

# SAFETY DATA SHEETS

According to the UN GHS revision 9

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

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## SECTION 1: Identification

### 1.1 GHS Product identifier

Product name                    Beryllium

### 1.2 Other means of identification

Product number                -  
Other names                    BERYLLIUM;Beryllium metal;Beryllium dust

### 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 Yien Chemical Technology Co., Ltd  
Address                         Building 6, 28 Yingong Road, Fengxian District, Shanghai  
Chemical Industry Zone, Shanghai, 201400, China  
Telephone                      +86-400-133-2688

### 1.5 Emergency phone number

Emergency phone              +86-400-133-2688  
number  
Service hours                 Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT  
+8 hours).

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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Acute toxicity - Category 3, Oral  
Skin irritation, Category 2  
Eye irritation, Category 2  
Skin sensitization, Category 1  
Acute toxicity - Category 2, Inhalation  
Specific target organ toxicity – single exposure, Category 3  
Specific target organ toxicity – repeated exposure, Category 1  
Carcinogenicity, Category 1B

### 2.2 GHS label elements, including precautionary statements

Pictogram(s)



<b>Signal word</b>	Danger
<b>Hazard statement(s)</b>	H301 Toxic if swallowed H315 Causes skin irritation H319 Causes serious eye irritation H317 May cause an allergic skin reaction H330 Fatal if inhaled H335 May cause respiratory irritation H372 Causes damage to organs through prolonged or repeated exposure
<b>Precautionary statement(s)</b>	
<b>Prevention</b>	P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P272 Contaminated work clothing should not be allowed out of the workplace. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P271 Use only outdoors or in a well-ventilated area. P284 [In case of inadequate ventilation] wear respiratory protection. P203 Obtain, read and follow all safety instructions before use.
<b>Response</b>	P301+P316 IF SWALLOWED: Get emergency medical help immediately. P321 Specific treatment (see ... on this label). P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P332+P317 If skin irritation occurs: Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P333+P317 If skin irritation or rash occurs: Get medical help. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P316 Get emergency medical help immediately. P320 Specific treatment is urgent (see ... on this label). P319 Get medical help if you feel unwell. P318 IF exposed or concerned, get medical advice.
<b>Storage</b>	P405 Store locked up. P403+P233 Store in a well-ventilated place. Keep container tightly closed.
<b>Disposal</b>	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

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Beryllium	Beryllium	7440-41-7	231-150-7	100%

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

#### If inhaled

Fresh air, rest. Half-upright position. Refer for medical attention.

#### Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Wear protective gloves when administering first aid.

#### **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**

Any dramatic, unexplained weight loss should be considered as possible first indication of beryllium disease. Dust is extremely toxic when inhaled; symptoms include coughing, shortness of breath, and acute or chronic lung disease. There is no record of illness from ingestion of beryllium. Contact with dust causes conjunctival inflammation of eyes and dermatitis. (USCG, 1999)

### **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. Beryllium and Related Compounds

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## **SECTION 5: Fire-fighting measures**

### **5.1 Suitable extinguishing media**

If material on fire or involved in fire: Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.) Use water in flooding quantities as fog. Use foam, dry chemical, or carbon dioxide. Keep run-off water out of sewers and water sources.

### **5.2 Specific hazards arising from the chemical**

Special Hazards of Combustion Products: Combustion yields beryllium oxide fume, which is toxic if inhaled. Behavior in Fire: Powder may form explosive mixture with air. (USCG, 1999)

### **5.3 Special protective actions for fire-fighters**

Use fine water spray, dry powder, dry sand. NO other agents.

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## **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 let this chemical enter the environment. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

### **6.2 Environmental precautions**

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

### **6.3 Methods and materials for containment and cleaning up**

Environmental considerations: Land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding

areas should be sealed with an impermeable flexible membrane liner./ Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water. Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

NO open flames. 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

Provision to contain effluent from fire extinguishing. Separated from strong acids, bases, chlorinated solvents and food and feedstuffs. Well closed. Store only in original container. Store in an area without drain or sewer access.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

TLV: (as Be): (inhalable fraction): 0.00005 mg/m<sup>3</sup>, as TWA; A1 (confirmed human carcinogen); (skin); (SEN).MAK: sensitization of respiratory tract and skin (SAH); carcinogen category: 1

#### 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 face shield or eye protection in combination with breathing protection if powder.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use closed system.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties and safety characteristics

<b>Physical state</b>	Solid. Compact.
<b>Colour</b>	Steel grey metal.
<b>Odour</b>	Odorless
<b>Melting point/freezing point</b>	1 278 °C.
<b>Boiling point or initial boiling point and boiling range</b>	2 471 °C. Atm. press.:101 325 Pa.
<b>Flammability</b>	Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of a powder or dust.
<b>Lower and upper</b>	no data available

<b>explosion limit/flammability limit</b>	
<b>Flash point</b>	no data available
<b>Auto-ignition temperature</b>	> 400 °C.
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	Insoluble (NIOSH, 2016)
<b>Partition coefficient n-octanol/water</b>	no data available
<b>Vapour pressure</b>	10 mm Hg. Temperature: 1 860 °C.
<b>Density and/or relative density</b>	1.85. Temperature: 20 °C.
<b>Relative vapour density</b>	no data available
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

NIOSH considers beryllium and beryllium compounds (as Be) to be a potential occupational carcinogen. Beryllium and beryllium compounds (as Be) reacts with strong acids and strong bases. This produces flammable/explosive gas (hydrogen - see ICSC 0001). Mixtures with some chlorinated solvents, such as carbon tetrachloride and trichloroethylene are shock-sensitive. On combustion, forms toxic fumes including beryllium oxide (see ICSC 1325).

### 10.2 Chemical stability

Resistant to oxidation at ordinary temperatures

### 10.3 Possibility of hazardous reactions

Finely divided beryllium burns in air. Dust explosion possible if in powder or granular form, mixed with air. Boron trifluoride reacts with incandescence when heated with alkali metals or alkaline earth metals except magnesium [Merck 11th ed. 1989]. Finely divided or amalgamated metal reacts with HCl, dil HNO<sub>3</sub>, or dil H<sub>2</sub>SO<sub>4</sub>; attacked by strong base with evolution of hydrogen gas [Merck 11th ed. 1989]. It has been determined experimentally that a mixture of beryllium powder with carbon tetrachloride or with trichloroethylene will flash or spark on heavy impact [ASESB Pot. Incid. 39 1968]. The reaction between beryllium and the vapors of phosphorus proceeds with incandescence [Mellor 8:842 1946-47].

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Finely divided or amalgamated metal reacts with HCl, dilute H<sub>2</sub>SO<sub>4</sub> and dilute HNO<sub>3</sub>; attacked by strong bases with evolution of H<sub>2</sub>.

### 10.6 Hazardous decomposition products

no data available

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD<sub>50</sub> - rat (female) - > 2 000 mg/kg bw.
- Inhalation: no data available
- Dermal: no data available

### 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**

NTP: Known to be a human carcinogen

**Reproductive toxicity**

no data available

**STOT-single exposure**

The substance is irritating to the respiratory tract. Inhalation of dust or fume may cause chemical pneumonitis. The effects may be delayed. Medical observation is indicated. Exposure could cause death.

**STOT-repeated exposure**

Sensitization to the substance, through repeated or prolonged inhalation or skin contact, may result in serious granulomatous lung disease (chronic beryllium disease). This substance is carcinogenic to humans.

**Aspiration hazard**

A harmful concentration of airborne particles can be reached quickly when dispersed.

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

- Toxicity to fish: TLm Pimephales promelas (fathead minnow) 150 ug/L for 96 hr (soft water) /Conditions of bioassay not specified
- Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water Flea) age < or =24 hr; Conditions: freshwater, static, 22 deg C, pH 7.4-9.4, dissolved oxygen 6.5-9.1 mg/L; Concentration: 1900 ug/L for 24 hr (95% confidence interval: 1100-3300 ug/L) /> or =80% purity
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

### **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

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## **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.

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## SECTION 14: Transport information

### 14.1 UN Number

ADR/RID: UN1567 (For reference only, please check.)      IMDG: UN1567 (For reference only, please check.)      IATA: UN1567 (For reference only, please check.)

### 14.2 UN Proper Shipping Name

ADR/RID: BERYLLIUM POWDER (For reference only, please check.)      IMDG: BERYLLIUM POWDER (For reference only, please check.)      IATA: BERYLLIUM POWDER (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)      IMDG: 6.1 (For reference only, please check.)      IATA: 6.1 (For reference only, please check.)

### 14.4 Packing group, if applicable

ADR/RID: II (For reference only, please check.)      IMDG: II (For reference only, please check.)      IATA: II (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

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## 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
Beryllium	Beryllium	7440-41-7	231-150-7
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.

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## SECTION 16: Other information

### Information on revision

**Creation Date** July 15, 2019  
**Revision Date** July 15, 2019

### 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](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

The substance is combustible but no flash point is available in literature. The symptoms of acute pneumonitis following a massive short-term exposure do not become manifest until 3 days. Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home. Isolate contaminated clothing by sealing in a bag or other container.

**Any questions regarding this SDS, Please send your inquiry to [sds@xixisys.com](mailto: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.*