

# SAFETY DATA SHEETS

According to the UN GHS revision 8

Version: 1.0

Creation Date: July 15, 2019

Revision Date: July 15, 2019



YATAI CHEMICAL CORP

## 1. SECTION 1: Identification

### 1.1. GHS Product identifier

Product name Diisopropyl ether

### 1.2. Other means of identification

Other names izopropylowyeter; Isopropyl oxide; Ether, isopropyl

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

Identified uses Food Additives: EXTRACTION\_SOLVENT

Uses advised against no data available

### 1.4. Supplier's details

Company Yatai Chemical Corp

Address Room 20A5, No.585, Longhua West Road,  
Shanghai, China

Telephone 0086-21-64563115

### 1.5. Emergency phone number

Emergency phone number 0086-21-64563115

Service hours Monday to Friday, 9am-5pm (Standard time zone:  
UTC/GMT +8 hours).

## 2. SECTION 2: Hazard identification

### 2.1. Classification of the substance or mixture

Flammable liquids, Category 2

Specific target organ toxicity – single exposure, Category 3

### 2.2. GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour  
H336 May cause drowsiness or dizziness

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

<b>Response</b>	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/...P261 Avoid breathing dust/fume/gas/mist/vapours/spray.P271 Use only outdoors or in a well-ventilated area. 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.P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.P319 Get medical help if you feel unwell.
<b>Storage</b>	P403+P235 Store in a well-ventilated place. Keep cool.P403+P233 Store in a well-ventilated place. Keep container tightly closed.P405 Store locked up.
<b>Disposal</b>	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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### **3. SECTION 3: Composition/information on ingredients**

#### **3.1. Substances**

<b>Chemical name</b>	<b>Common names and synonyms</b>	<b>CAS number</b>	<b>EC number</b>	<b>Concentration</b>
Diisopropyl ether	Diisopropyl ether	108-20-3	203-560-6	100%

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### **4. SECTION 4: First-aid measures**

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

Medical attention is required. Consult a doctor. Show this safety data sheet (SDS) to the doctor in attendance.

**If inhaled**

Fresh air, rest. Refer for medical attention.

**Following skin contact**

Remove contaminated clothes. 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. Rest. Refer for medical attention .

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

Inhalation causes anesthesia, nausea, headache, dizziness, and irritation of the eyes and nose. Contact of liquid with eyes causes only minor injury; repeated contact with skin will remove natural oils and may cause dermatitis. (USCG, 1999)

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

Basic treatment: Establish a patent airway. 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. Provide a low-stimulus environment. Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline 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 . Treat frostbite by rapid rewarming . Ethers and related compounds

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

**5.1. Suitable extinguishing media**

Alcohol foam, CO<sub>2</sub>, foam, dry chemical.

**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. Containers may explode when heated. (USCG, 1999)

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

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

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**6. SECTION 6: Accidental release measures**

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

Evacuate danger area! Consult an expert! Personal protection: self-contained breathing apparatus. Ventilation. 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. Do NOT wash away into sewer.

**6.2. Environmental precautions**

Evacuate danger area! Consult an expert! Personal protection: self-contained breathing apparatus. Ventilation. 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. Do NOT wash away into sewer.

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

1. Remove all ignition sources. 2. Ventilate area of spill or leak. 3. For small quantities, absorb on paper towels. Evaporate in a safe place (such as fume hood). Allow sufficient time for evaporating vapors to completely clear the hood ductwork. Burn the paper in a suitable location away from combustible materials. Large quantities can be reclaimed or collected and atomized in a suitable combustion chamber.

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

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

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding).

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. Cool. Keep in the dark. Keep in a well-ventilated room. Store only if stabilized. Store in cool, dry, well-ventilated location. Separate from acids & oxidizing materials.

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## **8. SECTION 8: Exposure controls/personal protection**

### **8.1. Control parameters**

#### **Occupational Exposure limit values**

TLV: 250 ppm as TWA; 310 ppm as STEL. MAK: 850 mg/m<sup>3</sup>, 200 ppm; peak limitation category: I(2); 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.

#### **Skin protection**

Protective gloves.

#### **Respiratory protection**

Use ventilation, local exhaust or breathing protection.

#### **Thermal hazards**

no data available

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

<b>Physical state</b>	Liquid.
<b>Colour</b>	Colourless.
<b>Odour</b>	Sweet, slightly sharp, pungent like camphor and ethyl ether
<b>Melting point/freezing point</b>	-85.89 °C.
<b>Boiling point or initial boiling point and boiling range</b>	68.2°C. Atm. press.:Not reported.
<b>Flammability</b>	Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
<b>Lower and upper explosion limit/flammability limit</b>	LOWER 1.4%, UPPER 7.9%
<b>Flash point</b>	-28 °C. Atm. press.:No data.
<b>Auto-ignition temperature</b>	415 °C. Atm. press.:1 019 hPa.
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	dynamic viscosity (in mPa s) = 0.331. Temperature:20°C.;dynamic viscosity (in mPa s) = 0.247. Temperature:40°C.
<b>Solubility</b>	Partially miscible with water
<b>Partition coefficient n-octanol/water</b>	log Pow = 2.4. Temperature:20 °C. Remarks:Temperature not mentioned in report but derived from other reports, generated in same laboratory.
<b>Vapour pressure</b>	198.65 hPa. Temperature:25 °C.
<b>Density and/or relative density</b>	692.22 kg/m <sup>3</sup> . Temperature:50°C.;723.32 kg/m <sup>3</sup> . Temperature:20°C.
<b>Relative vapour density</b>	3.5 (vs air)
<b>Particle characteristics</b>	no data available

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## 10. 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 readily form explosive peroxides if unstabilized and explode on shaking.

### 10.2. Chemical stability

Keeping ethers from becoming anhydrous plus the addition of antioxidants will help reduce this explosion hazard.

### **10.3. Possibility of hazardous reactions**

FLAMMABLE LIQUID. The vapour is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated. Ethers, such as DIISOPROPYL ETHER, can act as bases. They form salts with strong acids and addition complexes with Lewis acids. The complex between diethyl ether and boron trifluoride is an example. Ethers may react violently with strong oxidizing agents. In other reactions, which typically involve the breaking of the carbon-oxygen bond, ethers are relatively inert. Mixing diisopropyl ether in equal molar portions with any of the following substances in a closed container caused the temperature and pressure to increase: chlorosulfonic acid, nitric acid, [NFPA 1991].

### **10.4. Conditions to avoid**

no data available

### **10.5. Incompatible materials**

Mixing diisopropyl ether and chlorosulfonic acid in a closed container caused the temp and pressure to incr. Mixing diisopropyl ether and 70% nitric acid in a closed container caused the temp and pressure to increase.

### **10.6. Hazardous decomposition products**

When heated to decomposition it emits acrid smoke and fumes.

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## **11. SECTION 11: Toxicological information**

### **Acute toxicity**

- Oral: no data available
- Inhalation: no LD50 reported - monkey.
- Dermal: LD50 - rabbit - > 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. The substance may cause effects on the central nervous system. Exposure above the OEL could cause lowering of consciousness.

### **STOT-repeated exposure**

Repeated or prolonged contact with skin may cause dermatitis.

### **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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## **12. SECTION 12: Ecological information**

### **12.1. Toxicity**

- Toxicity to fish: TLm = median tolerance limit (the concentration at which 50% animals survive) - *Carassius auratus* - 380 mg/L - 24 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 190 mg/L - 48 h.
- Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - > 1 000 mg/L - 96 h.
- Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - 3 155 mg/L - 3 h. Remarks:Respiration rate.

### **12.2. Persistence and degradability**

No data concerning the biodegradation of isopropyl ether in environmental media were located. An activated sludge aqueous screening study found that the compound was biodegraded slowly after a 15 day lag period with a 25% theoretical biological oxygen demand being measured after 25 days incubation(1). A screening test study utilizing a sewage inoculum also indicated slow biodegradation as indicated by the 7% theoretical biological oxygen demand which was measured after 5 days(2). These screening test results suggest that isopropyl ether may be resistant to biodegradation in the environment(SRC). Many ethers are known to be resistant to biodegradation(3).

### **12.3. Bioaccumulative potential**

An estimated BCF of 8 was calculated for isopropyl ether(SRC), using a log Kow of 1.52(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 isopropyl ether is estimated as approximately 160(SRC), using a log Kow of 1.52(1) and a regression-derived equation(2,SRC). According to a classification scheme(3), this estimated Koc value suggests that isopropyl ether is expected to have high mobility in soil(SRC).

### **12.5. Other adverse effects**

no data available

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## **13. 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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## **14. SECTION 14: Transport information**

### **14.1. UN Number**

ADR/RID: UN1159 (For reference only, please check.)

IMDG: UN1159 (For reference only, please check.)

IATA: UN1159 (For reference only, please check.)

### **14.2. UN Proper Shipping Name**

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

IMDG: DIISOPROPYL  
ETHER (For reference only, please check.)

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

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

IATA: II (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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## **15. SECTION 15: Regulatory information**

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

<b>Chemical name</b>	<b>Common names and synonyms</b>	<b>CAS number</b>	<b>EC number</b>
Diisopropyl ether	Diisopropyl ether	108-20-3	203-560-6
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA) Inventory</b>			Listed.



<b>China Catalog of Hazardous chemicals 2015</b>	Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>	Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>	Listed.
<b>Vietnam National Chemical Inventory</b>	Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECS)</b>	Listed.
<b>Korea Existing Chemicals List (KECL)</b>	Listed.

## 16. 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](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

Usually contains p-benzylaminophenol as stabilizer. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Check for peroxides prior to distillation; eliminate if found.

**Any questions regarding this SDS, Please send your inquiry to [ydcl@yataichemical.com](mailto:ydcl@yataichemical.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.*