



# 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** Diethylnitrosoamine

### 1.2 Other means of identification

**Product number** -

**Other names** Diethylnitrosoamine; N,N-Diethylnitrosoamine;  
Diethylamine,N-nitroso

### 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

Acute toxicity - Category 3, Oral  
Carcinogenicity, Category 1B

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word**

Danger

**Hazard statement(s)**

H301 Toxic if swallowed  
H350 May cause cancer

**Precautionary statement(s)**

**Prevention**

P264 Wash ... thoroughly after handling.

<b>Response</b>	<p>P270 Do not eat, drink or smoke when using this product.</p> <p>P203 Obtain, read and follow all safety instructions before use.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...</p> <p>P301+P316 IF SWALLOWED: Get emergency medical help immediately.</p> <p>P321 Specific treatment (see ... on this label).</p> <p>P330 Rinse mouth.</p> <p>P318 IF exposed or concerned, get medical advice.</p>
<b>Storage</b>	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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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Diethylnitrosoamine	Diethylnitrosoamine	55-18-5	200-226-1	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

ACUTE/CHRONIC HAZARDS: When heated to decomposition this compound emits toxic fumes of nitrogen oxides. (NTP, 1992)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Organic bases/Amines and related compounds/

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## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

Use dry chemical, carbon dioxide, alcohol foam, or polymer foam extinguishers.

## 5.2 Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

## 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

Spills ... absorbed by celite (r) or commercial spill absorbant. after absorbant containing major share of nitrosoamine ... picked up (avoid dusts; do not sweep), surface should be thoroughly cleaned with strong detergent soln. if major spill occurs outside of ventilated area, room should be evacuated & cleanup operation should be carried out by persons equipped with self-contained respirators. those involved in this operation should wear rubber gloves, lab coats, & plastic aprons or equivalent protective apparel.

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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

All bottles ... should be stored & transported within an unbreakable outer container; storage should be in ventilated storage cabinet or in hood.

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# SECTION 8: Exposure controls/personal protection

## 8.1 Control parameters

### Occupational Exposure limit values

Component	Diethylnitrosoamine			
CAS No.	55-18-5			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Austria		0,0025		0,01
Germany (AGS)		0,0002 (1)		
		0,0005 (2)		
		0,001 (3)		
Remarks				
Austria	TRK value (based on technical feasibility) The TRK values applies to the sum of the classified N-Nitrosamines			

<b>Component</b>	Diethylnitrosoamine
<b>CAS No.</b>	55-18-5
<b>Germany (AGS)</b>	Values applied to the sum of carcinogenic N-Nitrosamines (see TRGS 552). (1) Reference value that represents the state of the art for: Working with metal working fluids, volatile corrosion inhibitors (VCI), chemical industry (not stated below), foundries. (2) Reference value that represents the state of the art for: Chemical industry - working with amines, tyre industry - vulcanisation. (3) Reference value that represents the state of the art for: Chemical industry - manufacturing of polyacrylonitrile fibres, tyre industry - warehouses, technical rubber products, leather industries.

#### 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/flamm 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

<b>Physical state</b>	N-nitrosodiethylamine is a clear slightly yellow liquid. Boiling point 175-177°C. Can reasonably be anticipated to be a carcinogen. Used as a gasoline and lubricant additive and as an antioxidant and stabilizer in plastics.
<b>Colour</b>	Slightly yellow liquid
<b>Odour</b>	no data available
<b>Melting point/freezing point</b>	29°C(lit.)
<b>Boiling point or initial boiling point and boiling range</b>	177°C(lit.)
<b>Flammability</b>	no data available
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	85°C(lit.)
<b>Auto-ignition temperature</b>	no data available
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available

<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	greater than or equal to 100 mg/mL at 70° F (NTP, 1992)
<b>Partition coefficient n-octanol/water</b>	log Kow = 0.48
<b>Vapour pressure</b>	5.7 mm Hg at 77° F ; 8.8 mm Hg at 94.1° F (NTP, 1992)
<b>Density and/or relative density</b>	0.95g/mL(lit.)
<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

no data available

### 10.2 Chemical stability

Stable at room temp for several days in aq soln @ neutral & alkaline ph; less stable @ strongly acid ph @ room temp

### 10.3 Possibility of hazardous reactions

N-NITROSODIETHYLAMINE reacts with strong oxidizing agents. Incompatible with reducing agents. Can be hydrolyzed by hydrogen bromide in acetic acid (NTP, 1992).

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Oxidizers, reducing agents (may form hydrazine), and hydrogen bromide. Light sensitive, rapidly decomposes.

### 10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /oxides of nitrogen/.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral 280 mg/kg
- 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 are available in humans. Sufficient evidence of carcinogenicity in animals.  
OVERALL EVALUATION: Group 2A: The agent is probably carcinogenic to humans.

### 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: LC50; Species: Pimephales promelas (Fathead Minnow); Conditions: freshwater, static, 22.0-23.0 deg C, pH 8.07-8.25, hardness 288 mg/L CaCO<sub>3</sub>, dissolved oxygen 4.8-7.0 mg/L; Concentration: 775000 ug/L for 96 hr (95% confidence interval: 698000-860000 ug/L)
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: EC50; Species: Anabaena flosaquae (Blue-Green Algae) 10000 cells; Conditions: freshwater, static, 24 deg C; Concentration: 17500 ug/L for 96 hr; Effect: growth, general
- Toxicity to microorganisms: no data available

**12.2 Persistence and degradability**

AEROBIC: The concentration of N-nitrosodiethylamine (18.0 ppm nitroso-N) in lake water was essentially unchanged after 108 days incubation in the dark at 30 deg C. While the level of N-nitrosodiethylamine amended with raw sewage at pH 6.0 slowly decreased from approximately 17 ppm to 12 ppm over 14 days; the fact that the decrease was nearly the same in sterilized samples indicates that abiotic factors may have been responsible for the loss. At pH 7.2 the rate of loss was greater than for autoclaved sewage, however heat treatment may have altered sample properties so that nonbiological loss was diminished(1).

**12.3 Bioaccumulative potential**

An estimated BCF of 3 was calculated in fish for N-nitrosodiethylamine(SRC), using a log Kow of 0.48(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**

Using a structure estimation method based on molecular connectivity indices(1), the Koc of N-nitrosodiethylamine can be estimated to be 83(SRC). The Koc of N-nitrosodiethylamine can be estimated as 14(SRC), using a log Kow of 0.48(2) and a regression-derived equation(1). According to a classification scheme(3), these estimated Koc values suggest that N-nitrosodiethylamine is expected to have very high to high mobility in soil.

**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: UN2810 (For reference only, please check.)

IMDG: UN2810 (For reference only, please check.)

IATA: UN2810 (For reference only, please check.)

### 14.2 UN Proper Shipping Name

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

IMDG: TOXIC LIQUID, ORGANIC, N.O.S. (For reference only, please check.)

IATA: TOXIC LIQUID, ORGANIC, N.O.S. (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (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: 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
Diethylnitrosoamine	Diethylnitrosoamine	55-18-5	200-226-1
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			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.
Korea Existing Chemicals List (KECL)			Not Listed.

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## 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/>

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

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