

MATERIAL SAFETY DATA SHEET (MSDS)

Product Name: Zinc Oxide Nanoparticles

Product Series: ZnO-NANO

1. Product and Company Identification

Product identifiers

Product name - Zinc oxide (ZnO)

Brand – Techinstro

CAS-No. - 1314-13-2

1.1 Relevant identified uses of the substance and uses advised against

Identified uses: Laboratory chemicals, Research, and development

1.2 Details of the Supplier

Company: M/s. Techinstro

Plot No. - 463, Yadav Nagar

Nagpur, Maharashtra, India

Pin Code- 440026

Emergency Contact: +91(0) 8007799090

Emergency Contact Email: info@techinstro.com

1.3 Emergency telephone number

Emergency Contact: Phone: +91(0) 8007799090,

Email: info@techinstro.com

2. Hazardous Identification

2.1 Classification of the substance

GHS Classification in line with 29 CFR 1910 (OSHA HCS)

Eye irritation (Category 2A), H319

Specific target organ toxicity - single exposure

(Category 3), Respiratory system H335

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

2.2 GHS Label elements, including precautionary statements

Hazard statement(s)

H319 - It causes serious eye irritation.

H335 - It May cause respiratory irritation.

Precautionary statement(s)

P261 Need to avoid breathing dust/ fume/ gas/ mist/vapors/ spray.

P264 Need to wash skin thoroughly after handling.

P271 Use outdoors or in a well-ventilated area.

P280 Always wear protective gloves/ eye protection/ face protection.

P304 + P340 IF INHALED: Take the victim to fresh air, and keep at rest in a position that is comfortable for/while breathing.

P305 + P351 + P338 IF IN EYES: Then rinse cautiously with water for several minutes.

If contact lenses are there, then remove them and continue rinsing.

P312 Call a POISON CENTER, doctor, or physician if you feel unwell.

P337 + P313 If eye irritation, then: Seek medical advice/ attention immediately.

P403 + P233 Store in a well-ventilated place. Keep the container tightly closed.

P405 Store locked up.

P501 Dispose of the container always to a well-approved waste disposal plant by default

2.3 Hazards (Risky) Not Otherwise Classified (HNOC) or not Covered by GHS None

3. Composition/Information On Ingredients

3.1 Substances

Synonyms: Zinc Oxide (ZnO) Powder

Zinc Oxide (ZnO) CAS#: 1314-13-2

Hazardous components

Component: Zinc Oxide (ZnO) Powder

Classification: Eye Irrit. 2A; STOT SE 3; H319, H335

Concentration:

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

4. FIRST AID MEASURES

4.1 Description of first aid measures

General Advice

Need to consult a doctor. Show this safety data sheet to the doctor. Move out of dangerous areas.

If breathed in, move the person into the fresh air(outside). If not breathing, then give artificial respiration to them. Consult a doctor.

In case of skin contact,

wash off with soap, plenty of water. Consult a physician.

In the case of eye contact, then

rinse thoroughly with water for near about 15 minutes and then consult a physician/doctor.

If swallowed

Never give anything by mouth to a subconscious person. Rinse mouth with water.

4.2 Most Significant Symptoms & Effects (both acute as well as delayed)

The most significant known symptoms and effects are described in the labeling (section 2.2 contains information on the same), or section 11 includes the same information.

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

No data available

5. Firefighting Measures

5.1 Extinguishing media

Suitable extinguishing media

Water spray, alcohol-resistant foam, dry chemicals, or CO₂ can be used.

5.2 Special hazards(dangers) arising from the substance or mixture

The product is not flammable

5.3 Advice for Firefighters

Always wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. Accidental Release Precautions

6.1 Personal Precautions, protective equipment, and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection, see section 8.

6.2 Environmental precautions

Do not let the product enter drains.

6.3 Methods and materials for containment as well as for cleaning

Please pick up and arrange the items for disposal to avoid creating dust. Use a broom to sweep up and a shovel to collect the debris. Make sure to store the waste in a closed and appropriate container for disposal purposes.

6.4 Reference to other sections

For disposal, refer to section 13.

7. Handling and Storage

7.1 Precautions needed for safe handling

Avoid contact with skin and eyes. Avoid the formation of any dust or aerosols. Provide proper exhaust ventilation at places where dust is formed/found. For precautions, refer to section 2.2.

7.2 Conditions for Safe Storage

Keep the container tightly packed in a well-ventilated and dried area.

7.3 Specific End Use(s)

Apart from the uses mentioned in the Section 1.2, no other specific uses are specified

8. Exposure Controls/Personal Protection

8.1 Control parameters

Components with workplace control parameters

Contains no substances which have occupational exposure limit values.

8.2 Details on Exposure Controls

Appropriate (Proper) Engineering Controls

Handle following good industrial hygiene as well as safety practices. Wash hands before breaks and at the end of the workday.

Personal protective equipment Eye/face protection

Please ensure that you wear safety glasses with side shields that meet the specifications outlined in EN166. It is essential to use eye protection equipment that has been tested and approved by the appropriate standards of the government, such as NIOSH (US) or EN 166 (EU).

Skin Protection

For any handling steps where the substance is in particulate form or in a suspension with pure water where the substance is not solubilized, the gloves must be comprised of material that successfully passes ASTM F-1671. For any handling steps where the substance is part of a carrier liquid other than the aqueous suspension noted in the previous paragraph, gloves must be comprised of material that successfully passes ASTM F-739 (continuous liquid contact method). Gloves must be changed before they show degradation and before the designated breakthrough time for the carrier liquid (as determined by the ASTM F-739 testing or by the manufacturer). Handle with gloves always. Gloves must be inspected before use. Use proper glove removal technique while removing (without touching the glove's outer surface) to avoid any kind of skin contact with this product.

Always dispose of contaminated gloves after use according to the applicable laws & good laboratory practices. Then wash & dry your hands.

Body Protection Information

Impervious clothing: The equipment used for protection must be selected according to the concentration and amount of the hazardous substance at the specific workplace.

Respiratory Protection

The EPA mandates using full-face respirators with minimum N100-grade cartridges if there is any risk of exposure to dust. When dealing with nuisance exposures, it's best to use a particle respirator such as type P95 in the US or type P1 in the EU, according to EN 143. For greater protection, opt for respirator cartridges such as type OV/AG/P99 in the US or type ABEK-P2 in the EU, according to EN 143. Always use respirators and components that comply with relevant government standards, like NIOSH in the US or CEN in the EU. To avoid environmental exposure, ensure products don't end up in drains.

9. Chemical & Physical Properties

9.1 Details on basic physical as well as chemical properties

- a. (Look)Appearance: Solid
- b. Odor: no data available
- c. Odor Threshold: no data available
- d. pH: no data available
- e. Melting point/freezing point: 1975 °C
- f. Initial boiling point, boiling range: no data available
- g. Flashpoint: no data available
- h. Rate of Evaporation: no data available
- i. Flammability for (solid, gas): no data available
- j. Upper or lower flammability or explosive limits: no data available
- k. Vapor pressure: no data available
- l. Vapor density: no data available
- m. Relative density: 5.61

- n. Water solubility: insoluble
- o. Partition coefficient - octanol/water: no data available
- p. Auto-ignition temperature: no data available
- q. Decomposition temperature: no data available
- r. Viscosity: no data available
- s. Explosive properties: no data available
- t. Oxidizing properties: no data available

9.2. Other Safety Information

No data available

10. Stability And Reactivity

10.1 Reactivity

No data available

10.2 Chemical Stability (Firmness)

It is stable under certain suggested storage conditions.

10.3 Possibility of hazardous (dangerous) reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - no data available

For fire occurrence: see section 5

11. Toxicological Details

11.1 Information on toxicological effects

Acute toxicity: No data available

Inhalation: No data available

Dermal: No data available

Skin irritation: No data available

Serious eye damage/irritation: No data available

Respiratory, skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity: No data available

There is currently no available data on reproductive toxicity. However, in case of inhalation exposure, it may cause respiratory irritation. No specific target organ toxicity data are available following repeated exposure or aspiration hazard. Any additional information is currently not available.

RTECS: Not available

As far as we know, a comprehensive study has yet to be conducted on chemical, physical, and toxicological characteristics.

12. Ecological Details

12.1 About Toxicity

No data available

12.2 Persistence & Degradability(Degeneration)

No data available

12.3 Bioaccumulative Potential

No data available

12.4 Mobility in the Soil

No data available

12.5 Results of the PBT and vPvB Assessment

Unfortunately, a PBT/vPvB assessment is unavailable as a chemical safety assessment was not required or conducted.

12.6 Other adverse effects

No data available

13. Disposal Considerations

13.1 Waste treatment methods

Product

Need to offer surplus, non-recyclable solutions to a licensed disposal company. One needs to contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as an unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components

SARA 302: No chemicals used in this material are based on the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material has no chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels that SARA Title III, Section 313 establishes. SARA 311/312 Hazards

16. OTHER INFORMATION

The information introduced is in good faith & believed to be accurate as of the date mentioned. However, no warranty, express or implied, is given. The client's responsible for ensuring its activities comply with the relevant laws.