



# 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                      Phenytoin

### 1.2 Other means of identification

Product number                      -  
Other names                      diphenyl hydantoin; Ekko; Epamin

### 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 number                      +86-400-133-2688  
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

Acute toxicity - Category 4, Oral  
Carcinogenicity, Category 2  
Reproductive toxicity, Category 1B

### 2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word                      Danger  
Hazard statement(s)                      H302 Harmful if swallowed  
H351 Suspected of causing cancer  
H360 May damage fertility or the unborn child  
Precautionary statement(s)

|                   |   |
|-------------------|---|
| <b>Prevention</b> | P264 Wash ... thoroughly after handling.<br>P270 Do not eat, drink or smoke when using this product.<br>P203 Obtain, read and follow all safety instructions before use.<br>P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... |
| <b>Response</b>   | P301+P317 IF SWALLOWED: Get medical help.<br>P330 Rinse mouth.<br>P318 IF exposed or concerned, get medical advice.   |
| <b>Storage</b>    | P405 Store locked up.   |
| <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

# SECTION 3: Composition/information on ingredients

## 3.1 Substances

| Chemical name | Common names and synonyms | CAS number | EC number | Concentration |
|---------------|---------------------------|------------|-----------|---------------|
| Phenytoin     | Phenytoin                 | 57-41-0    | 200-328-6 | 100%          |

# SECTION 4: First-aid measures

## 4.1 Description of necessary first-aid measures

### If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

## 4.2 Most important symptoms/effects, acute and delayed

**SYMPTOMS:** Symptoms of exposure to this compound include ataxia, nystagmus, fever, agranulocytosis, lupus erythematosus, epidermal necrolysis, pseudolymphoma, slurred speech, mental confusion, dizziness, insomnia, transient nervousness, headache, dyskinesias, chorea, dystonia, asterixis, polyneuropathy, nausea, vomiting, constipation, rash (scarlatiniform or morbilliform), dermatitis (bullous, exfoliative or purpuric), thrombocytopenia, leukopenia, granulocytopenia, pancytopenia with or without bone marrow suppression, macrocytosis, megaloblastic anemia, coarsening of the facial features, gingival hyperplasia, toxic hepatitis, respiratory depression, Stevens-Johnson syndrome, coma and death. Other symptoms include central nervous system effects such as depression and motor restlessness, allergic reactions, gastric distress, hirsutism and blood dyscrasias. Exposure can cause liver damage, kidney damage, adenopathy, aplastic anemia, pulmonary changes, lymph gland enlargement, cardiac irregularities, peripheral nerve damage, tremor, drug psychosis, rigidity and convulsions. Exposure can also cause motor twitchings, decreased coordination, enlargement of the lips, hypertrichosis, Peyronie's Disease, periarteritis nodosa, immunoglobulin abnormalities, dysarthria, hyperreflexia, lethargy, hypertension and circulatory depression. It may cause tenderness of the gums, rickets, reduced bone density, osteomalacia, polyarthropathy, hyperglycemia, erythema multiforme, hypotension, blurred vision, unsteady gait, facial changes, thickening of the skull, thickening of the heel pad, eosinophilia, hemolytic anemia, myasthenia gravis,

acquired hemophilia, leukemia, pulmonary function loss, decreased sexual potency and fertility, and cholestasis. It may also cause lymphadenopathy, lymphoma including Hodgkin's disease, hallucinations, excitation, cardiac arrhythmias, cerebellar-vestibular effects, behavioral changes, increased frequency of seizures, gastrointestinal symptoms, vertigo, mydriasis, hyperactivity, silliness, dullness, drowsiness, anorexia, inhibition of release of anti-diuretic hormone, glycosuria, hepatic necrosis, neutropenia and red-cell aplasia. Exposure may lead to blood changes, tumors of the skin and appendages, change in motor activity, degenerative brain changes and jaundice. It may also lead to diplopia, weakness of accommodation and convergence, stuporous mental state, mental disturbance, oscillopsia (very fine periodic dancing of the eyes vertically or horizontally), ophthalmoplegia and conjunctivitis. It can cause the eyes to be temporarily fixed in mid-position and can interfere with the vestibulo-ocular reflex arc. ACUTE/CHRONIC HAZARDS: This compound is harmful by ingestion, inhalation and skin absorption. It may cause irritation. When heated to decomposition it emits toxic fumes of carbon monoxide, carbon dioxide and nitrogen oxides. (NTP, 1992)

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

Maintain an open airway and assist ventilation if necessary. Administer supplemental oxygen. Treat stupor and coma if they occur. Protect the patient from self-injury caused by ataxia. If seizures occur, consider an alternate diagnosis and treat with other usual anticonvulsants. If hypotension occurs with intravenous phenytoin administration, immediately stop the infusion and administer intravenous fluids and pressors if necessary. There are no specific antidotes. Decontamination: administer activated charcoal orally if conditions are appropriate. Gastric lavage is not necessary after small to moderate ingestions if activated charcoal can be given promptly. Elimination: Repeat-dose activated charcoal may enhance phenytoin elimination but is not necessary and may increase the risk of aspiration pneumonia in drowsy patients. There is no role for diuresis, dialysis, or hemoperfusion.

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

### **5.1 Suitable extinguishing media**

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. A water spray may also be used. (NTP, 1992)

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

Flash point data for this chemical are not available; however, it is probably combustible. (NTP, 1992)

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

Wear self-contained breathing apparatus for firefighting if necessary.

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## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### **6.2 Environmental precautions**

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

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

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrestor (HEPA) or charcoal filters can be used to minimize amt of carcinogen in exhausted air ventilated safety cabinets, lab hoods, glove boxes or animal rooms ... Filter housing that is designed so that used filters can be transferred into plastic bag without contaminating maintenance staff is avail commercially. Filters should be placed in plastic bags immediately after removal ... The plastic bag should be sealed immediately ... The sealed bag should be labelled properly ... Waste liquids ... should be placed or collected in proper containers for

disposal. The lid should be secured & the bottles properly labelled. Once filled, bottles should be placed in plastic bag, so that outer surface ... is not contaminated ... The plastic bag should also be sealed & labelled. ... Broken glassware ... should be decontaminated by solvent extraction, by chemical destruction, or in specially designed incinerators. Chemical Carcinogens

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

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

PRECAUTIONS FOR "CARCINOGENS": Storage site should be as close as practical to lab in which carcinogens are to be used, so that only small quantities required for ... expt need to be carried. Carcinogens should be kept in only one section of cupboard, an explosion-proof refrigerator or freezer (depending on chemicophysical properties ...) that bears appropriate label. An inventory ... should be kept, showing quantity of carcinogen & date it was acquired ... Facilities for dispensing ... should be contiguous to storage area. Chemical Carcinogens

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

no data available

#### 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 tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### Skin protection

Wear fire/flare resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Thermal hazards

no data available

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

#### Physical state

PHYSICAL DESCRIPTION: Fine white or almost white crystalline powder. Odorless or almost odorless. Tasteless. (NTP, 1992)

#### Colour

Needles (alcohol)

|   |   |
|---|---|
| <b>Odour</b>  | Odorless                                      |
| <b>Melting point/freezing point</b>                             | 312°C(lit.)                                   |
| <b>Boiling point or initial boiling point and boiling range</b> | 121°C(lit.)                                   |
| <b>Flammability</b>   | no data available                             |
| <b>Lower and upper explosion limit/flammability limit</b>       | no data available                             |
| <b>Flash point</b>  | 0°C(lit.)                                     |
| <b>Auto-ignition temperature</b>                                | no data available                             |
| <b>Decomposition temperature</b>                                | no data available                             |
| <b>pH</b>   | no data available                             |
| <b>Kinematic viscosity</b>                                      | no data available                             |
| <b>Solubility</b>   | >37.8 [ug/mL]                                 |
| <b>Partition coefficient n-octanol/water</b>                    | no data available                             |
| <b>Vapour pressure</b>  | 1.2X10 <sup>-10</sup> mm Hg at 25 deg C (est) |
| <b>Density and/or relative density</b>                          | 1.257g/cm <sup>3</sup>                        |
| <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

no data available

### 10.2 Chemical stability

Sensitive to light

### 10.3 Possibility of hazardous reactions

PHENYTOIN is an amide. Amides/imides react with azo and diazo compounds to generate toxic gases. Flammable gases are formed by the reaction of organic amides/imides with strong reducing agents. Amides are very weak bases (weaker than water). Imides are less basic yet and in fact react with strong bases to form salts. That is, they can react as acids. Mixing amides with dehydrating agents such as P<sub>2</sub>O<sub>5</sub> or SOCl<sub>2</sub> generates the corresponding nitrile. The combustion of these compounds generates mixed oxides of nitrogen (NO<sub>x</sub>). This chemical is incompatible with strong oxidizers and strong bases. (NTP, 1992)

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

no data available

### 10.6 Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of /nitrogen oxides/.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral 1635 mg/kg
- 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**

Classification of carcinogenicity: 1) evidence in humans: inadequate; 2) evidence in animals: sufficient. Overall summary evaluation of carcinogenic risk to humans is Group 2B: The agent is possibly carcinogenic to humans.

**Reproductive toxicity**

no data available

**STOT-single exposure**

no data available

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

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**SECTION 12: Ecological information****12.1 Toxicity**

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**

An estimated BCF of 16 was calculated in fish for phenytoin(SRC), using a log Kow of 2.47(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

**12.4 Mobility in soil**

The Koc of phenytoin is estimated as 520(SRC), using a log Kow of 2.47(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that phenytoin is expected to have moderate mobility in soil.

**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: Not dangerous goods. (For reference only, please check.)      IMDG: Not dangerous goods. (For reference only, please check.)      IATA: Not dangerous goods. (For reference only, please check.)

### **14.2 UN Proper Shipping Name**

ADR/RID: Not dangerous goods. (For reference only, please check.)      IMDG: Not dangerous goods. (For reference only, please check.)      IATA: Not dangerous goods. (For reference only, please check.)

### **14.3 Transport hazard class(es)**

ADR/RID: Not dangerous goods. (For reference only, please check.)      IMDG: Not dangerous goods. (For reference only, please check.)      IATA: Not dangerous goods. (For reference only, please check.)

### **14.4 Packing group, if applicable**

ADR/RID: Not dangerous goods. (For reference only, please check.)      IMDG: Not dangerous goods. (For reference only, please check.)      IATA: Not dangerous goods. (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**

| <b>Chemical name</b>  | <b>Common names and synonyms</b> | <b>CAS number</b> | <b>EC number</b> |
|---|----------------------------------|-------------------|------------------|
| Phenytoin   | Phenytoin                        | 57-41-0           | 200-328-6        |
| <b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>   |                                  |                   | Listed.          |
| <b>EC Inventory</b>   |                                  |                   | Listed.          |
| <b>United States Toxic Substances Control Act (TSCA) Inventory</b>              |                                  |                   | Not Listed.      |
| <b>China Catalog of Hazardous chemicals 2015</b>                                |                                  |                   | Not Listed.      |
| <b>New Zealand Inventory of Chemicals (NZIoC)</b>                               |                                  |                   | Listed.          |
| <b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>       |                                  |                   | Listed.          |
| <b>Vietnam National Chemical Inventory</b>                                      |                                  |                   | Listed.          |
| <b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b> |                                  |                   | Listed.          |
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**SECTION 16: Other information**

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**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/>

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

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