

## Chemical Safety Data Sheet MSDS / SDS

**methoxyflurane**

Revision Date:2025-02-01 Revision Number:1

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : methoxyflurane  
CBnumber : CB6314297  
CAS : 76-38-0  
EINECS Number : 200-956-0  
Synonyms : MOF, methoxyflurane

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

**SECTION 2: Hazards identification****Classification of the substance or mixture**

Not classified.

**Label elements****Pictogram(s)**

Signal word : Warning

**Hazard statement(s)**

H226 Flammable liquid and vapour  
H319 Causes serious eye irritation  
H341 Suspected of causing genetic defects

**Precautionary statement(s)**

P201 Obtain special instructions before use.  
P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.  
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P405 Store locked up.

**Prevention**

none

**Response**

none

**Storage**

none

**Disposal**

none

**Other hazards**

no data available

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## SECTION 3: Composition/information on ingredients

**Substance**

Product name	: methoxyflurane
Synonyms	: MOF, methoxyflurane
CAS	: 76-38-0
EC number	: 200-956-0
MF	: C <sub>3</sub> H <sub>4</sub> Cl <sub>2</sub> F <sub>2</sub> O
MW	: 164.97

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## SECTION 4: First aid measures

**Description of first aid measures**

**If inhaled**

Fresh air, rest.

**Following skin contact**

Rinse skin with plenty of water or shower.

**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. Refer for medical attention .

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

Exposure Routes: inhalation, ingestion, skin and/or eye contact Symptoms: Irritation eyes; central nervous system depression, analgesia, anesthesia, convulsions, respiratory depression; liver, kidney injury Target Organs: Eyes, central nervous system, liver, kidneys, reproductive system (NIOSH, 2016)

**Indication of any immediate medical attention and special treatment needed**

## Absorption, Distribution and Excretion

Elimination: Primary: 35% excreted unchanged by exhalation.

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## SECTION 5: Firefighting measures

### Extinguishing media

Fires involving this compound can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

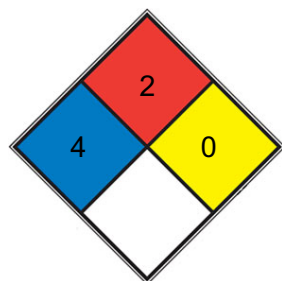
### Specific Hazards Arising from the Chemical

This chemical is combustible. (NTP, 1992)

### Advice for firefighters

Use water spray, powder, foam, carbon dioxide.

### NFPA 704



■ HEALTH 4

Very short exposure could cause death or major residual injury (e.g. hydrogen cyanide, phosgene, methyl isocyanate, [hydrofluoric acid](#))

■ FIRE 2

Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur and multiple finely divided suspended solids that do not require heating before ignition can occur. Flash point between 37.8 and 93.3 °C (100 and 200 °F). (e.g. diesel fuel, [sulfur](#))

■ REACT 0

Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N<sub>2</sub>](#))

□ SPEC.

□ HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable metal containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable metal containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose

of according to local regulations.

### Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## SECTION 7: Handling and storage

### Precautions for safe handling

NO open flames. Above 63°C use a closed system and ventilation. 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.

### Conditions for safe storage, including any incompatibilities

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Occupational Exposure limit values

Component	Methoxyflurane			
CAS No.	76-38-0			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Austria	2	14	4	28
Canada - Ontario	2	13	?	?
Denmark	2	14	4	28
USA - NIOSH	?	?	2 (1)	13,5 (1)
	Remarks			
USA - NIOSH	(1) Ceiling limit value			

#### Biological limit values

no data available

### Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### Individual protection measures

#### Eye/face protection

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

#### Skin protection

Protective gloves.

#### Respiratory protection

Use ventilation, local exhaust or breathing protection.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state	PHYSICAL DESCRIPTION: Clear colorless liquid with a sweet fruity odor. (NTP, 1992)
Colour	Liquid
Odour	Fruity
Melting point/freezing point	-36°C
Boiling point or initial boiling point and boiling range	103°C
Flammability	Combustible Liquid
Lower and upper explosion limit/flammability limit	no data available
Flash point	63°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	less than 1 mg/mL at 66° F (NTP, 1992)
Partition coefficient n-octanol/water	2.21
Vapour pressure	20 mm Hg at 63.9° F ; 22.5 mm Hg at 68° F (NTP, 1992)
Density and/or relative density	1.44
Relative vapour density	(air = 1): 5.7
Particle characteristics	no data available

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## SECTION 10: Stability and reactivity

### Reactivity

Decomposes on burning. This produces toxic fumes of hydrogen chloride and hydrogen fluoride. Attacks some forms of plastic and rubber.

### Chemical stability

no data available

### Possibility of hazardous reactions

METHOXYFLURANE may be sensitive to prolonged exposure to light.

### Conditions to avoid

no data available

### **Incompatible materials**

STABILITY: This compound may be sensitive to prolonged exposure to light. Solutions of this compound in water, DMSO, 95% ethanol or acetone should be stable for 24 hours under normal laboratory conditions. (NTP, 1992)

### **Hazardous decomposition products**

no data available

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## SECTION 11: Toxicological information

### **Acute toxicity**

- Oral: no data available
- 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**

Exposure at high levels could cause unconsciousness.

### **STOT-repeated exposure**

The substance may have effects on the kidneys. This may result in kidney impairment.

### **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.

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## SECTION 12: Ecological information

## 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

## Persistence and degradability

no data available

## Bioaccumulative potential

An estimated BCF of 10 was calculated for methoxyflurane(SRC), using a log Kow of 2.21(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).

## Mobility in soil

The Koc of methoxyflurane is estimated as 380(SRC), using a log Kow of 2.21(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that methoxyflurane is expected to have moderate mobility in soil.

## Other adverse effects

no data available

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# SECTION 13: Disposal considerations

## 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

## UN Number

ADR/RID: UN3271 (For reference only, please check.)

IMDG: UN3271 (For reference only, please check.)

IATA: UN3271 (For reference only, please check.)

## UN Proper Shipping Name

ADR/RID: ETHERS, N.O.S. (For reference only, please check.)

IMDG: ETHERS, N.O.S. (For reference only, please check.)

IATA: ETHERS, N.O.S. (For reference only, please check.)

### **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.)

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

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

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

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

### **Environmental hazards**

ADR/RID: No

IMDG: No

IATA: No

### **Special precautions for user**

no data available

### **Transport in bulk according to IMO instruments**

no data available

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## **SECTION 15: Regulatory information**

### **Safety, health and environmental regulations specific for the product in question**

#### **European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

#### **EC Inventory**

Listed.

#### **United States Toxic Substances Control Act (TSCA) Inventory**

Not Listed.

#### **China Catalog of Hazardous chemicals 2015**

Not Listed.

#### **New Zealand Inventory of Chemicals (NZIoC)**

Not Listed.

#### **PICCS**

Not Listed.

#### **Vietnam National Chemical Inventory**

Listed.

#### **IECSC**

Not Listed.

#### **Korea Existing Chemicals List (KECL)**

Not Listed.



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## SECTION 16: Other information

### 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?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=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/>

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.