



SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

Product name: Pyrrolidine
Product code: P0576
Company: TCI (Shanghai) DEVELOPMENT CO., LTD.
Address: No.96 Pu Gong Road, Shanghai Chemical Industry Park, Shanghai 201507 China
Responsible Department: Sales Department
Telephone: +86-(0)21-67121386
Fax: +86-(0)21-67121385
e-mail: sales@tcishanghai.com.cn
Revision number: 1

2. HAZARDS IDENTIFICATION

Classification of the GHS

PHYSICAL HAZARDS

Flammable liquids

Category 2

HEALTH HAZARDS

Acute toxicity (Oral)

Category 3

Acute toxicity (Inhalation)

Category 3

Skin corrosion/irritation

Category 1B

Serious eye damage/eye irritation

Category 1

Specific target organ toxicity

nervous system

- Single exposure [Category 2]

ENVIRONMENTAL HAZARDS

Not classified

GHS label elements

Pictograms or hazard symbols



Signal word

Danger

Hazard statement

Highly flammable liquid and vapour
 Toxic by inhalation and if swallowed
 Causes severe skin burns and eye damage
 May cause damage to organs : nervous system

Precautionary statements

[Prevention]

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 Keep container tightly closed.
 Use explosion-proof electrical/ventilating/lighting equipment. Take precautionary measures against ignition by the static discharge and the spark.
 Do not breathe.
 Use only outdoors or in a well-ventilated area.
 Do not eat, drink or smoke when using this product.
 Wash hands thoroughly after handling.
 Wear protective gloves/eye protection/face protection.

2. HAZARDS IDENTIFICATION**[Response]**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

Wash contaminated clothing before reuse.

Immediately call a POISON CENTER or doctor/physician.

[Storage]

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

[Disposal]

Dispose of contents/container through a waste management company authorized by the local government

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture:	Substance
Component(s):	Pyrrolidine
Percent:	>98.0%(GC)
CAS Number:	123-75-1
Synonyms:	Tetramethyleneimine
Chemical Formula:	C ₄ H ₉ N

4. FIRST AID MEASURES**Inhalation:**

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

Skin contact:

Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/physician.

Eye contact:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Ingestion:

Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

Symptoms/effects:

burning sensation, convulsions, cough, headache, nausea, sore throat, vomiting, redness, burn, pain, blistering, blurred vision

Protection of first-aiders:

A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

5. FIRE-FIGHTING MEASURES**Suitable extinguishing media:**

Dry chemical, foam, water in large amounts, carbon dioxide.

Specific hazards:

Take care as it may decompose upon combustion or in high temperatures to generate poisonous fume.

Specific methods:

Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Keep containers cool by spraying with water. Eliminate all ignition sources if safe to do so.

Special protective equipment for firefighters:

When extinguishing fire, be sure to wear personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures:**

Use extra personal protective equipment (self-contained breathing apparatus). Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.

Environmental precautions:

Prevent product from entering drains.

6. ACCIDENTAL RELEASE MEASURES

Methods and materials for containment and cleaning up:	Absorb spilled material in dry sand or inert absorbent before recovering it into an airtight container. In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
Prevention of secondary hazards:	Remove all sources of ignition. Fire-extinguishing devices should be prepared in case of a fire. Use spark-proof tools and explosion-proof equipment.

7. HANDLING AND STORAGE

Handling

Technical measures:	Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent generation of vapor or mist. Keep away from heat/sparks/open flame/hot surfaces. -No smoking. Take measures to prevent the build up of electrostatic charge. Use explosion-proof equipment. Wash hands and face thoroughly after handling. Use a closed system if possible. Use a ventilation, local exhaust if vapor or aerosol will be generated.
Advice on safe handling:	Avoid contact with skin, eyes and clothing.

Storage

Storage conditions:	Keep container tightly closed. Store in a cool, dark and well-ventilated place. Store locked up. Store away from incompatible materials such as oxidizing agents.
Packaging material:	Law is followed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls:	Install a closed system or local exhaust. Also install safety shower and eye bath.
Personal protective equipment	
Respiratory protection:	Half or full facepiece respirator, self-contained breathing apparatus(SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.
Hand protection:	Impervious gloves.
Eye protection:	Safety goggles. A face-shield, if the situation requires.
Skin and body protection:	Impervious protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C):	Liquid
Form:	clear
Color:	Colorless - Almost colorless
Odor:	Ammoniacal
pH:	No data available
Melting point/freezing point:	-63 °C
Boiling Point/Range:	88 °C
Flash Point:	3°C
Explosive limits	
Lower:	2.9%
Upper:	13%
Vapor Pressure:	1.8kPa/39°C
Vapor Density:	2.45
Density:	0.86
Solubility:	Miscible with : Water Soluble in : Alcohol Ether Chloroform
log Pow =	0.46
Autoignition Temperature:	345°C

10. STABILITY AND REACTIVITY

Stability:	Stable under proper conditions.
Reactivity:	No special reactivity has been reported.

10. STABILITY AND REACTIVITY

Incompatible materials: oxidizing agents, acids
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides (NOx)

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: ihl-mus LC50:1300 mg/m³/2H
ipr-mus LD50:420 mg/kg
orl-rat LD50:300 mg/kg
ivn-mus LD50:56 mg/kg

Skin corrosion/irritation: No data available

Serious eye damage/irritation: No data available

Germ cell mutagenicity: No data available

Carcinogenicity:

IARC = No data available

NTP = No data available

Reproductive toxicity: No data available

RTECS Number: UX9650000

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: No data available

Crustacea: No data available

Algae: No data available

Persistence / degradability: No data available

Bioaccumulative potential(BCF): 3

Mobility in soil

log Pow: 0.46

Soil adsorption (Koc): 42

Henry's Law constant(PaM³/mol): 0.2

13. DISPOSAL CONSIDERATIONS

Recycle to process, if possible. Consult your local regional authorities. You may be able to burn in a chemical incinerator equipped with an afterburner and scrubber system but exert extra care in igniting as this material is highly flammable. Observe all federal, state and local regulations when disposing of the substance

14. TRANSPORT INFORMATION

Hazards Class: 3: Flammable liquid.

Subsidiary risk: 8: Corrosive.

UN-No: 1922

Proper shipping name: Pyrrolidine

Packing group: II

15. REGULATORY INFORMATION

Safe management ordinance of dangerous chemical product (State Council announces on January 26, 2002): Safe use and production, the storage of a dangerous chemical, transport, loading and unloading were prescribed.

The list of a dangerous chemical(2002)/CN-No.: 32103

16. OTHER INFORMATION

The reference company name of written contents

Company: TCI (Shanghai) DEVELOPMENT CO., LTD.

Address: No.96 Pu Gong Road, Shanghai Chemical Industry Park, Shanghai 201507 China

Department: R&D (Information Management) Department

Telephone: +86-(0)21-67121388*461

16. OTHER INFORMATION

Fax:**+86-(0)21-67121385**

This MSDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.