# SECTION 1: Identification

## 1.1 GHS Product identifier

**Product name** Calcium cyanide

## 1.2 Other means of identification

**Product number** -
**Other names** Calcium cyanide (mixture); Cyanure de calcium; Cyanide of calcium

## 1.3 Recommended use of the chemical and restrictions on use

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

# SECTION 2: Hazard identification

## 2.1 Classification of the substance or mixture

Acute toxicity - Category 2, Oral
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

## 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**

**Signal word** Danger
**Hazard statement(s)** H300 Fatal if swallowed
H410 Very toxic to aquatic life with long lasting effects
**Precautionary statement(s)**
**Prevention** P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
**Response** P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P391 Collect spillage.
**Storage** 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 |
|---|---|---|---|---|
| Calcium cyanide | Calcium cyanide | 592-01-8 | 209-740-0 | 100% |

# SECTION 4: First-aid measures

## 4.1 Description of necessary first-aid measures

**If inhaled**

Fresh air, rest. Fresh air, rest. Artificial respiration may be needed. Refer for medical attention. See Notes.

**Following skin contact**

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention . Wear protective gloves when administering first aid. See Notes.

**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. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention . See Notes.

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

Inhalation or ingestion causes headache, nausea, vomiting and weakness; high concentrations are rapidly fatal. (USCG, 1999)

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

SRP: For patients treated with nitrites:/ Measurement of methemoglobin may be useful for assessing exposure. However, methemoglobin levels may be artificially low if not analyzed within a few hours after drawing the blood. Methemoglobin levels have been found to correlate with clinical symptoms in most cases. Cyanide

## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

Use powder, dry sand. NO hydrous agents. NO water. NO carbon dioxide.

### 5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Decomposes in fire to give very toxic gases, including hydrogen cyanide. (USCG, 1999)

### 5.3 Special protective actions for fire-fighters

Use powder, dry sand. NO hydrous agents. NO water. NO carbon dioxide.

## SECTION 6: Accidental release measures

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

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Do NOT wash away into sewer. Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations. Prevent contact with water or moist substances.

### 6.2 Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Do NOT wash away into sewer. Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations. Prevent contact with water or moist substances.

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

Environmental considerations - Water spill: Add dilute caustic soda. Add calcium hypochlorite. Adjust pH to neutral (pH= 7). Calcium cyanide, solid

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. NO contact with water, carbon dioxide or acids. NO contact with hot surfaces. 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

Fireproof. Provision to contain effluent from fire extinguishing. Separated from strong oxidants, acids and food and feedstuffs. Dry. Well closed.Store in cool, dry, well-ventilated location. Separate from acids, oxidizing materials.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Occupational Exposure limit values**

TLV: (ceiling value): 5 mg/m3 as STEL; (skin).MAK: (as CN): 2 mg/m3; peak limitation category: II(1); skin absorption (H); pregnancy risk group: C

**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 spectacles, face shield or eye protection in combination with breathing protection if powder.

**Skin protection**

Protective gloves. Protective clothing.

**Respiratory protection**

Use local exhaust or breathing protection.

**Thermal hazards**

no data available

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

| | |
|---|---|
| **Physical state** | Calcium cyanide is a white crystals or powder or gray-black powder (technical grade). Toxic by skin absorption through open wounds, by ingestion, and by inhalation. |
| **Colour** | Colorless crystals or white powder |
| **Odour** | Odor of hydrogen cyanide |
| **Melting point/freezing point** | 640ÂºC |
| **Boiling point or initial boiling point and boiling range** | 25.7ÂºC at 760 mmHg |
| **Flammability** | Not combustible but forms flammable gas on contact with water or damp air. Gives off irritating or toxic fumes (or gases) in a fire. |
| **Lower and upper explosion limit/flammability limit** | no data available |
| **Flash point** | >110Â°C |
| **Auto-ignition temperature** | no data available |
| **Decomposition temperature** | at >350Â°CÂ°C |
| **pH** | no data available |
| **Kinematic viscosity** | no data available |
| **Solubility** | Soluble in water with gradual liberation of HCN |
| **Partition coefficient n-octanol/water** | no data available |
| **Vapour pressure** | 740mmHg at 25Â°C |
| **Density and/or relative density** | 1.4014 |
| **Relative vapour density** | no data available |
| **Particle characteristics** | no data available |

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Decomposes above 350Â°C . This produces toxic fumes including nitrogen oxides and hydrogen cyanide. Reacts violently with water, moist air, carbon dioxide, acids and acid salts. This produces highly toxic and flammable hydrogen cyanide. Reacts violently with oxidizing substances when heated. This generates fire and explosion hazard.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

Not flammableCALCIUM CYANIDE gives weakly acidic solutions. Contact with acids causes rapid evolution of hydrogen cyanide. Incompatible with isocyanates, nitrides, and peroxides. May react rapidly with oxidizing agents.

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Reacts with water and acids evolving highly toxic hydrogen cyanide.

### 10.6 Hazardous decomposition products

Calcium cyanide is/ ... readily hydrolyzed liberating hydrogen cyanide.

## SECTION 11: Toxicological information

**Acute toxicity**

- Oral: LD50 Rat oral 22 mg CN-/kg as calcium cyanide
- 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**

no data available

**Reproductive toxicity**

no data available

**STOT-single exposure**

The substance is irritating to the eyes, skin and respiratory tract. The substance may cause effects on the intracellular oxygen metabolism. This may result in seizures and unconsciousness. Exposure could cause death.

**STOT-repeated exposure**

Repeated or prolonged contact with skin may cause dermatitis. Repeated or prolonged contact with skin may cause dermatitis.

**Aspiration hazard**

Evaporation at 20Â°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

## 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

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: UN1575 (For reference only, please check.) | IMDG: UN1575 (For reference only, please check.) | IATA: UN1575 (For reference only, please check.) |

### 14.2 UN Proper Shipping Name

| | | |
|---|---|---|
| ADR/RID: CALCIUM CYANIDE (For reference only, please check.) | IMDG: CALCIUM CYANIDE (For reference only, please check.) | IATA: CALCIUM CYANIDE (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: 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: Yes | IMDG: Yes | IATA: Yes |

### 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 |
|---|---|---|---|
| Calcium cyanide | Calcium cyanide | 592-01-8 | 209-740-0 |
| **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)** | | | Not Listed. |
| **Philippines Inventory of Chemicals and Chemical Substances (PICCS)** | | | Listed. |
| **Vietnam National Chemical Inventory** | | | Not Listed. |
| **Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)** | | | Not Listed. |
| **Korea Existing Chemicals List (KECL)** | | | Not Listed. |

## 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
- 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**

Depending on the degree of exposure, periodic medical examination is suggested.Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available.There is no odour warning even when toxic concentrations are present.Do NOT take working clothes home.