



Materials Safety Data Sheet

Barium Oxide Sputtering Target

1. Product and Company Identification

Product Name: Barium Oxide

Formula: BaO

CAS: 1304-28-5

EC No.: 215-127-9

Synonyms: Barium monoxide

Recommended Use: Scientific research

Uses advised against: N/A

Supplier: UltraPurMat Group Co., Ltd

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Xian 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).

Acute toxicity, Oral Category 3 (H301)

Acute toxicity, Inhalation Category 4 (H332)

Skin corrosion Category 1 B (H314)

GHS Label elements, including precautionary statements

Pictogram:



Signal Word: Danger

Hazard statement(s):

H301 Toxic if swallowed.

H314 Causes severe skin burns and eye damage.

H332 Harmful if inhaled.

Precautionary Statement(s):

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray

P264 Wash face, hands and any exposed skin thoroughly after handling

P270 Do not eat, drink or smoke when using this product

P271 Use only outdoors or in a well-ventilated area

P280 Wear protective gloves/protective clothing.

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTER/ doctor

P305 + P351 + P338 + P310 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/ doctor

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

P405 Store locked up

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

Other hazards:

3. Composition

Components	CAS	Classification (H)	Concentration
Barium Oxide (BaO)	1304-28-5	H301 H314 H332	≤100%

4. First Aid Procedures

Description of first aid measures

General Treatment: Seek medical attention if symptoms persist.

Inhalation: Remove person to fresh air. Seek medical attention if symptoms persist, especially after exposure to dust generated during machining.

Ingestion: Seek Medical Attention.

Skin: Wash affected area with mild soap and water. Remove any contaminated clothing.

Eyes: Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

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

No data available

5. Firefighting Measures

Extinguishing Media: The product is not combustible. Use suitable extinguishing agent for surrounding material and type of fire.

Unsuitable extinguishing media: water jet

Special hazards arising from the substance or mixture

No data available

Advice for firefighters

Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

Further information

No data available

6. Accidental Release Measures

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.

Environmental precautions

Isolate runoff to prevent environmental pollution.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

Reference to other sections

For disposal see section 13.

7. Handling and Storage

Precautions for safe handling

Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid formation of dust. Do not get in eyes, on skin, or on clothing. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. For precautions see section 2.

Conditions for safe storage, including any incompatibilities

Store in a cool dry place in a tightly sealed container. Store in a cool, dry and well-ventilated place. Keep container tightly closed. Protect from moisture and contamination. Avoid contact with water and strong acids. Store apart from materials and conditions listed in 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 workday.

Personal protective equipment

Eye/face protection

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

Skin protection

Protective gloves (The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.)

Body Protection

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

Respiratory protection

Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. Physical and Chemical Characteristics

Information on basic physical and chemical properties

Appearance

Form: Solid (Sputtering Target)

Colour: White

Odor: Odorless

pH: No data available

Melting point/range: 1920 °C

Boiling point/range: 2000 °C

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

Relative density: 5.72 g/cm³

Water solubility: Reacts with water to form barium hydroxide

Partition coefficient: n-octanol/water: not relevant (inorganic)

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity: No data available

Other information

Molecular formula: BaO

Molecular weight: 153.34 g/mol

10. Stability and reactivity

Reactivity

Barium oxide reacts with water to form barium hydroxide. Avoid contact with moisture.

Chemical stability

Stable under dry conditions. May absorb moisture from air.

Possibility of hazardous reactions

No known hazardous reactions

Conditions to avoid

Moisture and water exposure

Incompatible materials

Water, Moisture, Strong acids

Hazardous decomposition products

In the event of fire: see section 5

Under extreme conditions, barium-containing compounds may be generated.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Oral LD50 (unspecified species): 100 mg/kg; Intraperitoneal LD50 (Mouse): 146 mg/kg; Inhalation LC50 (4 h exposure, dust/mist): 1.5 mg/L

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: Not listed.

OSHA: Not listed.

Reproductive toxicity

No data available

Specific target organ toxicity -single exposure

No data available

Specific target organ toxicity -repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

No data available

Based on available data, the substance is classified according to Regulation (EC) No 1272/2008 (CLP).

12. Ecological Information

Toxicity

The 96-hour LC50 value for toxicity to *Gambusia affinis* (mosquito fish) is 6.950 mg/L.

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects

This product does not contain any known or suspected endocrine disruptors.

13. Disposal Considerations

Waste treatment methods

Dispose of contents and containers in accordance with all applicable local, regional, national, and international regulations. Recovery or recycling should be considered where feasible. Empty containers may retain product residues and should be handled with appropriate precautions. Do not cut, puncture, or weld on or near the container. Contaminated containers must not be disposed of as household waste.

14. Transportation Information

ADR

UN number: UN 1884

UN Proper shipping name: BARIUM OXIDE

Transport hazard class(es): 6.1

Packaging group: III

IMDG

UN number: UN 1884

UN Proper shipping name: BARIUM OXIDE

Transport hazard class(es): 6.1

Packaging group: III

IATA

UN number: UN 1884

UN Proper shipping name: BARIUM OXIDE

Transport hazard class(es): 6.1

Packaging group: III

15. Regulatory information

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

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:

2026-01-06

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.