements declared above.	
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There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

- [\*] Substance
- [A] Constituent
- [B] Impurity
- [C] Stabilising additive

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

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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

##### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing

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## SECTION 4: First aid measures

- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur
- Ingestion** : Adverse symptoms may include the following:  
stomach pains  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations

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

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical powder.
- Unsuitable extinguishing media** : Do not use water jet.

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

- Hazards from the substance or mixture** : May form explosible dust-air mixture if dispersed. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous combustion products** : Decomposition products may include the following materials:  
metal oxide/oxides

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### 6.2 Environmental precautions

- : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

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## SECTION 6: Accidental release measures

### 6.3 Methods and material for containment and cleaning up

- Small spill** : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor.

### 6.4 Reference to other sections

- : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

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

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Avoid release to the environment. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

- Recommendations** : Not available.
- Industrial sector specific solutions** : Refer to Section 1.2 of the Safety data sheet.

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## SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
lead compounds	<b>EU OEL (Europe, 10/2019). Notes: list of binding occupational exposure limit values</b> TWA: 0.15 mg/m <sup>3</sup> 8 hours.
tin monoxide	<b>EU OEL (Europe, 10/2019). Notes: list of indicative occupational exposure limit values</b> TWA: 2 mg/m <sup>3</sup> , ((as Sn)) 8 hours.

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

#### DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
zinc oxide	DNEL	Long term Inhalation	0.5 mg/m <sup>3</sup>	Workers	Local
	DNEL	Long term Oral	0.83 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	2.5 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Inhalation	5 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Dermal	83 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	83 mg/kg bw/day	Workers	Systemic
iron oxide	DNEL	Long term Inhalation	10 mg/m <sup>3</sup>	Workers	Local
	DNEL	Long term Inhalation	10 mg/m <sup>3</sup>	Workers	Systemic
diarsenic trioxide	DNEL	Long term Oral	2.2 µg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	2.5 µg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Inhalation	5 µg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Dermal	112 µg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	112 µg/kg bw/day	Workers	Systemic
zinc sulphate (anhydrous)	DNEL	Long term Oral	0.83 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	1 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Inhalation	1.3 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Dermal	8.3 mg/kg bw/day	General population	Systemic

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## SECTION 8: Exposure controls/personal protection

antimony trioxide	DNEL	Long term Dermal	8.3 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.0051 mg/m <sup>3</sup>	General population	Local
	DNEL	Long term Inhalation	0.0051 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Inhalation	0.021 mg/m <sup>3</sup>	Workers	Local
	DNEL	Long term Inhalation	0.021 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Oral	1.125 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	1.125 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	2.25 mg/kg bw/day	Workers	Systemic

### PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
lead compounds	Fresh water	3.1 µg/l	-
	Marine water	3.5 µg/l	-
	Fresh water sediment	174 mg/kg dwt	-
	Fresh water sediment	41 mg/kg dwt	-
	Marine water sediment	164 mg/kg dwt	-
	Soil	212 mg/kg dwt	-
	Sewage Treatment Plant	0.1 mg/l	-

## 8.2 Exposure controls

**Appropriate engineering controls** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

### Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location. Only CE-marked personal protection equipment should be used.

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

### Skin protection

**Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

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



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## SECTION 8: Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Wear a half mask respirator with type P2 filter or better. In the event of the release of smoke or vapours: use combined filters against inorganic vapours (e.g. B1-P2 (DIN EN 141)).
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : Solid. [Powder.]
- Colour** : Grey.
- Odour** : Odourless.
- Odour threshold** : Not available.
- Melting point/freezing point** : 1200 to 1300°C
- Initial boiling point and boiling range** : Not available.
- Flammability (solid, gas)** : Not available.
- Upper/lower flammability or explosive limits** : Not applicable.
- Flash point** : Not applicable.
- Auto-ignition temperature** : Not applicable.
- Decomposition temperature** : Not available.
- pH** : Not available.
- Viscosity** : Not applicable.
- Solubility(ies)** : Insoluble in the following materials: cold water and hot water.
- Solubility in water** : Not available.
- Miscible with water** : No.
- Partition coefficient: n-octanol/ water** : Not applicable.
- Vapour pressure** : Not available.
- Evaporation rate** : Not available.
- Relative density** : 2.5 to 3.1
- Vapour density** : Not applicable.
- Explosive properties** : Not available.
- Oxidising properties** : Not available.
- Particle characteristics**
- Median particle size** : Not available.

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## SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur. Zinc oxide reacts violently with magnesium.
- 10.4 Conditions to avoid** : water, high temperature
- 10.5 Incompatible materials** : strong acids  
Strong bases  
Strong oxidising materials  
Strong reducing agents
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Flue dust, zinc-refining	LC50 Inhalation Dusts and mists	Rat	5.714 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
zinc oxide	LD50 Oral	Rat	>5000 mg/kg	-
diarsenic trioxide	LD50 Oral	Rat	10 mg/kg	-

**Conclusion/Summary** : Not classified as dangerous

#### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Flue dust, zinc-refining	N/A	N/A	N/A	N/A	5.714
lead compounds	500	N/A	N/A	N/A	1.5
tin monoxide	500	N/A	N/A	N/A	N/A
diarsenic trioxide	10	N/A	N/A	N/A	N/A
zinc sulphate (anhydrous)	500	N/A	N/A	N/A	N/A

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
lead compounds	Skin - Mild irritant	Rabbit	-	24 hours 100 mg	-
zinc sulphate (anhydrous)	Eyes - Moderate irritant	Rabbit	-	420 ug	-

#### Conclusion/Summary

- Skin** : Irritating to skin.
- Eyes** : Corrosive to eyes.
- Respiratory** : Non-irritating to the respiratory system.

#### Sensitisation

#### Conclusion/Summary

- Skin** : Non-sensitiser to skin.
- Respiratory** : Not classified for respiratory sensitisation.

#### Mutagenicity

- Conclusion/Summary** : Suspected of causing genetic defects.

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## SECTION 11: Toxicological information

### Carcinogenicity

**Conclusion/Summary** : May cause cancer.

### Reproductive toxicity

**Conclusion/Summary** : May damage fertility or the unborn child.

### Teratogenicity

**Conclusion/Summary** : Not classified as dangerous

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Flue dust, zinc-refining	Category 1	inhalation	central nervous system (CNS), haematopoietic system, kidneys
lead compounds	Category 1	-	blood, central nervous system (CNS), kidneys

### Aspiration hazard

Not available.

**Information on likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects

**Eye contact** : Causes serious eye damage.

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

**Skin contact** : Causes skin irritation.

**Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness

**Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing

**Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur

**Ingestion** : Adverse symptoms may include the following:  
stomach pains  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations

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

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

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## SECTION 11: Toxicological information

### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Potential chronic health effects

Not available.

**Conclusion/Summary** : Lead is absorbed in the respiratory tract and can, among other things cause damages to the CNS, peripheral nerves and kidneys.  
Chronic exposure to arsenic trioxide may cause lung cancer.  
Inhalation of fumes consisting of zinc oxide may cause "metal fever", which starts within hours after exposure, with symptoms similar to those in acute flu (muscle aches, headache, fever, sweating, etc.).

**General** : Causes damage to organs through prolonged or repeated exposure if inhaled.  
Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

**Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity** : Suspected of causing genetic defects.

**Teratogenicity** : May damage the unborn child if swallowed.

**Developmental effects** : No known significant effects or critical hazards.

**Fertility effects** : May damage fertility if swallowed.

**Other information** : Not available.

## SECTION 12: Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
zinc oxide	Acute EC50 24.6 mg/l	Daphnia	48 hours
	Acute IC50 1.85 mg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute IC50 46 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
lead compounds	Acute LC50 98 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 1.1 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute LC50 132 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
iron oxide copper(II) oxide	Acute LC50 298 µg/l Fresh water	Fish - Pimephales promelas - Neonate	96 hours
	Acute LC50 >10000 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours
diarsenic trioxide	Acute LC50 131.8 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 >56000 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours
	Acute EC50 34.7 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
zinc sulphate (anhydrous)	Acute EC50 2.5 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 3380 µg/l Marine water	Fish - Terapon jarbua - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic EC10 9.4 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Chronic IC10 1.3 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Acute IC50 44.8 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
zinc sulphate (anhydrous)	Acute LC50 4 µg/l Marine water	Crustaceans - Temora stylifera - Adult	48 hours
	Acute LC50 21.8 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours

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## SECTION 12: Ecological information

antimony trioxide	Acute LC50 2.36 µg/l Fresh water	Fish - <i>Cirrhinus mrigala</i>	96 hours
	Chronic NOEC 142.5 µg/l Marine water	Algae - <i>Ulva fasciata</i> - Zoea	96 hours
	Chronic NOEC 45 µg/l Marine water	Crustaceans - <i>Acanthomysis costata</i> - Juvenile (Fledgling, Hatchling, Weanling)	21 days
	Chronic NOEC 1.7 mg/l Fresh water	Daphnia - <i>Daphnia magna</i> - Neonate	21 days
	Chronic NOEC 26 µg/l Fresh water	Fish - <i>Jordanella floridae</i>	100 days
	Acute EC50 560 mg/l Fresh water	Crustaceans - <i>Cypris subglobosa</i>	48 hours
	Acute EC50 423.45 mg/l Fresh water	Daphnia - <i>Daphnia magna</i>	48 hours
	Acute LC50 >530 mg/l Fresh water	Fish - <i>Lepomis macrochirus</i> - Young of the year	96 hours

**Conclusion/Summary** : Harmful to aquatic life with long lasting effects.

### 12.2 Persistence and degradability

**Conclusion/Summary** : Not available.

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Flue dust, zinc-refining	-	60960	high
zinc oxide	-	28960	high
diarsenic trioxide	-	0.143	low
zinc sulphate (anhydrous)	-0.07	60960	high

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

### 12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
Zinc clincer	Not applicable. (Inorganic)	N/A	N/A	Yes	Not applicable. (Inorganic)	N/A	N/A

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

## SECTION 13: Disposal considerations

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

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous waste** : This product is listed as Hazardous by the EU Directive on hazardous waste. Dispose of according to all national and local applicable regulations.

#### Packaging

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## SECTION 13: Disposal considerations

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

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

## SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.

**14.6 Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.  
The product is exempted from the regulations. The existing information for exemption is "Due to the proven acute non-toxicity, Waelz oxide is exempted from the regulations under the law regarding the transport of dangerous goods. Dust raising in transit is to be prevented. It is recommended that Waelz oxide should be transported in containers with covers/tarpaulins or in silo vehicles."

**14.7 Transport in bulk according to IMO instruments** : Not available.

## SECTION 15: Regulatory information

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

[EU Regulation \(EC\) No. 1907/2006 \(REACH\)](#)

[Annex XIV - List of substances subject to authorisation](#)

[Annex XIV](#)

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
Carcinogen	diarsenic trioxide	Listed	8	2/17/2012

[Substances of very high concern](#)

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
Carcinogen	diarsenic trioxide	Recommended	ED/68/2009	2/17/2012
Toxic to reproduction	lead monoxide; lead oxide	Recommended	ED/49/2014	11/10/2016

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## SECTION 15: Regulatory information

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Restricted to professional users.  
People under the age of 18 must not be exposed to this product cf. Council Directive 94/33/EC. Only for industrial use.

### Other EU regulations

**Industrial emissions (integrated pollution prevention and control) - Air** : Not listed

**Industrial emissions (integrated pollution prevention and control) - Water** : Not listed

### Ozone depleting substances (1005/2009/EU)

Not listed.

### Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

### Persistent Organic Pollutants

Not listed.

### Seveso Directive

This product is not controlled under the Seveso Directive.

### National regulations

### International regulations

### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

### Montreal Protocol

Not listed.

### Stockholm Convention on Persistent Organic Pollutants

Not listed.

### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

### Inventory list

**Australia** : All components are listed or exempted.  
**Canada** : All components are listed or exempted.  
**China** : Not determined.  
**Europe** : All components are listed or exempted.  
**Japan** : **Japan inventory (CSCL)**: Not determined.  
**Japan inventory (ISHL)**: Not determined.  
**New Zealand** : Not determined.  
**Philippines** : Not determined.  
**Republic of Korea** : All components are listed or exempted.  
**Taiwan** : Not determined.  
**Thailand** : Not determined.  
**Turkey** : Not determined.  
**United States** : All components are active or exempted.

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## SECTION 15: Regulatory information

**Viet Nam** : Not determined.

**15.2 Chemical safety assessment** : Complete.

## SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

**Abbreviations and acronyms** :

- ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- N/A = Not available
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number
- SGG = Segregation Group
- vPvB = Very Persistent and Very Bioaccumulative

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

Classification	Justification
Skin Irrit. 2, H315	Calculation method
Eye Dam. 1, H318	Calculation method
Muta. 2, H341	Calculation method
Carc. 1A, H350	Calculation method
Repr. 1A, H360FD (oral)	Calculation method
STOT RE 1, H372 (central nervous system (CNS), haematopoietic system, kidneys) (inhalation)	Calculation method
Aquatic Chronic 3, H412	Calculation method

### Full text of abbreviated H statements

H300	Fatal if swallowed.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H351	Suspected of causing cancer.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H360FD	May damage fertility. May damage the unborn child.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

### Full text of classifications [CLP/GHS]



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## SECTION 16: Other information

Acute Tox. 2	ACUTE TOXICITY - Category 2
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Carc. 1A	CARCINOGENICITY - Category 1A
Carc. 2	CARCINOGENICITY - Category 2
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Lact.	REPRODUCTIVE TOXICITY - Effects on or via lactation
Muta. 2	GERM CELL MUTAGENICITY - Category 2
Repr. 1A	REPRODUCTIVE TOXICITY - Category 1A
Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1	SKIN SENSITISATION - Category 1
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1

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### Notice to reader

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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.