

# 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** Dimethylamine

### 1.2 Other means of identification

**Product number** -

**Other names** N-methylmethanamine; Methanamine, N-methyl-

### 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 Baishun Biotechnology Co., Ltd  
**Address** No. 26, Lane 918, Lianye Road, Zhelin Town, Fengxian District, Shanghai, 201400, China  
**Telephone** +86-21-37581181

### 1.5 Emergency phone number

**Emergency phone number** +86-21-37581181

**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

Gases under pressure: Liquefied gas  
Flammable gases, Category 1A, Flammable gas  
Skin irritation, Category 2  
Serious eye damage, Category 1  
Acute toxicity - Category 4, Inhalation  
Specific target organ toxicity – single exposure, Category 3

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**





<b>Signal word</b>	Danger
<b>Hazard statement(s)</b>	H220 Extremely flammable gas H315 Causes skin irritation H318 Causes serious eye damage H332 Harmful if inhaled H335 May cause respiratory irritation
<b>Precautionary statement(s)</b>	
<b>Prevention</b>	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P264 Wash ... thoroughly after handling. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
<b>Response</b>	P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P271 Use only outdoors or in a well-ventilated area. P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 In case of leakage, eliminate all ignition sources. P302+P352 IF ON SKIN: Wash with plenty of water/... P321 Specific treatment (see ... on this label). P332+P317 If skin irritation occurs: Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P317 Get medical help. 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>	P410+P403 Protect from sunlight. Store in a well-ventilated place. P403 Store in a well-ventilated place. 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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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Dimethylamine	Dimethylamine	124-40-3	204-697-4	100%

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

#### If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.

#### Following skin contact

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention .

#### **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. 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**

VAPOR: Irritating to eyes, nose and throat. If inhaled, will cause difficult breathing.  
LIQUID: Will burn skin and eyes. Harmful if swallowed. (USCG, 1999)

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

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). 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. Monitor for pulmonary edema and treat if necessary . 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 0.9% saline (NS) during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 mg/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal . Cover skin burns with dry sterile dressings after decontamination . /Organic bases/Amines and related compounds/

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

### **5.1 Suitable extinguishing media**

Stop flow of gas before extinguishing fire. Use water spray to keep fire-exposed containers cool. Use water spray, dry chemical, or "alcohol resistant" foam on fires involving aqueous solutions.

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

FLAMMABLE. Flashback along vapor trail may occur. May explode if ignited in an enclosed area. Vapors are eye, skin and respiratory irritants. (USCG, 1999)

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

Use water in large amounts, alcohol-resistant foam, dry powder, 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**

Evacuate danger area! Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Remove all ignition sources. Cover the spilled material with foam. 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. Do NOT wash away into sewer. Do NOT let this chemical enter the environment.

### **6.2 Environmental precautions**

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. Remove all ignition sources. NEVER direct water jet on liquid. Remove gas with fine water spray. Do NOT let this chemical enter the environment.

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

Environmental considerations-land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding areas should be sealed with an impermeable flexible membrane liner./ Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete. Absorb bulk liquid with fly ash, cement powder, or commercial sorbents. Apply "universal" gelling agent to immobilize spill. Neutralize with sodium bisulfate (NaHSO<sub>4</sub>). Dimethylamine, Solution

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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. 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. Cool.They are extremely flammable products that should be stored in a well-ventilated area and protected from fire risk. Methylamines

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

### **8.1 Control parameters**

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

TLV: 5 ppm as TWA; 15 ppm as STEL; (SEN); A4 (not classifiable as a human carcinogen).MAK: 3.7 mg/m<sup>3</sup>, 2 ppm; peak limitation category: I(2); pregnancy risk group: D.EU-OEL: 3.8 mg/m<sup>3</sup>, 2 ppm as TWA; 9.4 mg/m<sup>3</sup>, 5 ppm as STEL

#### **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 face shield or eye protection in combination with breathing protection.

#### **Skin protection**

Protective gloves. Protective clothing.

#### **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**

### **Physical state**

Dimethylamine, anhydrous is a colorless gas smelling of fish at low concentrations and of ammonia at higher concentrations. Shipped as a liquid under its vapor pressure. Contact with the unconfined liquid can cause frostbite by evaporative cooling and chemical type burns. Density of liquid 5.5 lb / gal. The gas, which is corrosive, dissolves readily in water to form flammable corrosive solutions. The gas is heavier than air and can asphyxiate by the displacement of air. Gas is easily ignited

	and produces toxic oxides of nitrogen when burned. Long-term inhalation of low concentrations or short-term inhalation of low concentrations has adverse health effects. Under prolonged exposure to fire or intense heat the containers may rupture violently and rocket. Used to make other chemicals and as a solvent.
<b>Colour</b>	Colorless gas ... [Note: A liquid below 44 degrees F. Shipped as a liquefied compressed gas].
<b>Odour</b>	... Ammonia or fish-like odor ...
<b>Melting point/freezing point</b>	-93°C
<b>Boiling point or initial boiling point and boiling range</b>	7°C(lit.)
<b>Flammability</b>	Flammable Gas
<b>Lower and upper explosion limit/flammability limit</b>	Lower flammable limit: 2.8% by volume; Upper flammable limit: 14.4% by volume
<b>Flash point</b>	-6°C
<b>Auto-ignition temperature</b>	753°F
<b>Decomposition temperature</b>	no data available
<b>pH</b>	AQUEOUS SOLN OF DIMETHYLAMINE ARE HIGHLY ALKALINE, LIKE AMMONIA.
<b>Kinematic viscosity</b>	1.7 mPa.s at 15.5 deg C /40% Dimethylamine aqueous solution/
<b>Solubility</b>	24 % at 140° F (NIOSH, 2016)
<b>Partition coefficient n-octanol/water</b>	log Kow = -0.38
<b>Vapour pressure</b>	16.97 psi ( 55 °C)
<b>Density and/or relative density</b>	0.68g/mL at 20°C(lit.)
<b>Relative vapour density</b>	1.55 (vs air)
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Decomposes on burning. This produces toxic fumes including nitrogen oxides. Reacts violently with strong oxidants and mercury. This generates fire and explosion hazard. Attacks copper, zinc alloys, aluminium, galvanized surfaces and plastics. The solution in water is a strong base. It reacts violently with acid and is corrosive (see ICSC 1485 dimethylamine, aqueous solution).

The solution in water is a strong base. It reacts violently with acid and is corrosive. Reacts violently with strong oxidants and mercury. This generates fire and explosion hazard. Attacks aluminium, copper, zinc alloys, galvanized surfaces and plastic.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

Liquid solutions are flammable. The gas is heavier than air and may travel along the ground; distant ignition possible. The vapour is heavier than air and may travel along the ground; distant ignition possible. DIMETHYLAMINE is a base, neutralizing acids in exothermic reactions, and a reducing agent. It is temperature sensitive. Reacts vigorously with mercury and chlorine (NTP, 1992). Reacts violently with strong oxidizing agents and attacks copper and copper compounds [Handling Chemicals Safely, 1980 p. 123]. Reacts with hypochlorites to give N-chloroamines, some of which are explosives when isolated [Bretherick, 1979 p. 108].

### 10.4 Conditions to avoid

no data available

## 10.5 Incompatible materials

Dimethylamine is a medium strong base. Reacts violently with strong oxidizers; with mercury causing fire and explosion hazard. Incompatible with acids, organic anhydrides, isocyanates, vinyl acetate, acrylates, substituted allyls, alkylene oxides, epichlorohydrin, ketones, aldehydes, alcohols, glycols, phenols, cresols, caprolactum solution. Attacks aluminum, copper, lead, tin, zinc and alloys, some plastics, rubber and coatings.

## 10.6 Hazardous decomposition products

Products of decomposition include carbon monoxide, carbon dioxide, hydrocarbons, and toxic oxides of nitrogen as well as toxic amine vapors.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral 698 mg/kg
- Inhalation: LC50 Mouse inhalation (2 hr) 14.3 mg/L
- 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

A4; Not classifiable as a human carcinogen.

### Reproductive toxicity

no data available

### STOT-single exposure

The substance is corrosive to the eyes and skin. The vapour is severely irritating to the respiratory tract. Corrosive on ingestion.

### STOT-repeated exposure

no data available

### Aspiration hazard

A harmful contamination of the air will be reached very quickly on evaporation of this substance at 20°C.

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## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: LC50 Brachydanio rerio /Zebra danio/ 396 mg/L/96 hr; static, freshwater. /Dimethylamin-Hydrochlorid
- Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water flea); Conditions: freshwater, static, 15 deg C, pH 7.2, hardness 320 mg/L CaCO<sub>3</sub>, dissolved oxygen >95%; Concentration: 46,000 ug/L for 96 hr (95% confidence interval: 40,100-52,800 ug/L); Effect: intoxication, immobilization
- Toxicity to algae: EC50; Species: Pseudokirchneriella subcapitata (Green algae); Conditions: freshwater, static; Concentration: 9000 ug/L for 96 hr; Effect: general growth /40% water solution
- Toxicity to microorganisms: no data available

## 12.2 Persistence and degradability

AEROBIC: 51% of the theoretical BOD was achieved for dimethylamine with an activated sludge during a 2 week incubation period(1). Dimethylamine was biodegraded 69-89% in three Saskatchewan soils during a 7 day incubation period(2). In a screening study, dimethylamine completely degraded at 10 ppm with both an activated sludge and freshwater/sediment inoculum(3); after 5 days incubation, 70 and 80% of theoretical BOD was consumed in the activated sludge and the sediment, respectively(1). Inhibition was noted at 50 ppm with the sediment inoculum and 100 ppm with the sludge inoculum(3). Another screening study that employed an activated sludge inoculum reported 100% degradation in 6 and 12 days when the concentration was 20 mg/L and 135 mg/L, respectively(4). Other screening studies give similar results and dimethylamine is confirmed to be biodegradable according to the standard test of the Japanese Ministry of Industry and Trade (MITI) that employs a mixed inoculum obtained from freshwater, soil, and sludge(5-7). In a laboratory activated sludge unit, dimethylamine was completely removed from inflows of up to 135 mg/L with retention times of 4 hr indicating that it should be readily degraded in biological treatment plants(4). When 250 ppm dimethylamine was added to a fine sand loam and sandy soil amended with sewage and nitrite-N, 50% degradation occurred in 2 days in the sand loam, while 20% degradation occurred in the sandy soil(8). N-nitrosodimethylamine was formed in the degradation(8). 50 to >90% degradation occurred in four silt loam or loam soils within 14 days(9).

## 12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for dimethylamine(SRC), using a log Kow of -0.38(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 adsorption isotherm for dimethylamine in 5 soils was linear and resulted in a mean Koc of 434.9(1). A Koc value of 508 was reported for dimethylamine in lake sediment(2). According to a classification scheme(3), this Koc data suggests that dimethylamine is expected to have moderate 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: UN1160 (For reference only, please check.)

IMDG: UN1160 (For reference only, please check.)

IATA: UN1160 (For reference only, please check.)

## 14.2 UN Proper Shipping Name

ADR/RID:  
DIMETHYLAMINE

AQUEOUS SOLUTION (For reference only, please check.)

IMDG: DIMETHYLAMINE  
AQUEOUS SOLUTION

(For reference only, please check.)

IATA: DIMETHYLAMINE  
AQUEOUS SOLUTION

(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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## 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
Dimethylamine	Dimethylamine	124-40-3	204-697-4
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

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

Toxicity information applies to aqueous solutions containing dimethylamine over 15%, and physical properties will vary according to concentration. Physical properties of this card are for the 40% solution. See ICSC 0260 Dimethylamine gas in a cylinder.

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

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