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Material Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifiers

Product name Zinc oxide
Product number A64210
Brand 3ASenrise
CAS number 1314-13-2

1.2 Details of the supplier of the safety data sheet

Company: Anhui Senrise Technology Co., Ltd.
Address: No.88 Weisan Road, High-Tech Industrial Development Zone, Anqing, Anhui
Post code: 246003
Tel: 400-005-6266
Fax: 0556-5555368
Email: service@3asenrise.com

1.3 Emergency telephone

Emergency telephone: 0556-5500208

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

Identified uses: For R&D use only. Not for pharmaceutical, household or other uses.

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

2.2 GHS label elements, including precautionary statements

Pictogram



Signal word: Warning

Hazard statement(s)

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention

P273 Avoid release to the environment.

Response

P391 Collect spillage. Hazardous to the aquatic environment

Storage

No data available

Disposal

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Physical and chemical hazards

No data available

2.4 Health hazards

No data available

2.5 Environmental hazards Code

H410 Very toxic to aquatic life with long lasting effects.

2.6 Other hazards

No data available

3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Substance

3.1 Substance

Name	Zinc oxide
Formula	ZnO
Molecular Weight	81.39
CAS	1314-13-2
Concentration	particle size $\leq 1 \mu\text{m}$, 99.9% (metals basis)

4 FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

No data available.

5 FIREFIGHTING MEASURES

5.1 Extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Zinc/zinc oxides Not combustible. Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate

ventilation.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

6.4 Reference to other section

For disposal see section 13.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

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 and sources of ignition.

Long term storage: RT

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

No data available.

8.2 Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses.

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.

Body protection

Flame retardant antistatic protective clothing.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- | | |
|--|---------------------------------|
| a) Appearance | White to off-white powder |
| b) Odor | odorless |
| c) pH | 6.72 |
| d) Melting point/freezing point | > 1,000 ° C at ca. 1,013.25 hPa |
| e) Initial boiling point and boiling range | No data available |
| f) Upper/lower flammability or explosive | |

limits	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Vapor pressure	No data available
j) Vapor density	No data available
k) Density	5.68 g/cm ³ at 22 ° C
l) Water solubility	0.0029 g/l at 20 ° C - slightly soluble
m) Partition coefficient: n-octanol/water	No data available
n) Autoignition temperature	No data available
o) Decomposition temperature	No data available
p) Flammability	The product is not flammable.

10 STABILITY AND REACTIVITY

10.1 Chemical stability

No data available.

10.2 Conditions to avoid

No data available.

10.3 Incompatible materials

No data available

10.4 Hazardous decomposition products

In the event of fire: see section 5.

11 TOXICOLOGICAL INFORMATION

11.1 Acute toxicity

LD50 Oral

- Rat - male and female - > 2,000 mg/kg

LC50 Inhalation

- Rat - male and female - 4 h - > 1.79 mg/l - dust/mist

LD50 Dermal

- Rat - male and female - > 2,000 mg/kg

11.2 Skin corrosion/irritation

Skin - reconstructed human epidermis (RhE) Result: No skin irritation - 1 h

11.3 Serious eye damage/eye irritation

Eyes - Bovine cornea Result: No eye irritation - 4 h

11.4 Respiratory or skin sensitization

Maximization Test - Guinea pig Result: negative

11.5 Germ cell mutagenicity

Test Type: Ames test Test system: Escherichia coli/Salmonella typhimurium Metabolic

activation: with and without metabolic activation Method: OECD Test Guideline 471 Result:

negative Test Type: In vitro mammalian cell gene mutation test Test system: mouse

11.6 Carcinogenicity

No data available

11.7 Reproductive toxicity

No data available

11.8 Specific target organ toxicity - single exposure

No data available

11.9 Specific target organ toxicity - repeated exposure

No data available

11.10 Aspiration hazard

no data available.

11.11 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 13 Weeks - NOAEL (No observed adverse effect level) - 31.52 mg/kg Remarks: (in analogy to similar products) Repeated dose toxicity - Rat - male - Inhalation - 3 Months Repeated dose toxicity - Rat - male and female - Dermal - 28 d - LOAEL (Lowest observed adverse effect level) - 75 mg/kg RTECS: ZH4810000 Zinc oxide dust or fume can irritate the respiratory tract. Prolonged skin contact can produce a severe dermatitis called oxide pox. Exposure to high levels of dust or fume can cause metallic taste, marked thirst, coughing, fatigue, weakness, muscular pain, and nausea followed by fever and chills. Severe overexposure may result in bronchitis or pneumonia with a bluish tint to the skin. prolonged or repeated exposure can cause: Reversible liver enzyme abnormalities. Diarrhea To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. The following applies to zinc compounds in general: only slightly absorbable via the gastrointestinal tract. Adstringent effect on mucous membranes. Metal-fume fever after inhalation of large quantities. Handle in accordance with good industrial hygiene and safety practice.

12 ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish:

semi-static test LC50 - Danio rerio (zebra fish) - 2,525 mg/l - 96 h

Toxicity to daphnia and other aquatic:

static test EC50 - Daphnia magna (Water flea) - 1 mg/l - 48 h

Toxicity to algae:

static test NOEC - Pseudokirchneriella subcapitata (microalgae) - 0.024 mg/l - 72 h

Toxicity to bacteria:

static test EC50 - activated sludge - > 1,000 mg/l - 3 h

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Other adverse effects

No data available

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Observe all federal, state and local regulations when disposing of the substance.

Contaminated packaging

Disposal must be made according to official regulations.

14 TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 3077 IMDG: 3077 IATA: 3077

14.2 UN proper shipping name

ADR/RID: ZINC OXIDE

IMDG: ZINC OXIDE

IATA-DGR: Zinc oxide

14.3 Transport hazard class(es)

ADR/RID: 9 IMDG: 9 IATA: 9

14.4 Packaging group

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: yes

14.6 Special precautions for user

No data available

15. REGULATORY INFORMATION

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

Applicable regulations

Please pay attention to waste disposal and meet the requirements of local regulations.

16. OTHER INFORMATION

Abbreviations and acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Dangerous Goods

IATA: International Air Transport Association

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

CAS: Chemical Abstracts Service (division of the American Chemical Society)

Further information

The above safety technical information is for reference only, because many physical and chemical properties are not entirely clear. Please consult information carefully before use and use after confirmation.

Anhui Senrise Technology Co., Ltd. shall not be held liable for any damage resulting from handling or from contact with the above product. More terms of use, see invoice information for details.

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