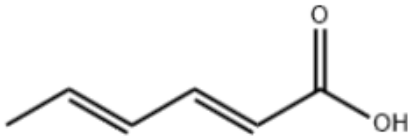
## According to the UN GHS revision 9

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

# SECTION 1: Identification

## 1.1 GHS Product identifier

MF:$C_6H_8O_2$




**Product name** Hexa-2,4-dienoic acid

## 1.2 Other means of identification

**Product number** -
**Other names** Sorbistat; 2,4-Hexadienoic acid; sorbic

## 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** Jiangxi LinQ Spices Co.,Ltd.
**Address** Building15#,Xinghai Gardon,TianLi Square,QingYuan District, Ji'An City,JiangXi Province
**Telephone** (+86)0796-8287629

# SECTION 2: Hazard identification

## 2.1 Classification of the substance or mixture

Skin irritation, Category 2
Eye irritation, Category 2
Specific target organ toxicity – single exposure, Category 3

## 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**

**Signal word** Warning
**Hazard statement(s)**
H315 Causes skin irritation
H319 Causes serious eye irritation
H335 May cause respiratory irritation

**Precautionary statement(s)**
**Prevention**
P264 Wash ... thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.

**Response**
P302+P352 IF ON SKIN: Wash with plenty of water/...
P321 Specific treatment (see ... on this label).
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.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P319 Get medical help if you feel unwell.

**Storage**
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
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 |
|---|---|---|---|---|
| Hexa-2,4-dienoic acid | Hexa-2,4-dienoic acid | 110-44-1 | 203-768-7 | 100% |

## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

**If inhaled**

Fresh air, rest.

**Following skin contact**

Remove contaminated clothes. Rinse and then wash skin with water and soap.

**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. Give one or two glasses of water to drink. Rest. Refer for medical attention .

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

SYMPTOMS: This compound may cause severe irritation. High concentrations are extremely destructive to tissues of the mucous membranes and upper respiratory tract, skin and eyes. The greatest danger from ingestion of large quantities of this compound (2 g/kg) is intestinal obstruction. Aspiration or inhalation could cause chemical pneumonitis. Implantation will cause a foreign body reaction. A case of contact sensitivity has been reported. ACUTE/CHRONIC HAZARDS: This compound is a severe irritant. It is harmful if swallowed or inhaled. High concentrations are extremely destructive to tissues of the mucous membranes and upper respiratory tract, skin and eyes. When heated to decomposition, this compound may emit toxic fumes of carbon monoxide and carbon dioxide. It may produce aldehydes. It may also emit acrid smoke and irritating fumes. (NTP, 1992)

### 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 if 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. Poisons A and B

## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

### 5.3 Special protective actions for fire-fighters

Use water in large amounts, water spray, foam.

## SECTION 6: Accidental release measures

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

Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water. Personal protection: P2 filter respirator for harmful particles.

### 6.2 Environmental precautions

Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water. Personal protection: P2 filter respirator for harmful particles.

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

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. Environmental precautions: Do not let product enter drains. 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.

## 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

Well closed.Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature 2 - 8 deg C. Storage class (TRGS 510): Non Combustible Solids.

## 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 safety spectacles or eye protection in combination with breathing protection.

**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** | Solid. Crystalline. |
| **Colour** | White. |
| **Odour** | Relatively odorless |
| **Melting point/freezing point** | > 120 - < 150 °C. Atm. press.:Ca. 1 013 hPa. |
| **Boiling point or initial boiling point and boiling range** | > 160 - < 260 °C. Atm. press.:Ca. 1 013 hPa. Remarks:A boiling point at atmospheric pressure does not exist. |
| **Flammability** | Combustible. |
| **Lower and upper explosion limit/flammability limit** | no data available |
| **Flash point** | 127°C |
| **Auto-ignition temperature** | > 402 °C. |
| **Decomposition temperature** | 228°C |
| **pH** | no data available |
| **Kinematic viscosity** | no data available |
| **Solubility** | less than 1 mg/mL at 68° F (NTP, 1992) |
| **Partition coefficient n-** | log Pow = 1.32. Remarks:20 ± 2 °C.;log Pow = -1.72. Remarks:20 ± 2 °C. |

| | |
|---|---|
| **octanol/water** | |
| **Vapour pressure** | 0 hPa. Temperature:20 °C. |
| **Density and/or relative density** | 1.201 - 1.203 g/cm³. Temperature:20 °C.;1.2. Temperature:20 °C. |
| **Relative vapour density** | 3.87 (NTP, 1992) (Relative to Air) |
| **Particle characteristics** | no data available |

# SECTION 10: Stability and reactivity

## 10.1 Reactivity

The solution in water is a weak acid.

## 10.2 Chemical stability

Stable under recommended storage conditions.

## 10.3 Possibility of hazardous reactions

Combustible when exposed to heat or flame.Dust explosion possible if in powder or granular form, mixed with air.SORBIC ACID may discolor on exposure to light. Can react with oxidizing agents. Also incompatible with bases and reducing agents. The dust may become explosive, particularly when mixed with free-radical initiators or oxidizing agents (NTP, 1992).

## 10.4 Conditions to avoid

no data available

## 10.5 Incompatible materials

Incompatible materials: Bases, oxidizing agents, reducing agents.

## 10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

# SECTION 11: Toxicological information

**Acute toxicity**

- Oral: LD50 - rat (male/female) - 10 500 mg/kg bw.
- Inhalation: no data available
- Dermal: LD50 - rat (male) - > 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**

no data available

**Reproductive toxicity**

no data available

**STOT-single exposure**

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

**STOT-repeated exposure**

Repeated or prolonged contact may cause skin sensitization.

**Aspiration hazard**

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

# SECTION 12: Ecological information

## 12.1 Toxicity

- Toxicity to fish: LC50 - Oryzias latipes - 75 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 70 mg/L - 48 h.
- Toxicity to algae: EC50 - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - 24.1 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - > 100 mg/L - 3 h. Remarks:Respiration rate.

## 12.2 Persistence and degradability

AEROBIC: Sorbic acid is readily degradable in soil(1). Sorbic acid also shows high degradability, 95% within 6 days, in the Zahn-Wellens test(1). 100% degradation of sorbic acid was observed after 3 days incubation in seawater taken from Akashi Beach, Japan and river water taken from the Mino River, Japan, using an initial sorbic acid concentration of 60 ppm(2). Sorbic acid, present at 100 mg/L, reached 83% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test which classified the compound as readily biodegradable(3). Sorbic acid was observed to biodegrade in soil suspensions(4). Sorbic acid (at 2 mg/L) was found to be readily biodegradable in an aerobic BOD test using domestic activated sludge with a 7-day theoretical BOD of 65.5% and a 28-day theoretical BOD of 74.9%(4).

## 12.3 Bioaccumulative potential

An estimated BCF value of 3 was calculated in fish for sorbic acid(SRC), using a log Kow of 1.33(1) and a recommended regression-derived equation(2). According to a classification scheme(3), this BCF value suggests that bioconcentration in aquatic organisms is low(SRC).

## 12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of sorbic acid can be estimated to be 9(SRC). According to a classification scheme(2), this estimated Koc value suggests that sorbic acid is expected to have very high mobility in soil. A Koc of less than 1 was estimated for sorbic using an HPLC method(3). The pKa of sorbic acid is 4.76(4), indicating that this compound will exist almost entirely in the anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(5).

## 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: 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

## 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 |
|---|---|---|---|
| Hexa-2,4-dienoic acid | Hexa-2,4-dienoic acid | 110-44-1 | 203-768-7 |
| **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** | | | Not 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
**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/