SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

SECTION 1: Identification

1.1 GHS Product identifier

Product name Barium

1.2 Other means of identification

Product number -
Other names bario;barium powder;baryum

1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research use.
Uses advised against no data available

1.4 Supplier's details

Company Shanghai Yansheng Internet Technology Co., Ltd
Address 513, A3 / F, green space future center, Fengxian District, Shanghai, 201400, China
Telephone +86-4000-6969-66

1.5 Emergency phone number

Emergency phone number +86-4000-6969-66
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Flammable solids, Category 1
Substances and mixtures, which in contact with water, emit flammable gases, Category 1
Acute toxicity - Category 3, Oral
Skin corrosion, Category 1
Serious eye damage, Category 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Danger
Hazard statement(s) H228 Flammable solid
H260 In contact with water releases flammable gases which may ignite spontaneously
H301 Toxic if swallowed
H314 Causes severe skin burns and eye damage

H318 Causes serious eye damage

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P223 Do not allow contact with water.
P231+P232 Handle and store contents under inert gas/....Protect from moisture.
P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.

Response

P370+P378 In case of fire: Use ... to extinguish.
P302+P335+P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water [or wrap in wet bandages].
P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316 Get emergency medical help immediately.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P317 Get medical help.

Storage

P402+P404 Store in a dry place. Store in a closed container.
P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Barium	Barium	7440-39-3	231-149-1	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 138 [Substances - Water-Reactive (Emitting Flammable Gases)]: Inhalation or contact with vapors, substance or decomposition products may cause severe injury or death. May produce corrosive solutions on contact with water. Fire will produce irritating, corrosive and/or toxic gases. Runoff from fire control may cause pollution. (ERG, 2016)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Barium and Related Compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use dry chemical, carbon dioxide, water spray, or alcohol foam extinguisher ... If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Notify local health and fire officials and pollution control agencies. From a secure, explosion-proof location, use water spray to cool exposed containers. If cooling streams are ineffective (venting sound increases in volume and pitch, tank discolors or shows any signs of deforming), withdraw immediately to a secure position ... The only respirators recommended for fire fighting are self-contained breathing apparatuses that have full facepieces and are operated in a pressure-demand or other positive-pressure mode.

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 138 [Substances - Water-Reactive (Emitting Flammable Gases)]: Produce flammable gases on contact with water. May ignite on contact with water or moist air. Some react vigorously or explosively on contact with water. May be ignited by heat, sparks or flames. May re-ignite after fire is extinguished. Some are transported in highly flammable liquids. Runoff may create fire or explosion hazard. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Use special powder, dry sand. NO water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT wash away into sewer. Sweep spilled substance into covered sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Sweep spilled substance into covered sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations. Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT wash away into sewer.

6.3 Methods and materials for containment and cleaning up

Spill handling: evacuate and restrict persons not wearing protective equipment from area of spill or leak until cleanup is complete. Remove all ignition sources. Small quantities of barium metal may be dissolved in large quantities of water. Soda ash is added and the solution then neutralized with /hydrochloric acid/. Collect powdered material in the most convenient and safe manner and deposit in sealed containers. Ventilate area of spill or lead after clean-up is complete. It may be necessary to contain and dispose of this chemical as a hazardous waste. If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Contact your Department of Environmental Protection or your regional office of the federal EPA for specific recommendations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. NO contact with water. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Separated from halogenated solvents, strong oxidants and acids. Dry. Keep under inert gas, oil or oxygen-free liquid.Barium metal should be stored in a dry area, separated from halogenated solvents, strong oxidants, acids, in tightly closed containers under an inert gas blanket, petroleum, or oxygen-free liquid. Rubber gloves, rubber protective clothing and apron, goggles and /particulate/ filter mask should be worn when working in a barium storage area.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 0.5 mg/m3, as TWA; A4 (not classifiable as a human carcinogen).MAK: (as Ba, inhalable fraction): 0.5 mg/m3; peak limitation category: II(8); pregnancy risk group: D.EU-OEL: (as Ba): 0.5 mg/m3 as TWA

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid. Crystalline.

Colour	White.
Odour	no data available
Melting point/freezing point	Ca. 727 °C.
Boiling point or initial boiling point and boiling range	1640°C(lit.)
Flammability	Flammable. Many reactions may cause fire or explosion.
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	Remarks:Not measured/tested.
Decomposition temperature	no data available
pH	6.8. Remarks:HCl media pH 1.5.
Kinematic viscosity	no data available
Solubility	Reacts with water; slightly soluble in ethanol
Partition coefficient n-octanol/water	no data available
Vapour pressure	10 mm Hg at 1920° F (NTP, 1992)
Density and/or relative density	4.31. Temperature:20 °C.
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

The substance , if in powder form, may ignite spontaneously on contact with air. The substance is a strong reducing agent. It reacts violently with oxidants and acids. Reacts violently with halogenated solvents. Reacts with water. This produces flammable/explosive gas (hydrogen - see ICSC 0001). This generates fire and explosion hazard.

10.2 Chemical stability

The free element oxidizes readily in moist air.

10.3 Possibility of hazardous reactions

Barium powder is a flammable solid.Dust explosion possible if in powder or granular form, mixed with air.BARIUM reacts readily with water, ammonia, halogens, oxygen and most acids. Reacts with incandescence when heated with boron trifluoride [Merck 11th ed. 1989]. Mixtures of finely divided barium metal and a number of halogenated hydrocarbons (such as monofluorotrichloromethane, trichlorotrifluoroethane, carbon tetrachloride, trichloroethylene, or tetrachloroethylene) are explosives [ASESB Pot. Incid. 39 1968; Chem. Eng. News 46(9):38 1968].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatible with /trichloro-1,1,2-trilfuoro-1,2,2-ethane/, /trichlorofluoroethane/, /trichloroethylene/ and water, 1,1,2-trichlorotriluoroethane, and fluorotrichloroethane.

10.6 Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male/female) - 1 690 mg/kg bw.
- Inhalation: no data available
- Dermal: LD50 - rat - > 2 000 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

WEIGHT OF EVIDENCE CHARACTERIZATION: Under EPA's 1986 Guidelines for Carcinogen Risk Assessment, barium would be classified as Group D, not classifiable as to human carcinogenicity. Based on former classification system

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract.

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Danio rerio (previous name: Brachydanio rerio) - > 3.5 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: LC50 - Daphnia magna - 14 500 µg/L - 48 h. Remarks:Metal ion -based.
- Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - > 1.15 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - > 1 000 mg/L - 3 h. Remarks:Respiration rate.

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

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN1383 (For reference only, please check.)

IMDG: UN1383 (For reference only, please check.)

IATA: UN1383 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: PYROPHORIC METAL, N.O.S. or PYROPHORIC ALLOY, N.O.S. (For reference only, please check.)

IMDG: PYROPHORIC METAL, N.O.S. or PYROPHORIC ALLOY, N.O.S. (For reference only, please check.)

IATA: PYROPHORIC METAL, N.O.S. or PYROPHORIC ALLOY, N.O.S. (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 4.2 (For reference only, please check.)

IMDG: 4.2 (For reference only, please check.)

IATA: 4.2 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.)

IMDG: I (For reference only, please check.)

IATA: I (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Barium	Barium	7440-39-3	231-149-1
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.

Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Listed.

SECTION 16: Other information

Information on revision

Creation Date	July 15, 2019
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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

Reacts violently with fire extinguishing agents such as water, bicarbonate, powder, foam, and carbon dioxide.Rinse contaminated clothing with plenty of water because of fire hazard.

Any questions regarding this SDS, Please send your inquiry to sds@xixisys.com

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Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.