

# SAFETY DATA SHEETS

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

**Product name** 1,1-diethoxyethane

### 1.2 Other means of identification

**Product number** -  
**Other names** Decanal diethyl acetal; Decane,1,1-diethoxy; 1,1-diethoxy-decane

### 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 Yansheng Internet Technology Co., Ltd  
**Address** 513, A3 / F, green space future center, Fengxian District, Shanghai, 201400, China  
**Telephone** +86-4000-6969-66

### 1.5 Emergency phone number

**Emergency phone number** +86-4000-6969-66  
**Service hours** Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Flammable liquids, Category 2  
Skin irritation, Category 2  
Eye irritation, Category 2

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word** Danger  
**Hazard statement(s)** H225 Highly flammable liquid and vapour  
H315 Causes skin irritation  
H319 Causes serious eye irritation

**Precautionary statement(s)**  
**Prevention** P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

<b>Response</b>	<p>P233 Keep container tightly closed.</p> <p>P240 Ground and bond container and receiving equipment.</p> <p>P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.</p> <p>P242 Use non-sparking tools.</p> <p>P243 Take action to prevent static discharges.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...</p> <p>P264 Wash ... thoroughly after handling.</p> <p>P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].</p> <p>P370+P378 In case of fire: Use ... to extinguish.</p> <p>P302+P352 IF ON SKIN: Wash with plenty of water/...</p> <p>P321 Specific treatment (see ... on this label).</p> <p>P332+P317 If skin irritation occurs: Get medical help.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>
<b>Storage</b>	P403+P235 Store in a well-ventilated place. Keep cool.
<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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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
1,1-diethoxyethane	1,1-diethoxyethane	105-57-7	203-310-6	100%

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

#### 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

Do NOT induce vomiting. Give one or two glasses of water to drink. Refer for medical attention .

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

May irritate the upper respiratory tract. High concentrations act as a central nervous system depressant. Symptoms of exposure include headache, dizziness, drowsiness, abdominal pain, and nausea. (USCG, 1999)

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

### **Minimum/Potential Fatal Human Dose**

3= moderately toxic: probable oral lethal dose (human) 0.5-5 g/kg, between 1 oz & 1 pint (or 1 lb) for 70 kg person (150 lb).

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

### **5.1 Suitable extinguishing media**

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped or safely confined. Use water in flooding quantities as fog. Solid streams of water may spread fire. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use "alcohol" foam, dry chemical or carbon dioxide.

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

Special Hazards of Combustion Products: Explosive Behavior in Fire: In fire, may decompose to form flammable or explosive mixtures in air. Old samples may explode upon heating. (USCG, 1999)

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

Use powder, AFFF, foam, 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: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Remove all ignition sources. Collect leaking and spilled liquid in covered containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### **6.2 Environmental precautions**

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

### **6.3 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**

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

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools. 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. Well closed. Store only if stabilized.

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## **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.

**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 and safety characteristics**

<b>Physical state</b>	Liquid.
<b>Colour</b>	Colourless. 45.3 APHA on a Hazen scale. Colourless by visual inspection.
<b>Odour</b>	PUNGENT, GREEN, WOODY SOLVENT ODOR
<b>Melting point/freezing point</b>	-100°C(lit.)
<b>Boiling point or initial boiling point and boiling range</b>	102 °C. Atm. press.:1 atm.
<b>Flammability</b>	Highly flammable.
<b>Lower and upper explosion limit/flammability limit</b>	LOWER 1.6%; UPPER 10.4%
<b>Flash point</b>	< 20 °C. Atm. press.:1 013 hPa.
<b>Auto-ignition temperature</b>	446° F (USCG, 1999)
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	Liquid viscosity = 2.1531X10-3 Pa.s @ 200 deg K
<b>Solubility</b>	MISCIBLE WITH ALCOHOL, 60% ALCOHOL, ETHER; SOL IN HEPTANE, METHYLCYCLOHEXANE, ETHYL ACETATE; PROPYL, ISOPROPYL, BUTYL & ISOBUTYL ALCOHOLS; 100 G WATER DISSOLVE 5 G ACETAL
<b>Partition coefficient n-octanol/water</b>	Log Kow = 0.84
<b>Vapour pressure</b>	20 mm Hg ( 20 °C)
<b>Density and/or relative density</b>	0.828 no unit required. Temperature:20 °C.;0.829 g/cm³. Temperature:20 °C.
<b>Relative vapour density</b>	4.1 (vs air)
<b>Particle characteristics</b>	no data available

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**SECTION 10: Stability and reactivity****10.1 Reactivity**

The substance can form explosive peroxides under the influence of light and air. The substance may polymerize on standing. Reacts violently with oxidants. This generates fire and explosion hazard.

## 10.2 Chemical stability

Volatile; Stable to alkalis but readily decomposed by dilute acids.

## 10.3 Possibility of hazardous reactions

DANGEROUS, DUE TO FIRE AND EXPLOSION HAZARDS. DANGEROUS, WHEN EXPOSED TO HEAT OR FLAMEThe vapour is heavier than air and may travel along the ground; distant ignition possible.ACETAL can react vigorously with oxidizing agents. Stable in base but readily decomposed by dilute acids. Forms heat-sensitive explosive peroxides on contact with air. Old samples have been known to explode when heated due to peroxide formation [Sax, 9th ed., 1996, p. 5].

## 10.4 Conditions to avoid

no data available

## 10.5 Incompatible materials

Can react vigorously with oxidizing materials.

## 10.6 Hazardous decomposition products

no data available

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# SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral 4.6 g/kg From table
- 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

The substance is irritating to the eyes, skin and respiratory tract. Exposure could cause lowering of consciousness.

### STOT-repeated exposure

no data available

### 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

### 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

no data available

### 12.3 Bioaccumulative potential

An estimated BCF value of 2.6 was calculated for acetal(SRC), using an experimental log Kow of 0.84(1) and a recommended regression-derived equation(2). According to a recommended classification scheme(3), this BCF value suggests that bioconcentration in aquatic organisms will be low(SRC).

### 12.4 Mobility in soil

The Koc of acetal is estimated as approximately 68(SRC), using an experimental log Kow of 0.84(1) and a regression-derived equation(2,SRC). According to a recommended classification scheme(3), this estimated Koc value suggests that acetal has high mobility in soil(SRC).

### 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: UN1088 (For reference only, please check.)

IMDG: UN1088 (For reference only, please check.)

IATA: UN1088 (For reference only, please check.)

### 14.2 UN Proper Shipping Name

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

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

IATA: ACETAL (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.)

only, please check.)

only, please check.)

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
1,1-diethoxyethane	1,1-diethoxyethane	105-57-7	203-310-6
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

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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**

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 [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.*