

# 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** 4-methylpent-3-en-2-one

### 1.2 Other means of identification

**Product number** -  
**Other names** Mesityl Oxide; 3-Penten-2-one, 4-methyl-; 4-methylpent-3-en-2-one

### 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).

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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Flammable liquids, Category 3  
Acute toxicity - Category 4, Oral  
Acute toxicity - Category 4, Dermal  
Acute toxicity - Category 4, Inhalation

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word** Warning  
**Hazard statement(s)** H226 Flammable liquid and vapour  
H302 Harmful if swallowed

H312 Harmful in contact with skin  
H332 Harmful if inhaled

**Precautionary statement(s)**

**Prevention**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P240 Ground and bond container and receiving equipment.  
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242 Use non-sparking tools.  
P243 Take action to prevent static discharges.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P264 Wash ... thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.

**Response**

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].  
P370+P378 In case of fire: Use ... to extinguish.  
P301+P317 IF SWALLOWED: Get medical help.  
P330 Rinse mouth.  
P302+P352 IF ON SKIN: Wash with plenty of water/...  
P317 Get medical help.  
P321 Specific treatment (see ... on this label).  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

**Storage**

P403+P235 Store in a well-ventilated place. Keep cool.

**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

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**SECTION 3: Composition/information on ingredients**

**3.1 Substances**

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
4-methylpent-3-en-2-one	4-methylpent-3-en-2-one	141-79-7	205-502-5	100%

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**SECTION 4: First-aid measures**

**4.1 Description of necessary first-aid measures**

**If inhaled**

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

**Following skin contact**

Remove contaminated clothes. Rinse and then wash skin with water and soap. 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. Give a slurry of activated charcoal in water to drink. Refer for medical attention .

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

Inhalation causes irritation of nose and throat, headache, dizziness, difficult breathing. Contact with liquid or concentrated vapor causes severe eye irritation. Liquid irritates skin. Ingestion causes irritation of mouth and stomach. (USCG, 1999)

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

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary ... Anticipate seizures and treat if necessary ... For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport ... Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Turpentine, terpenes, and related compounds

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

#### **5.1 Suitable extinguishing media**

Use dry chemical, foam, carbon dioxide, or water spray. Water may be ineffective. Use water spray to keep fire-exposed containers cool.

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

Behavior in Fire: Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back. (USCG, 1999)

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

Use alcohol-resistant foam, powder, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

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

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

Personal protection: self-contained breathing apparatus. Ventilation. Do NOT let this chemical enter the environment. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

#### **6.2 Environmental precautions**

Personal protection: self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

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

Eliminate all ignition sources. Stop or control the leak, if it can be done without undue risk. Use appropriate foam to blanket release and suppress vapors. Approach release from upwind. Absorb in noncombustible material for proper disposal.

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### **SECTION 7: Handling and storage**

#### **7.1 Precautions for safe handling**

NO open flames, NO sparks and NO smoking. Above 25°C use a closed system, ventilation and explosion-proof electrical equipment. 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. Separated from strong oxidants. Cool. Keep in the dark. Fireproof. Separated from strong oxidants. Cool. Keep in the dark.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

TLV: 15 ppm as TWA; 25 ppm as STEL. MAK: 8.1 mg/m<sup>3</sup>, 2 ppm; peak limitation category: I(2); skin absorption (H); pregnancy risk group: D

#### 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.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use ventilation, local exhaust or breathing protection.

#### Thermal hazards

no data available

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

<b>Physical state</b>	Liquid.
<b>Colour</b>	Colourless to light yellow liquid.
<b>Odour</b>	... spearmint ...
<b>Melting point/freezing point</b>	-41.5 °C
<b>Boiling point or initial boiling point and boiling range</b>	130.44 °C. Atm. press.:101.325 kPa. Remarks:Initial extrapolated temperature.;135.75 °C. Atm. press.:101.325 kPa. Remarks:Peak temperature.
<b>Flammability</b>	Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.
<b>Lower and upper explosion limit/flammability limit</b>	Lower flammable limit: 1.4% by volume; Upper flammable limit: 7.2% by volume
<b>Flash point</b>	25 °C. Atm. press.:101.3 kPa.
<b>Auto-ignition temperature</b>	335 °C. Atm. press.:1 013 hPa.
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	kinematic viscosity (in mm <sup>2</sup> /s) = 0.717. Temperature:20.15°C.;kinematic viscosity (in mm <sup>2</sup> /s) = 0.583. Temperature:40.15°C.
<b>Solubility</b>	Miscible with water
<b>Partition coefficient n-</b>	log Pow = 1.37.

<b>octanol/water</b>	
<b>Vapour pressure</b>	1 490 Pa. Temperature:20 °C.;1 931 Pa. Temperature:25 °C.
<b>Density and/or relative density</b>	0.859. Temperature:15 °C.
<b>Relative vapour density</b>	3.4 (Air = 1)
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

1400 ppm [Based on 10% of the lower explosive limit for safety considerations even though the relevant toxicological data indicated that irreversible health effects or impairment of escape existed only at higher concentrations.]  
The substance can presumably form explosive peroxides. Reacts violently with strong oxidants. Attacks many plastics.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

Flammable liquid. Mixing MESITYL OXIDE in equal molar proportions with any of the following substances in a closed container caused the temperature and pressure to increase: 2-aminoethanol, chlorosulfonic acid, ethylene diamine, nitric acid, oleum, or sulfuric acid [NFA 1991].

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Mixing mesityl oxide and 2-aminoethanol /or chlorosulfonic acid or ethylene diamine or nitric acid or oleum or sulfuric acid/ in closed container caused temp and pressure to incr.

### 10.6 Hazardous decomposition products

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

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 - rat (female) - 300 - 2 000 mg/kg bw.
- Inhalation: LC50 - rat (male) - 1 130 ppm.
- Dermal: LD50 - rabbit - 5 150 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. Exposure far above the OEL could cause unconsciousness. If swallowed the substance may cause vomiting and could result in aspiration pneumonitis.

### **STOT-repeated exposure**

The substance defats the skin, which may cause dryness or cracking. The substance may have effects on the liver, kidneys and lungs.

### **Aspiration hazard**

A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

- Toxicity to fish: LC50 - Danio rerio (previous name: Brachydanio rerio) - 72.93 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 89.1 mg/L - 48 h.
- Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - > 100 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**

AEROBIC: Using a standard BOD technique with sewage inoculum, a theoretical BOD of 74% was determined for mesityl oxide over a 5-day incubation period (1). Using a standard BOD technique with activated sewage sludge inoculum, a theoretical BOD of at least 30% was measured for mesityl oxide over a 14-day incubation period(2).

### **12.3 Bioaccumulative potential**

An estimated BCF of 1.9 was calculated in fish for mesityl oxide(SRC), using a water solubility of 28,900 mg/L(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 mesityl oxide is estimated as 15(SRC), using a water solubility of 28,900 mg/L(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that mesityl oxide is expected to have very high 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: UN1229 (For reference only, please check.)

IMDG: UN1229 (For reference only, please check.)

IATA: UN1229 (For reference only, please check.)

### 14.2 UN Proper Shipping Name

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

IMDG: MESITYL OXIDE (For reference only, please check.)

IATA: MESITYL OXIDE (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)

IMDG: 3 (For reference only, please check.)

IATA: 3 (For reference only, please check.)

### 14.4 Packing group, if applicable

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

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

IATA: III (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
4-methylpent-3-en-2-one	4-methylpent-3-en-2-one	141-79-7	205-502-5
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

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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](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

Other melting points: -59°C .Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is indicated. Check for peroxides prior to distillation; eliminate if found. Do NOT take working clothes home.

**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.*