SAFETY DATA SHEETS

According to the UN GHS revision 10

1: Identification

1.1 GHS Product identifier

Product name	Pyridine-d5

1.2 Other means of identification

Product number	7291-22-7
Other names	Pyridine-d5

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	Zhongshan Greenrock Technology Co., Ltd.
Address	No. 138, Jinsan Avenue, Sanjiao Town, Zhongshan City, Guangdong Province, China
Telephone	+86-2087066781

1.5 Emergency phone number

Emergency phone number	+86-2087066781
Service hours	Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2: Hazard identification

2.1 Emergency Overview

It is highly corrosive and can cause irreversible damage to the skin and eyes. If in contact, rinse immediately with plenty of water and seek medical help as soon as possible.

2.2 GHS Classification

Flammable liquids : Category 2
Acute toxicity, oral; acute toxicity, dermal; acute toxicity, inhalation : Category 4
Acute toxicity, oral : Category 4
Acute toxicity, dermal : Category 4
Skin corrosion/irritation : Category 2
Serious eye damage/eye irritation : Category 2A
Acute toxicity, inhalation : Category 4

2.3 GHS label elements, including precautionary statements

Pictogram(s)	
Signal word	Danger
Hazard statement(s)	H225 Highly Flammable liquid and vapor H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled H302 Harmful if swallowed H312 Harmful in contact with skin H315 Causes skin irritation H319 Causes serious eye irritation H332 Harmful if inhaled
Precautionary statement(s)	
Prevention	P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof [electrical/ventilating/lighting/.../] equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P261 Avoid breathing dust/fume/gas/mist/vapors/spray. P264 Wash hands [and ...] thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P264+P265 Wash hands [and ...] thoroughly after handling. Do not touch eyes.
Response	P317 Get emergency medical help. P321 Specific treatment (see ... on this label). P330 Rinse mouth. P301+P317 IF SWALLOWED,Get medical help. P302+P352 IF ON SKIN,wash with plenty of water/... P303+P361+P353 IF ON SKIN (or hair),Take off Immediately all contaminated clothing. Rinse SKIN with water [or shower]. P304+P340 IF INHALED,Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 IF IN EYES,Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. P332+P317 If skin irritation occurs,Get medical help. P337+P317 If eye irritation persists,Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. P370+P378 In case of fire,Use ... to extinguish.
Storage	P403+P235 Store in a well-ventilated place. Keep cool.
Disposal	P501 Dispose of contents/container to ...

2.4 Physical and chemical

Acidic or alkaline substances that react with metals to produce flammable hydrogen. May cause violent exothermic reactions when in contact with other substances. At high concentrations, they have strong oxidizing or reducing properties.

2.5 Health hazards

Skin contact: May cause severe burns, tissue necrosis, and scarring. Eye contact: May cause corneal damage, vision loss, or even blindness. Inhalation of vapor or mist may cause respiratory burns and pulmonary edema.

2.6 Environmental hazards

Leakage into the environment can change the pH value of soil and water, causing serious ecological damage. It is highly toxic to aquatic organisms and can cause the death of aquatic organisms and the collapse of the ecosystem.

2.7 Other hazards which do not result in classification

no data available

3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Pyridine-d5	Pyridine-d5	7291-22-7	230-720-2	99%

4: First-aid measures

4.1 General advice

Stop contact immediately and remove contaminated clothing; rinse the exposed area with plenty of running water and seek medical attention immediately with the material's SDS. If the corrosive substance is acidic (such as sulfuric acid), neutralize it with a weak alkaline solution (such as 5% sodium bicarbonate) after rinsing. For alkaline corrosive substances (such as sodium hydroxide), neutralize them with a weak acidic solution (such as 1% acetic acid).

4.2 If inhaled

Move to fresh air and keep the airway open. If corrosive vapors (such as hydrochloric acid mist) are inhaled, immediately administer nebulized inhalation (normal saline + dexamethasone). If laryngeal edema or breathing difficulties occur, immediately perform a tracheotomy (requires professional operation) and seek medical attention.

4.3 In case of skin contact

Rinse with plenty of running water for 20-30 minutes (make sure to rinse thoroughly, especially between the fingers, in the armpits, and other folds). If blisters are present, do not prick them; instead, apply a sterile gauze compress (to avoid adhesion). Do not apply oily ointments to avoid affecting subsequent treatment.

4.4 In case of eye contact

Immediately flush with an eyewash or plenty of normal saline for 15-20 minutes (use a gentle flow to avoid direct exposure to the cornea); apply antibiotic eye ointment (such as erythromycin ointment) to the eyelids, wear a sterile eye patch, and seek immediate medical attention from an ophthalmologist.

4.5 If swallowed

Do not induce vomiting (to avoid secondary damage to the esophageal mucosa). If the substance is acidic, take milk or egg white orally (to protect the gastric mucosa). If the substance is alkaline, take diluted vinegar (1:10 ratio) orally. If you carry SDS, seek medical attention immediately for a gastroscopy.

4.6 Most important symptoms and effects, both acute and delayed

Acute symptoms: skin redness, swelling, blisters, ulcers, severe eye pain, photophobia, blurred vision, oral/esophageal burns, and difficulty swallowing; long-term effects: skin scarring, corneal scarring (possibly causing blindness), and esophageal stenosis.

4.7 Protection of first-aiders

Rescuers must wear corrosion-resistant chemical protective clothing, chemical protective gloves (made of fluororubber), chemical goggles and masks; stand upwind when flushing to avoid inhaling volatile corrosive gases; after contact, equipment must be cleaned with a neutralizer and then rinsed with clean water.

4.8 Notes to physician

Inform the doctor of the type of corrosive agent (acid/base), concentration, and duration of contact. Skin burns should be treated according to their depth (superficial II degree and above require skin grafting). Eye injuries should be checked for corneal epithelial integrity and, if necessary, corneal repair drugs (such as recombinant human epidermal growth factor) should be used.

5: Fire-fighting measures

5.1 Unsuitable extinguishing media

Flammable gas: Do not use water (cannot cover the gas) or carbon dioxide (may cause flashback); Extremely flammable liquids (flash point 23°C): Avoid using high-pressure water (can easily spread the liquid and expand the fire).

5.2 Specific hazards during fire fighting

Flammable gases can easily reach their explosion limits when mixed with air (such as 4%-75% hydrogen), and will explode when exposed to fire, with strong shock waves; extremely flammable liquids are highly volatile, and their vapors can easily form explosive mixtures with a fast burning speed (such as ether).

5.3 Hazardous combustion products

Carbon monoxide and incomplete combustion products of hydrocarbons (such as aldehydes and ketones).

5.4 Specific extinguishing methods

Flammable gas: first shut off the leak source (when safe). If it cannot be shut off, use dry powder to extinguish the fire (to suppress combustion) and dilute the vapor with mist water (to prevent explosion). Extremely flammable liquid: use dry powder/foam (anti-solvent foam, such as ethanol) for small areas and cover large areas with foam (to isolate oxygen). Open flames are strictly prohibited from approaching.

5.5 Special protective equipment for fire-fighters

Wear anti-static work clothes, positive pressure air respirator, and chemical-resistant gloves; carry a combustible gas detector (to measure explosion limits); use explosion-proof tools during operation to avoid static sparks.

6: Accidental release measures

6.1 Protective measures for workers

Wear anti-static work clothes, anti-static gloves, and chemical goggles; wear a gas mask (organic vapor filter cartridge) for gases/volatile liquids; wear impact protection for aerosols.

6.2 Environmental protection measure

Liquids/aerosols are prevented from flowing into sewers/rivers, and oil booms + oil absorbent cotton are used to pollute water bodies; gas leaks are monitored for concentration to prevent them from spreading to residential areas; solids are prevented from dust polluting the soil.

6.3 Containment methods for leaked chemicals

Gas: Shut off the leak source (when safe), and use explosion-proof fan to lead the leak to an open area; Liquid: Collect in anti-static container; Solid: Put non-sparking tools into anti-static container; Aerosol: Collect the leaked tank (no squeezing).

6.4 Cleanup methods for chemical spills

Liquid: absorb with a small amount of oil-absorbing cotton and transfer with a large amount of explosion-proof pump; Solid: transfer with spark-free tools (to prevent friction); Aerosol: leaking tanks are collected separately and disposed of professionally.

6.5 Measures to prevent the spread of leaks

Designate a 10-meter isolation zone and prohibit open flames/static equipment; set up fire barriers for liquids and anti-static isolation belts for gases; use explosion-proof ventilation to reduce concentration (explosion limit).

6.6 Container leakage treatment

Gas: Minor leaks should be sealed with anti-static sealant, serious leaks should be transferred after pressure relief; Liquid: Anti-static sealant should be used to seal, serious leaks should be transferred with explosion-proof pump; Aerosol: Do not squeeze, wrap in sealed bag.

6.7 Special considerations

Eliminate static electricity before operation; provide good ventilation to prevent gas accumulation; perform anti-static testing on tools; clean protective equipment and perform anti-static testing after leak treatment.

7: Handling and storage

7.1 Safe storage conditions

Store in a corrosion-resistant warehouse (the floor is epoxy resin coated, and the walls are acid/alkali-resistant tiles); the container is made of corrosion-resistant material (glass fiber reinforced plastic for acid corrosion, high-density polyethylene for alkaline corrosion), with a capacity of ?200L to prevent dumping; the warehouse is equipped with an emergency neutralization tank (volume ?5m^3) and equipped with acid/alkali neutralizers (such as sodium carbonate, dilute acetic acid).

7.2 Storage precautions

Store them separately from materials that may come into contact with the skin (such as clothing and gloves) to avoid cross contamination. Use a corrosion-resistant forklift to transport containers and avoid impact. Check the humidity in the warehouse daily (?65%) to prevent moisture from exacerbating corrosion. In case of leakage, immediately absorb it with inert materials (such as sand) and then treat it with a neutralizer.

7.3 VCI Storage Grade

Level 2 (medium-high): Metal pipes and valves are coated with VCI anti-rust paint (acid/alkali resistant type) and maintained once every six months; VCI anti-rust blocks (such as urethane) are placed in the warehouse and replenished once every quarter to prevent corrosion of metal parts.

7.4 Recommended storage temperature

5-35?, avoid sudden temperature changes (such as moving directly from a low temperature environment to a high temperature environment); concentrated acids/bases must be kept at a temperature ?30? to prevent temperature increases from causing increased container pressure; in winter, they must be protected from freezing (temperature ?5?) to prevent the solution from freezing and cracking the container (if the label has a recommended storage temperature, follow the label).

7.5 Handling

For precautions see Safety Data Sheet section 2
Advice on safe handling : Work under hood. Do not inhale substance/mixture.

8: Exposure controls/personal protection

8.1 Respiratory protection

When exposed to corrosive vapors (such as hydrochloric acid mist and sulfuric acid mist), wear a powered air-purifying respirator (APF?50); in high-concentration environments, a positive pressure air respirator is required to avoid inhalation burns to the respiratory tract.

8.2 Recommended Filter type

For acidic corrosive substances, choose Type E filter cartridge (protects against acidic gases such as SO? and HCl); for alkaline corrosive substances, choose Type K filter cartridge (protects against ammonia and amines); if the product contains dust, add Type P2 filter cotton.

8.3 Eye/face protection

Wear chemical protective goggles + full-face mask. The mask must cover the chin. The lens should be made of polycarbonate (corrosion-resistant and impact-resistant). Check the sealing regularly.

8.4 Skin and body protection

Wear corrosion-resistant chemical protective clothing made of fluororubber or polytetrafluoroethylene (PTFE) to avoid direct skin contact; wear an apron (of the same material) with protection covering the chest to the knees.

8.5 Hand protection

Wear corrosion-resistant gloves. For acid corrosion, choose neoprene material; for alkaline corrosion, choose nitrile rubber material. The thickness of the gloves should be ?0.5mm. Perform a water leakage test before use.

8.6 Hygiene measures

Immediately after the operation, rinse the skin with running water for 10 minutes. If there is stinging at the contact site, apply a neutralizer (5% sodium bicarbonate for acid and 1% acetic acid for alkali) for 5 minutes. Do not use irritating skin care products to avoid aggravating skin damage.

9: Physical and chemical properties and safety characteristics

Physical state	colorless to light yellow liquid
Colour	Colorless to yellow liquid.
Odour	Sharp, nauseating
Melting point/freezing point	-41oC
Boiling point or initial boiling point and boiling range	114.4°C(lit.)
Flammability	Class IB Flammable Liquid: Fl.P. below 22.78°C and BP at or above 37.78°C.Highly flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	LOWER 1.8%; UPPER 12.4%
Flash point	17°C
Auto-ignition temperature	482.22°C (USCG, 1999)
Decomposition temperature	no data available
pH	8.5 (0.2 molar soln in water)
Kinematic viscosity	no data available
Solubility	greater than or equal to 100 mg/mL at 21.5°C
Partition coefficient n-octanol/water	log Kow = 0.65

Vapour pressure	18 mm Hg at 20°C ; 20 mm Hg at 25°C
Density and/or relative density	1.05g/mLat 25°C(lit.)
Relative vapour density	2.72 (Relative to Air)
Particle characteristics	no data available

10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Mixtures with formamide + iodine + sulfur trioxide are storage hazards, releasing carbon dioxide & sulfuric acid.

10.3 Possibility of hazardous reactions

Pyridine is a flammable ... liquid.The vapour is heavier than air and may travel along the ground; distant ignition possible.PYRIDINE is a base. Reacts exothermically with acids. During preparation of a complex of pyridine with chromium trioxide, an acid, the proportion of chromium trioxide was increased. Heating from this acid-base reaction led to an explosion and fire [MCA Case History 1284 1967]. A 0.1% solution of pyridine (or other tertiary amine) in maleic anhydride at 185°C gives an exothermic decomposition with rapid evolution of gas [Chem Eng. News 42(8); 41 1964]. Mixing pyridine in equal molar portions with any of the following substances in a closed container caused the temperature and pressure to increase: chlorosulfonic acid, nitric acid (70%), oleum, sulfuric acid (96%), or propiolactone [NFPA 1991]. The combination of iodine, pyridine, sulfur trioxide, and formamide developed a gas over pressurization after several months. This arose from the slow formation of sulfuric acid from external water, or from dehydration of the formamide to hydrogen cyanide. Ethylene oxide and SO2 can react violently in pyridine solution with pressurization if ethylene oxide is in excess (Nolan, 1983, Case History 51).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

PYRIDINE REACTS VIOLENTLY WITH CHLOROSULFONIC ACID, CHROMIC ACID, MALEIC ANHYDRIDE, NITRIC ACID, FUMING SULFURIC ACID, PERCHROMATES, BETA-PROPIOLACTONE, SILVER PERCHLORATE, & SULFURIC ACID.

10.6 Hazardous decomposition products

When pyridine is heated to decomposition, cyanide fumes are released.

11: Toxicological information

11.1 Acute toxicity

Oral: LD50 Rat oral 1.58 g/kg
Inhalation: LC50 Rat inhalation 9000 ppm for 1 hr
Dermal: LD50 Guinea pig percutaneous 1.0 - 2.0 ml/kg

11.2 Skin corrosion/irritation

no data available

11.3 Serious eye damage/irritation

no data available

11.4 Respiratory or skin sensitization

no data available

11.5 Germ cell mutagenicity

no data available

11.6 Carcinogenicity

A3: Confirmed animal carcinogen with unknown relevance to humans.

11.7 Reproductive toxicity

no data available

11.8 STOT-single exposure

no data available

11.9 STOT-repeated exposure

no data available

11.10 Aspiration hazard

no data available

12: Ecological information

12.1 Toxicity

Toxicity to fish: LC50 Pimephales promelas (fathead minnow) 106 mg/l/96 hr, flow-through bioassay with measured concentrations, 24.1°C, dissolved oxygen 7.4 mg/l, hardness 47.4 mg/l $CaCO_3$, alkalinity 240 mg/l $CaCO_3$, and pH 7.73.
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

Results of biodegradability screening tests for pyridine using sewage or activated sludge inocula give mixed results ranging from rapid to no degradation(1-5,7). Although biodegradability is improved in longer tests employing a more vigorous inocula, sometimes the same test gives disparate results(1-4,7). Variations in the particular sewage or activated sludge inoculum would affect test results. One investigator obtained results ranging from 97% degradation in 6 days to no degradation in 30 days in 6 different standard tests(1). After a preincubation step was added to one test in which no degradation was observed in 19 days, degradability increased to 91%(3). However the closed bottle test which employs only a drop of sewage effluent as an inoculum, registered no degradation even with a preincubation step(1,3). Tests that were designed to simulate biological treatment plants resulted in complete and rapid removal of pyridine(1,9). In one test that employed a soil suspension as an inoculum, 100% degradation was obtained in 66-170 days(6). When this test was repeated under anaerobic conditions, degradation was more rapid(6). Complete degradation was obtained in 32-66 days(6). When 2 micromoles/g of pyridine was incubated with a silt loam soil, 11.7% remained after 4 days and none remained after 8 days(8). The biodegradation rate constant for pyridine in water was 0.0033 - 0.018 per hour which corresponds to half-lives of 39-210 hours(10).

12.3 Bioaccumulative potential

The bioconcentration factor in guppies exposed to an unspecified concentration of pyridine over a 2-day incubation period was 88(1). According to a classification scheme(2), this BCF suggests the bioconcentration in aquatic organisms moderate.

12.4 Mobility in soil

The Koc of pyridine is estimated as 50(SRC), using a measured log Kow of 0.65(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that pyridine is expected to have high mobility in soil. The pKa of pyridine is 5.23(4), which indicates that pyridine will partially exist in the protonated form under acidic conditions and cations adsorb more strongly to soil surfaces than neutral molecules(SRC). The adsorption of pyridine to a basic subsoil (pH 8.15, 0.58% organic carbon) is negligible, while in an acidic subsoil (pH 4.85, O.24% organic carbon), the Freundlich adsorption constant was measured to be 5.78 and the slope 0.679(5). This suggests a cationic adsorption mechanism as pyridine is predominantly in its protonated form. Pyridine adsorbs to colloidal particles of sodium montmorillonite and kaolinite, a process which is attributed to cation exchange and is a function of pH(5). Adsorption is at a minimum at pH 1 and 11 and reaches a maximum at pH 4 for the montmorillonite and pH 5.5 for the kaolinite where the adsorption constants are 60 and 10, respectively(6).

12.5 Other adverse effects

no data available

13: Disposal considerations

13.1 Disposal methods for waste chemicals

Acidic corrosives can be treated with alkaline neutralizers (such as sodium carbonate) until neutralized and then disposed of as ordinary waste. Alkaline corrosives can be treated with acidic neutralizers (such as dilute hydrochloric acid) until neutralized and then disposed of. Those that cannot be neutralized must be incinerated at high temperature or chemically decomposed by a professional unit. The container must be thoroughly cleaned before being disposed of.

13.2 Precautions

Neutralization reactions must be conducted in well-ventilated, dedicated facilities, with the reaction rate controlled to prevent splashing. Disposal personnel must wear corrosion-resistant protective gear. The pH value of the neutralized waste must be controlled between 6 and 9. Direct disposal of unneutralized corrosive materials is prohibited. Emergency pools must be established at the disposal site to prevent leakage and contamination.

14: Transport information

14.1 UN Number

ADR/RID: UN1282	IMDG: UN1282	IATA: UN1282

14.2 UN Proper Shipping Name

ADR/RID: PYRIDINE	IMDG: PYRIDINE	IATA: PYRIDINE

14.3 Transport hazard class(es)

ADR/RID: unknown	IMDG: unknown	IATA: unknown

14.4 Packing group, if applicable

ADR/RID: II	IMDG: II	IATA: II

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

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
Pyridine-d5	Pyridine-d5	7291-22-7	230-720-2
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Not Listed.

Australian Inventory of Industrial Chemicals (AIIC)	Not Listed.
Catalogue of Strictly Restricted Toxic Chemicals in China	Not Listed.
China Catalog of Hazardous chemicals 2015	Not Listed.
European INventory of Existing Commercial chemical Substances	Listed.
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans	Not Listed.
TSCA Inventory of Chemical Substances	Not Listed.

16: Other information

Information on revision

SDS Creation Date	July 1, 2025
SDS Revision Date	July 1, 2025

Abbreviations and acronyms in SDS

- 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%

SDS 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
- 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 Safety Data Sheet, Please send your inquiry to sales@MolBest.com

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damage resulting from handling or from contact with the above product.