

# SAFETY DATA SHEETS

According to the UN GHS revision 10

## 1: Identification

### 1.1 GHS Product identifier

Product name Mesityl oxide

### 1.2 Other means of identification

Product number 141-79-7

Other names Mesityl oxide

### 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 MolBest.com

Address MolBest.com

Telephone MolBest.com

### 1.5 Emergency phone number

Emergency phone number MolBest.com

Service hours MolBest.com

## 2: Hazard identification

### 2.1 Emergency Overview

Highly toxic substances, even small amounts of which can cause death or serious health effects. They can enter the body through inhalation, skin contact, or ingestion. Immediate protective measures must be taken to avoid any contact.

### 2.2 GHS Classification

Flammable liquids : Category 3

Acute toxicity, oral : Category 4

Acute toxicity, dermal : Category 4

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 2A

Acute toxicity, inhalation : Category 3

Acute toxicity, inhalation : Category 4

Specific target organ toxicity, single exposure; Respiratory tract irritation : Category 3

## 2.3 GHS label elements, including precautionary statements

### Pictogram(s)



### Signal word

Danger

### Hazard statement(s)

H226 Flammable liquid and vapor  
H302 Harmful if swallowed  
H312 Harmful in contact with skin  
H315 Causes skin irritation  
H319 Causes serious eye irritation  
H331 Toxic if inhaled  
H332 Harmful if inhaled  
H335 May cause respiratory irritation

### Precautionary statement(s)

#### Prevention

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264 Wash hands [and ...] thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P264+P265 Wash hands [and ...] thoroughly after handling. Do not touch eyes.

#### Response

P316 Get emergency medical help immediately.  
P317 Get emergency medical help.  
P319 Get medical help if you feel unwell.  
P321 Specific treatment (see ... on this label).  
P330 Rinse mouth.  
P301+P317 IF SWALLOWED, Get medical help.  
P302+P352 IF ON SKIN, wash with plenty of water/...  
P303+P361+P353 IF ON SKIN (or hair), Take off Immediately all contaminated clothing. Rinse SKIN with water [or shower].  
P304+P340 IF INHALED, Remove person to fresh air and keep comfortable for breathing.  
P305+P351+P338 IF IN EYES, Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.  
P332+P317 If skin irritation occurs, Get medical help.  
P337+P317 If eye irritation persists, Get medical help.  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P370+P378 In case of fire, Use ... to extinguish.

#### Storage

P405 Store locked up.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P403+P235 Store in a well-ventilated place. Keep cool.

**Disposal**

P501 Dispose of contents/container to ...

## 2.4 Physical and chemical

Some substances may also be flammable or corrosive. Mixing with other substances may produce toxic products. Highly volatile substances can form toxic vapor clouds, expanding the hazard range.

## 2.5 Health hazards

Acute toxicity, May cause respiratory failure, cardiac arrest, nervous system depression, or organ failure. Severe symptoms may appear within a short period of exposure (minutes to hours). Long-term effects may include permanent organ damage.

## 2.6 Environmental hazards

It is extremely toxic to aquatic organisms and terrestrial ecosystems, and even a small release can cause large-scale biological mortality. It may persist in the environment and accumulate through the food chain, causing long-term damage to ecosystems.

## 2.7 Other hazards which do not result in classification

no data available

# 3: Composition/information on ingredients

## 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Mesityl oxide	Mesityl oxide	141-79-7	205-502-5	99%

# 4: First-aid measures

## 4.1 General advice

Stop contact immediately and move to a safe area; bring the material SDS document and call emergency services immediately; record the route of exposure (inhalation/skin/ingestion), exposure time and dosage for the doctor's judgment.

## 4.2 If inhaled

Quickly transfer the patient to a place with fresh air, keep the patient lying flat with the head tilted to one side (to prevent suffocation by vomitus); if cyanosis or breathing difficulties occur, immediately give oxygen (flow rate 5-10L/min); it is strictly forbidden to feed/drink water to the unconscious person, and seek medical attention immediately.

## 4.3 In case of skin contact

Immediately remove contaminated clothing (if clothing is stuck to the skin, cut it with scissors to avoid tearing it). Rinse the affected area with plenty of running water for 20-30 minutes (the water temperature

should be around 37°C, avoiding excessive heat or cold). If the skin is damaged, cover it with sterile gauze after rinsing. Do not apply ointment.

#### **4.4 In case of eye contact**

Immediately flush with an eyewash station for 15 minutes (open the eyelids to ensure thorough flushing of the upper and lower fornixes); wear a light-shielding eye mask after flushing to avoid strong light stimulation, and immediately seek medical attention from an ophthalmologist (bring along the substance SDS).

#### **4.5 If swallowed**

Self-induced vomiting is strictly prohibited (especially with corrosive and toxic substances, which may cause secondary burns to the esophagus). If the patient is conscious and not convulsing, they can drink 50-100ml of milk under the guidance of a doctor (to protect the gastric mucosa).

#### **4.6 Most important symptoms and effects, both acute and delayed**

Acute symptoms: nausea and vomiting, abdominal pain, dyspnea, convulsions, confusion, and decreased blood pressure; delayed symptoms: liver and kidney damage (appearing within 24-72 hours), methemoglobinemia (such as nitrite poisoning).

#### **4.7 Protection of first-aiders**

Rescuers must wear fully enclosed chemical protective clothing, a gas mask (with a targeted gas filter cartridge, such as for organic vapors and acid gases), and chemical protective gloves; avoid direct contact with the patient's vomitus/secretions, and wash hands immediately with chlorine-containing disinfectant after contact.

#### **4.8 Notes to physician**

Inform the physician of the substance's toxicity (e.g., oral LD50 = 5 mg/kg) and route of exposure; prioritize gastric lavage (physician evaluation required for appropriateness) and administer antidotes (e.g., atropine for organophosphate poisoning); monitor liver and kidney function, electrolytes, and coagulation function.

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

### **5.1 Unsuitable extinguishing media**

It is strictly forbidden to use fire extinguishing agents that may cause the spread of toxic substances (such as high-pressure water jets); if flammable liquids are involved, avoid using carbon dioxide (which may cause toxic vapor condensation).

### **5.2 Specific hazards during fire fighting**

Combustion may be accompanied by the release of highly toxic substances (such as cyanide and arsenide), which are fatal by inhalation or skin contact; the combustion of flammable components can easily cause explosions and intensify the spread of toxic substances; toxic vapors are heavier than air and tend to accumulate in low-lying areas.

### **5.3 Hazardous combustion products**

Highly toxic gases (such as hydrogen chloride, hydrogen fluoride, phosgene), carbon monoxide, nitrogen oxides; some contain heavy metal components that release toxic fumes such as mercury and lead.

## **5.4 Specific extinguishing methods**

For small areas: use dry powder fire extinguishing agent to extinguish the fire, and dilute the toxic vapor with mist water (avoid direct spraying); for large areas: give priority to evacuation. If fire extinguishing is necessary, set up a fire extinguishing point upwind and cover it with foam (to isolate oxygen); after extinguishing the fire, test the area for toxicity concentration (entry is allowed only when the value is below MAC).

## **5.5 Special protective equipment for fire-fighters**

Wear fully enclosed chemical protective clothing, gas masks (with targeted gas filter boxes, such as organic vapor + acidic gas), and chemical protective gloves (made of fluororubber); carry a portable toxic gas detector; equipment must be disinfected after the operation, and personnel must undergo health monitoring.

# **6: Accidental release measures**

## **6.1 Protective measures for workers**

Wear fully enclosed chemical protective clothing, positive pressure air respirator, chemical protective gloves (toxic-resistant type) and goggles; avoid direct contact with the skin and wash immediately after work.

## **6.2 Environmental protection measure**

Isolate the 30-meter contaminated area to prevent the leak from spreading through rainwater/groundwater; take samples of water/soil for testing, and use activated carbon adsorption (organic poison) or neutralizer (inorganic poison) for treatment when exceeding the standard; strictly prohibit the leak from entering the drinking water source.

## **6.3 Containment methods for leaked chemicals**

Collect liquids in corrosion-resistant sealed containers (marked with "toxic substances"); collect solids in chemical-resistant bags (to avoid dust); and store them separately in a hazardous waste warehouse after collection, away from food/feed.

## **6.4 Cleanup methods for chemical spills**

Small leakage: absorb with special absorbent cotton (toxic-resistant) and put into chemical-proof bag; large leakage: professionals use chemical-proof pump to transfer to special storage tank; after cleaning, treat the ground with neutralizer (weak base for acid poison and weak acid for alkali poison).

## **6.5 Measures to prevent the spread of leaks**

Set up a 30-meter isolation zone and prohibit unauthorized personnel from entering; volatile toxic substances require explosion-proof ventilation to reduce gas concentration; use chemical defense isolation belts to block them, and focus on monitoring low-lying areas (to prevent the accumulation of toxic substances).

## **6.6 Container leakage treatment**

Minor leaks: Seal with compatible sealant; Serious leaks: Evacuate immediately, close the upstream valve (if safe), and have the toxic material disposal team handle it. It is strictly forbidden to open the container without authorization.

## 6.7 Special considerations

Workers must receive poisoning first aid training and carry antidotes (if applicable). In case of skin contact, flush immediately with plenty of water for 15 minutes. In case of inhalation poisoning, move immediately to fresh air and seek medical attention.

## 7: Handling and storage

### 7.1 Safe storage conditions

Store in a closed, impermeable dedicated warehouse (the walls are made of anti-corrosion materials, such as polyethylene coating); the container is made of corrosion-resistant material (such as polytetrafluoroethylene, glass-lined steel), with a double sealing cover (threaded cover + nitrile rubber sealing ring); the warehouse is equipped with a negative pressure ventilation system (air changes ? 8 times/hour), and the exhaust gas must be treated with activated carbon adsorption (adsorption efficiency ? 95%).

### 7.2 Storage precautions

Store them separately from food, feed, and medicine (isolation distance ? 3 meters), and strictly prohibit them from being adjacent to drinking water sources; clearly mark "highly toxic" and H code on container labels and store them separately on locked shelves; check the sealing of containers weekly and immediately transfer them to the emergency treatment area if any leakage is found; workers must wear fully enclosed chemical protective clothing before entering the warehouse.

### 7.3 VCI Storage Grade

Level 1 (highest): The inner wall of the metal container is coated with a VCI anti-rust coating (thickness ? 50?m), and the outer surface of the container is wrapped with a vapor phase anti-rust film; the concentration of toxic substances in the warehouse is tested monthly to ensure that it is lower than the MAC value (for example, MAC of oral toxic substances ? 0.1mg/m<sup>3</sup>).

### 7.4 Recommended storage temperature

10-30?, avoid extreme temperatures (below 0? or above 35?); volatile toxic substances must be kept at a temperature ?25? to reduce vapor release; refrigerated storage substances (such as certain biotoxins) must be maintained at 2-8? and equipped with dual power supply protection (if the label has a recommended storage temperature, the label shall prevail).

### 7.5 Handling

For precautions see Safety Data Sheet section 2

Advice on safe handling : Work under hood. Do not inhale substance/mixture.

## 8: Exposure controls/personal protection

## 8.1 Respiratory protection

Choose according to the exposure route: volatile substances require positive pressure air respirators; dust/aerosols require powered air-purifying respirators to ensure the protection factor (APF)  $\geq 1000$ .

## 8.2 Recommended Filter type

For organic toxic substances, choose Type A filter cartridge (to protect against organic vapors, such as benzene and methanol); for inorganic toxic substances, choose Type B (to protect against ammonia) or Type E (to protect against acidic gases, such as hydrogen chloride); for dust, add Type P3 filter cotton.

## 8.3 Eye/face protection

Wear a full-face chemical protective mask. The mask material must be resistant to toxic penetration (such as fluororubber), and the lens must be anti-fog and anti-chemical corrosion.

## 8.4 Skin and body protection

Wear fully enclosed chemical protective clothing. The material must be compatible with toxic substances (such as polyethylene + neoprene composite material); the cuffs and ankles must be tightened and equipped with emergency escape zippers.

## 8.5 Hand protection

Wear toxic and chemical-resistant gloves, preferably made of fluororubber or butyl rubber, with a length of  $\geq 30$  cm, covering the forearm, and change every 4 hours

## 8.6 Hygiene measures

Immediately after the operation, clean the skin with a special detergent (such as a weak alkaline detergent), and then rinse with running water for 15 minutes; clothes need to be disinfected at high temperature (above  $60^{\circ}\text{C}$ ) before washing; regular physical examinations (blood routine, liver and kidney function tests every 3 months).

# 9: Physical and chemical properties and safety characteristics

<b>Physical state</b>	COLOURLESS VISCOUS LIQUID, WITH CHARACTERISTIC ODOUR. DARKENS ON STANDING
<b>Colour</b>	Oily, colorless to light-yellow liquid
<b>Odour</b>	... spearmint ...
<b>Melting point/freezing point</b>	$247^{\circ}\text{C}$ (lit.)
<b>Boiling point or initial boiling point and boiling range</b>	$130^{\circ}\text{C}$
<b>Flammability</b>	Class IC Flammable Liquid: Fl.P. at or above $22.78^{\circ}\text{C}$ and below $37.78^{\circ}\text{C}$ .Flammable.
<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>	27°C(lit.)
<b>Auto-ignition temperature</b>	344.44°C (USCG, 1999)
<b>Decomposition temperature</b>	When heated to decomposition it emits acrid smoke and irritating fumes.
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	0.0060 cP at 20°C
<b>Solubility</b>	3 % (NIOSH, 2016)
<b>Partition coefficient n-octanol/water</b>	log Kow = 1.37 (est)
<b>Vapour pressure</b>	8.76mmHg at 25°C
<b>Density and/or relative density</b>	0.854
<b>Relative vapour density</b>	3.4 (Air = 1)
<b>Particle characteristics</b>	no data available

## 10: Stability and reactivity

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 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 [NFPA 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 acrid smoke and irritating fumes.



## **11: Toxicological information**

### **11.1 Acute toxicity**

Oral: LD50 Rat oral 655 mg/kg  
Inhalation: LC50 Rat inhalation 1130 ppm/4 hr  
Dermal: no data available

### **11.2 Skin corrosion/irritation**

no data available

### **11.3 Serious eye damage/irritation**

no data available

### **11.4 Respiratory or skin sensitization**

no data available

### **11.5 Germ cell mutagenicity**

no data available

### **11.6 Carcinogenicity**

no data available

### **11.7 Reproductive toxicity**

no data available

### **11.8 STOT-single exposure**

no data available

### **11.9 STOT-repeated exposure**

no data available

### **11.10 Aspiration hazard**

no data available

## **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

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

# 13: Disposal considerations

## 13.1 Disposal methods for waste chemicals

This must be handled by a qualified unit that handles highly toxic waste, using high-temperature incineration (800-1000°C) or chemical neutralization (such as oxidative decomposition) to completely destroy the toxicity. Liquid highly toxic substances must be solidified before incineration. Those that cannot be incinerated must be stabilized/solidified before being safely landfilled.

## 13.2 Precautions

Disposal personnel must wear fully enclosed chemical protective suits and positive pressure respirators; waste must be strictly classified and packaged to prevent leakage; exhaust gas and wastewater generated during the disposal process must meet discharge standards; mixing with other types of waste is prohibited; and disposal records must be kept for at least 10 years for traceability.

# 14: Transport information

## 14.1 UN Number

ADR/RID: UN1229

IMDG: UN1229

IATA: UN1229

## 14.2 UN Proper Shipping Name

ADR/RID: MESITYL OXIDE

IMDG: MESITYL OXIDE

IATA: MESITYL OXIDE

### 14.3 Transport hazard class(es)

ADR/RID: 3

IMDG: 3

IATA: 3

### 14.4 Packing group, if applicable

ADR/RID: III

IMDG: III

IATA: III

### 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

## 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
Mesityl oxide	Mesityl oxide	141-79-7	205-502-5
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Not Listed.
Australian Inventory of Industrial Chemicals (AIIC)			Not Listed.
Catalogue of Strictly Restricted Toxic Chemicals in China			Not Listed.
China Catalog of Hazardous chemicals 2015			Listed.
European INventory of Existing Commercial chemical Substances			Not Listed.
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans			Not Listed.
TSCA Inventory of Chemical Substances			Listed.

## 16: Other information

#### Information on revision

SDS Creation Date July 1, 2025

SDS Revision Date July 1, 2025

#### Abbreviations and acronyms in SDS

- 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%

### SDS 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 Safety Data Sheet, Please send your inquiry to [info@MolBest.com](mailto:info@MolBest.com)**

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