



Materials Safety Data Sheet

Yttria Stabilized Zirconia (Powder)

1. Product and Company Identification

Product Name: Yttria Stabilized Zirconia

Formula: $\text{Y}_2\text{O}_3\text{-ZrO}_2$

CAS: 114168-16-0

EC No.: N/A

Synonyms: YSZ, Yttrium stabilized zirconium oxide, Zirconium(IV) oxide-yttria stabilized

Recommended Use: Laboratory chemicals, Scientific research

Uses advised against: N/A

Supplier: UltraPurMat Group Co., Ltd

Address :Room307, Building2, Tengfei Innovation Center, No38Gaoxin 6th Road, High-tech Zone,
Xi'an Shaanxi China

Tel: +86-29-88993870

Email: sales@ulpmat.com

Website: www.ulpmat.com

24-Hour Emergency Contact: +86-13572830939

2. Hazards Identification

Classification of the substance or mixture

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

Skin irritation Category 2 (H315).

Eye irritation Category 2 (H319).

STOT-single exposure Category 3 (H335).

GHS Label elements, including precautionary statements

Pictogram:



Signal Word: Warning

Hazard statement(s):

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary Statement(s):

Prevention: P261 Avoid breathing dust/fume/gas/mist/vapors/spray.

P264 Wash contaminated skin thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/protective clothing.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

P405 Store locked up. Disposal: P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards:

3. Composition

Components	CAS	Classification (H)	Concentration
Zirconium oxide (ZrO ₂)	1314-23-4	Not classified	86-97%
Yttrium oxide (Y ₂ O ₃)	1314-36-9	Not classified	3-14%

4. First Aid Procedures

Description of first aid measures

General Treatment: If symptoms persist, call a physician.

Inhalation: Remove victim to fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Ingestion: Never give anything by mouth to an unconscious person. Rinse mouth with water. Seek medical attention if symptoms occur.

Skin: Take off immediately all contaminated clothing. Rinse skin with water/shower. Seek medical attention.

Eyes: Rinse with pure water for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek medical attention.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Indication of any immediate medical attention and special treatment needed

Based on the symptoms that appear, provide targeted treatment.

5. Firefighting Measures

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

Unsuitable extinguishing media: N/A

Special hazards arising from the substance or mixture

Zirconium oxides.

Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Further information

No data available

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Remove persons to safety. Use personal protective equipment as required. Avoid dust formation. Remove all sources of ignition.

For emergency responders: Wear breathing apparatus if exposed to vapours/dust/spray/gases.

Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

Methods and materials for containment and cleaning up

Covering of drains. Take up mechanically.

Sweep up and shovel. Take care not to raise dust. Place in appropriate containers for disposal.

Ventilate affected area.

Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

7. Handling and Storage

Precautions for safe handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible materials: See section 10.

Specific end use(s)

Apart from the uses mentioned in section 1 no other specific uses are stipulated.

8. Exposure Controls/Personal Protection

Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of work day.

Personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles) (European standard - EN 166) and face protection.

Skin protection

Protective gloves (The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN374 derived from it.) Wear appropriate protective clothing to prevent skin exposure. Wash hands thoroughly after handling.

Body Protection

Protective work clothing. Wear close-toed shoes and long sleeves/pants.

Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Control of environmental exposure

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

9. Physical and Chemical Characteristics

Information on basic physical and chemical properties

Appearance

Form: Powder

Colour: White

Odor: Odorless

pH: Not applicable

Melting point/range: No data available

Boiling point/range: No data available

Flash point: No data available

Evaporation rate: Not applicable - Solid

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapor pressure: No data available

Vapor density: Not applicable

Relative density: No data available

Water solubility: Insoluble

Partition coefficient: No data available

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Other information

Molecular formula: $\text{Y}_2\text{O}_3\text{-ZrO}_2$

Molecular weight: No data available

10. Stability and reactivity

Reactivity

No data available.

Chemical stability

No specific incompatibilities known under normal storage and handling conditions.

Possibility of hazardous reactions

No data available.

Conditions to avoid

No data available.

Incompatible materials

No specific incompatibilities known under normal storage and handling conditions.

Hazardous decomposition products

No decomposition in regular fire conditions.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

No data available.

Skin corrosion/irritation

Causes skin irritation.

Classification according to Regulation (EC) No 1272/2008 (CLP): Skin irritation Category 2 (H315).

Serious eye damage/eye irritation

Causes serious eye irritation.

Classification according to Regulation (EC) No 1272/2008 (CLP): Eye irritation Category 2 (H319).

Respiratory or skin sensitisation

No data available.

Germ cell mutagenicity

No data available.

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: Not listed. There are no known carcinogenic chemicals in this product.

Reproductive toxicity

No data available.

Specific target organ toxicity -single exposure

May cause respiratory irritation. Classification according to Regulation (EC) No 1272/2008 (CLP): STOT-single exposure Category 3 (H335).

Specific target organ toxicity -repeated exposure

Not classified.

Aspiration hazard

Not applicable. Solid.

Additional Information

Endocrine Disrupting Properties: Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

12. Ecological Information

Toxicity

No data available.

Persistence and degradability

No data available.

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

Results of PBT and vPvB assessment

In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment.

Other adverse effects

Persistent Organic Pollutant: This product does not contain any known or suspected substance.

13. Disposal Considerations

Waste treatment methods

Dispose of according to local regulations. Material recovery or recycling is recommended where possible. Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate method and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers.

14. Transportation Information

ADR

Not classified as dangerous goods under ADR.

UN number: Not applicable.

Transport hazard class: Not applicable.

Packaging group: Not applicable.

IMDG

Not classified as dangerous goods under IMDG.

UN number: Not applicable.

Transport hazard class: Not applicable.

Packaging group: Not applicable.

IATA

Not classified as dangerous goods under IATA .

UN number: Not applicable.

Transport hazard class: Not applicable.

Packaging group: Not applicable.

15. Regulatory information

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

This Safety Data Sheet is prepared in accordance with Commission Regulation (EC) 1907/2006, amended by Commission Regulation (EU) 2020/878.

Regulation (EC) 1907/2006, REACH, Annex XIV list of substances subject to authorisation: Not applicable.

Regulation (EC) 1907/2006, REACH, Annex XVII restrictions on the manufacture, placing on the market and use of certain dangerous substances: Not applicable.

Regulation (EC) 1005/2009 on substances that deplete the ozone layer: Not applicable.

Regulation (EC) 850/2004 on persistent organic pollutants, amended by (EU) No 2019/1021: Not applicable.

Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

16. Other information

Revision Date:

2026-09-08

Version:

1.0

Disclaimer

The information of this safety data sheet is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

This Safety Data Sheet is prepared in accordance with Regulation (EC) No 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2020/878.