

SAFETY DATA SHEET

Based on Directive 91/155/EEC of the Commission of
the European Communities

ZINC OXIDE, ASHES (RESIDUES) ZINC REFINING

1. Identification of the substance/preparation and the company

1.1 Identification of the substance or preparation:

Synonyms : Zinc oxide, ashes (residues) zinc refining

CAS no. : 085305-07-3
EC index no. : N.A.
EINECS no. : 286-648-7
RTECS no. : N.A.

NFPA code : N.D.
Molecular weight : N.A.
Formula : N.A.

1.2 Company/undertaking identification:

NYRSTAR Sales & Marketing AG
Tessinerplatz 7
CH-8002 Zürich
Tel: +41 44 745 81 00
Fax: +41 44 745 81 10
e-mail address: infoSDS@nyrstar.com

1.3 Telephone number for emergency:

+32 14 58 45 45 (24h/24h)
Information centre on dangerous goods (BIG)
Technische Schoolstraat 43A, B-2440 Geel, Belgium

2. Composition/information on ingredients

Hazardous ingredients	CAS no.	Conc in %	Hazard Class.	Risks (R-phrases)
zinc oxide	001314-13-2	> 50	N	50/53
zinc chloride	007646-85-7	< 10	C	34
lead(II) oxide	001317-36-8	1-2	T;N	61-20/22-33-50/53-62

3. Hazards identification

- May cause harm to the unborn child
- Also harmful by inhalation and if swallowed
- Danger of cumulative effects
- Very toxic to aquatic organisms
- May cause long-term adverse effects in the aquatic environment

4. First aid measures

4.1 Eye contact:

- Rinse immediately with plenty of water for 15 minutes
- Do not apply neutralizing agents
- Consult a doctor/medical service if irritation persists

4.2 Skin contact:

- Wash with lots of water and soap
- Consult a doctor/medical service if irritation persists

4.3 After inhalation:

- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration
- Consult a doctor/medical service if breathing problems develop

ZINC OXIDE, ASHES (RESIDUES) ZINC REFINING

4.4 After ingestion:

- Immediately give lots of water to drink
- Do not allow vomiting
- Consult a doctor/medical service

5. Fire-fighting measures

5.1 Suitable extinguishing media:

- Non combustible
- For surrounding fires: all extinguishing media allowed

5.2 Unsuitable extinguishing media:

- None

5.3 Special exposure hazards:

- On heating/burning: release of toxic and corrosive gases/vapours (hydrogen chloride) and formation of metallic fumes

5.4 Instructions:

- Dilute toxic gases with water spray
- Take account of toxic firefighting water
- Use firefighting water moderately and contain it

5.5 Special protective equipment for firefighters:

- Heat/fire exposure: compressed air/oxygen apparatus

6. Accidental release measures

6.1 Personal protection: see 8.3

6.2 Environmental precautions:

- Prevent soil and water pollution
- Substance must not be discharged into the sewer
- Knock down/dilute dust cloud with water spray
- Contain leaking substance, pump over in suitable containers
- Plug the leak, cut off the supply
- Dam up the solid spill

6.3 Clean-up:

- Prevent dust cloud formation
- Scoop solid spill into closing containers
- Carefully collect the spill/leftovers
- Take collected spill to manufacturer/competent authority
- Clean contaminated surfaces with an excess of water
- Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:

- Observe very strict hygiene - avoid contact
- Avoid raising dust
- Do not discharge the waste into the drain
- Remove contaminated clothing immediately
- Clean contaminated clothing

7.2 Storage:

- Keep container tightly closed
- Store in a dry area
- Keep away from: heat sources, acids, bases

Storage temperature: ambient temperature

7.3 Materials for packaging:

- suitable : water-tight packaging

ZINC OXIDE, ASHES (RESIDUES) ZINC REFINING

8. Exposure controls/Personal protection

8.1 Recommended engineering controls:

- Measure the concentration in the air regularly
- Work under local exhaust/ventilation

Sampling methods:

- OSHA ID 121 Zinc oxide fume - Zinc chloride fume
- OSHA ID 121 Lead, inorganic fumes/dusts
- OSHA ID 125G Zinc oxide fume - Zinc chloride fume
- OSHA ID 143 Zinc oxide fume
- NIOSH 7300 Lead (Elements)
- NIOSH 7082/NIOSH 7105 Lead

8.2 Exposure limits:

For zinc oxide:

TLV-TWA	:	fume	:	5 mg/m³	- ACGIH '97 - US
TLV-STEL	:	fume	:	10 mg/m³	- ACGIH '97 - US
TLV-TWA	:	dust	:	10 mg/m³	- ACGIH '97 - US

OEL-LTEL	:	fume	:	5 mg/m³	- EH40/98 UK 98
OEL-STEL	:	fume	:	10 mg/m³	- EH40/98 UK 98

For zinc chloride:

TLV-TWA	:	fume	:	1 mg/m³	- ACGIH '97 - US
TLV-STEL	:	fume	:	2 mg/m³	- ACGIH '97 - US

OEL-LTEL	:	fume	:	1 mg/m³	- EH40/98 UK 98
OEL-STEL	:	fume	:	2 mg/m³	- EH40/98 UK 98

Lead and inorganic compounds as Pb:

TLV-TWA	:	0.05 mg/m³	- ACGIH '98 - US
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OEL-LTEL	:	under review	- EH40/98 UK 98
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8.3 Personal protection:

eye protection:

- In case of dust production: dust-tight protective goggles

hand protection:

- Gloves

skin protection:

- Dustproof clothing
- In case of dust production: head/neck protection

materials for protective clothing:

- Dustproof

respiratory protection:

- Dust production: dust mask with filter type P3

ZINC OXIDE, ASHES (RESIDUES) ZINC REFINING

9. Physical and chemical properties

9.1 Appearance (at 20°C)	:	Solid / Powder	
9.2 Odour	:	Odourless	
9.3 Colour	:	Grey-brown	
9.4 pH value	:	N.D.	
9.5 Boiling point/boiling range	:	N.D.	°C
9.6 Melting point/melting range	:	N.D.	°C
9.7 Flashpoint	:	N.A.	°C
9.8 Auto-ignition point	:	N.A.	°C
9.9 Explosion limits	:	N.A.	vol%
9.10 Vapour pressure (at 20°C)	:	N.D.	hPa
9.11 Relative density (at 20°C)	:	N.D.	
9.12 Water solubility	:	Insoluble	
9.13 Soluble in	:	N.D.	
9.14 Relative vapour density	:	N.D.	
9.15 Saturation concentration	:	N.D.	g/m ³
9.16 Viscosity	:	N.D.	Pa.s

10. Stability and reactivity

10.1 Stability:

- No data available

10.2 Reactivity/Hazardous decomposition products:

- On heating/burning: release of toxic and corrosive gases/vapours (hydrogen chloride) and formation of metallic fumes
- Reacts violently with (some) acids/bases

10.3 Conditions/materials to avoid:

- Heat sources, acids, bases

11. Toxicological information

11.1 Acute toxicity:

zinc oxide		
LD50 oral rat	: > 5000	mg/kg
LD50 dermal rabbit	: > 7940	mg/kg
LC50 inhalation rat	: N.D.	mg/l/4 h

zinc chloride		
LD50 oral rat	: 350	mg/kg

Lead (II) oxide		
LD50 oral rat	: N.D.	mg/kg

ZINC OXIDE, ASHES (RESIDUES) ZINC REFINING

11.2 Chronic toxicity:

EC carc. cat.: not listed
EC muta. cat.: not listed
EC repr. cat.: 1,3 (compounds of lead)

Carcinogenicity (TLV): A3 (lead)

IARC classification: IIB (lead)

11.3 Routes of exposure: swallowed, inhalation, eyes and skin

11.4 Acute effects/symptoms:

AFTER INHALATION OF DUST:

- Harmful
- Irritation of the respiratory tract
- Irritation of the nasal mucous membranes
- Respiratory difficulties
- Risk of pneumonia

AFTER INHALATION OF FUME:

- Metal fume fever (may appear later)
- Respiratory difficulties

AFTER INGESTION:

- Harmful
- Vomiting
- Nausea
- Abdominal pain
- Irritation of the gastric/intestinal mucosa

AFTER ABSORPTION OF HIGH QUANTITIES:

- Blood in stool
- Cramps/uncontrolled muscular contractions

AFTER SKIN CONTACT:

- Slight irritation/tingling of the skin

AFTER EYE CONTACT:

- Slight irritation of the eye tissue

11.5 Chronic effects:

- Produces effects on the nervous system
- Cumulative effect
- Hazardous to fetus

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:

- Skin rash/inflammation
- CNS depression
- Change in the haemogramme/blood composition
- Decreased renal function
- Affection of the renal tissue
- Enlargement/affection of the liver

ZINC OXIDE, ASHES (RESIDUES) ZINC REFINING

14. Transport information

90

3077

- 14.1 **Proper shipping name:**
UN 3077, Environmentally hazardous substance, solid, n.o.s.
- 14.2 **Transport by road/rail (ADR/RID):** class 9, 12c)
Danger code: 90
Danger labels on tanks: 9
on packages: 9
- 14.3 **Substance identification number (UN number):** 3077
Packing: III
- 14.4 **Maritime transport (IMDG code):** class 9 p. 9029
EMS : -
MFAG : -
Marine pollutant: P
- 14.5 **Inland navigation (ADNR):** class 9, 12c)
- 14.6 **Air freight (ICAO):** class 9
Instruction "passenger": 911/Y911
Instruction "cargo": 911
- 14.7 **Other information:**

15. Regulatory information

Labelling in accordance with EC directives 67/548/EEC and 88/379/EEC



Toxic



Dangerous for the environment

contains: lead(II) oxide

- R61 : May cause harm to the unborn child
R20/22 : Also harmful by inhalation and if swallowed
R33 : Danger of cumulative effects
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
- S53 : Avoid exposure - obtain special instructions before use
S22 : Do not breathe dust
S45 : In case of accident or if you feel unwell, seek medical advice (show the label where possible)
S60 : This material and/or its container must be disposed of as hazardous waste
S61 : Avoid release to the environment. Refer to special instructions/safety data sheets.

ZINC OXIDE, ASHES (RESIDUES) ZINC REFINING

16. Other information

The information provided on this MSDS 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 as 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 material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
***** = INTERNAL CLASSIFICATION

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