



# 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 Diethylzinc

### 1.2 Other means of identification

Product number -

Other names zinc, ethane; Zinc diethyl; Zinc, diethyl-

### 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).

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Pyrophoric liquids, Category 1  
Substances and mixtures, which in contact with water, emit flammable gases, Category 1  
Skin corrosion, Sub-category 1B  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

### 2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H250 Catches fire spontaneously if exposed to air

H260 In contact with water releases flammable gases which may ignite spontaneously  
H314 Causes severe skin burns and eye damage  
H410 Very toxic to aquatic life with long lasting effects

**Precautionary statement(s)**

**Prevention**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P222 Do not allow contact with air.  
P233 Keep container tightly closed.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P231+P232 Handle and store contents under inert gas/....Protect from moisture.  
P223 Do not allow contact with water.  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 Wash ... thoroughly after handling.  
P273 Avoid release to the environment.

**Response**

P302+P334 IF ON SKIN: Immerse in cool water or wrap in wet bandages.  
P370+P378 In case of fire: Use ... to extinguish.  
P302+P335+P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water [or wrap in wet bandages].  
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P363 Wash contaminated clothing before reuse.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P316 Get emergency medical help immediately.  
P321 Specific treatment (see ... on this label).  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P391 Collect spillage.

**Storage**

P402+P404 Store in a dry place. Store in a closed container.  
P405 Store locked up.

**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
Diethylzinc	Diethylzinc	557-20-0	209-161-3	100%

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

**If inhaled**

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

**Following skin contact**

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

**Following eye contact**

Rinse with pure water for at least 15 minutes. Consult a doctor.

### **Following ingestion**

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

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

Inhalation of mist or vapor causes immediate irritation of nose and throat; excessive or prolonged inhalation of fumes from ignition or decomposition may cause "metal fume fever" (sore throat, headache, fever, chills, nausea, vomiting, muscular aches, perspiration, constricting sensation in lungs, weakness, sometimes prostration); symptoms usually last 12-24 hrs., with complete recovery in 24-48 hrs. Eyes are immediately and severely irritated on contact with liquid, vapor, or dilute solution; without thorough irrigation, cornea may be permanently damaged. Moisture in skin combines with chemical to cause thermal and acid burns; tissue may be scarred without prompt treatment. Ingestion is unlikely but would cause immediate burns at site of contact; pain, nausea, vomiting, cramps, and diarrhea may follow; if untreated, tissue may become ulcerated. (USCG, 1999)

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

no data available

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

### **5.1 Suitable extinguishing media**

Do not use water. use dry chem to extinguish fire. where access to the area is strictly controlled, it may be best to allow the release to burn spontaneously. fight fire from protected location or maximum possible distance.

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

Special Hazards of Combustion Products: Yields zinc oxide fumes when burning; can cause "metal fume fever" (see 5.2) Behavior in Fire: Reacts spontaneously with air or oxygen, and violently with water, evolving flammable ethane gas. Contact with water applied to adjacent fires will intensify the fire. (USCG, 1999)

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

Wear self-contained breathing apparatus for firefighting if necessary.

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

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

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### **6.2 Environmental precautions**

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

### **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**

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

Store in a cool, dry, well-ventilated location. Separate from air, water, oxidizing materials, organic peroxides, flammable materials. Keep material under carbon dioxide, nitrogen, or other inert gas.

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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 tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Thermal hazards

no data available

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

Physical state	Diethylzinc is a pyrophoric liquid with a garlic-like odor. It is stable when it is shipped in sealed tubes with carbon dioxide. It may decompose violently in water and ignite spontaneously with air. It is toxic by ingestion. If exposed to heat or flame, containers of this material may explode. It is used as an aircraft fuel.
Colour	MOBILE LIQUID
Odour	Garlic-like odor
Melting point/freezing point	273°C(lit.)
Boiling point or initial boiling point and boiling range	117°C(lit.)
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	-23°C
Auto-ignition	0° F (USCG, 1999)

<b>temperature</b>	
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	0.682 cP at 70 deg F
<b>Solubility</b>	MISCIBLE WITH ETHER, PETROLEUM ETHER, BENZENE, HYDROCARBONS
<b>Partition coefficient n-octanol/water</b>	no data available
<b>Vapour pressure</b>	20.8 mm Hg @ 25 deg C
<b>Density and/or relative density</b>	0.726g/mL at 25°C
<b>Relative vapour density</b>	no data available
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Highly flammable. Ignites in air with a blue flame giving off a peculiar garlic-like odor, [Merck, 11th ed., 1989]. Diethyl zinc is spontaneously flammable in air, [Douda(1966)]. Reacts violently with water to form flammable ethane gas, [Brauer(1965)].

### 10.2 Chemical stability

Stable in sealed tube & carbon dioxide

### 10.3 Possibility of hazardous reactions

IGNITES IN ... CHLORINE. DIETHYLZINC is pyrophoric in air, it ignites instantaneously. It reacts explosively with alcohols (methanol, ethanol), bromine, chlorine or liquefied sulfur dioxide [Houben-Weyl, 1973, 13.2a, p. 855, 757, 709]. Reaction with water, nitro compounds, arsenic trichloride, phosphorus trichloride is violent [Bretherick, 5th ed., 1995, p. 587].

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Reacts violently with bromine, water, nitro compounds. ... Reacts violently with nonmetal halides (e.g., arsenic trichloride or phosphorus trichloride to produce pyrophoric triethyl arsine or triethyl phosphine).

### 10.6 Hazardous decomposition products

When heated to decomp ... emits toxic fumes of /zinc oxide/.

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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**

no data available

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

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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

no data available

### 12.4 Mobility in soil

no data available

### 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: UN3394 (For reference only, please check.)

IMDG: UN3394 (For reference only, please check.)

IATA: UN3394 (For reference only, please check.)

## 14.2 UN Proper Shipping Name

ADR/RID:  
ORGANOMETALLIC  
SUBSTANCE, LIQUID,  
PYROPHORIC, WATER-  
REACTIVE (For reference  
only, please check.)

IMDG:  
ORGANOMETALLIC  
SUBSTANCE, LIQUID,  
PYROPHORIC, WATER-  
REACTIVE (For reference  
only, please check.)

IATA: ORGANOMETALLIC  
SUBSTANCE, LIQUID,  
PYROPHORIC, WATER-  
REACTIVE (For reference  
only, please check.)

## 14.3 Transport hazard class(es)

ADR/RID: 4.2 (For reference  
only, please check.)

IMDG: 4.2 (For reference  
only, please check.)

IATA: 4.2 (For reference  
only, please check.)

## 14.4 Packing group, if applicable

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

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

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

## 14.5 Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

## 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
Diethylzinc	Diethylzinc	557-20-0	209-161-3
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)			Not 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/>

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

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