TCI AMERICA

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	**Flammable material; avoid heat and sources of ignition.** **Harmful compound, minimize exposure.** **Irritating to skin, eyes, and the respiratory system.** **This material is harmful to aquatic organisms and may cause long term adverse effects to the aquatic environment.** **CARCINOGEN. MINIMIZE EXPOSURE.**	

Section I. Chemical Product and Company Identification

Chemical Name **Pyridine,**
[Sequenation Solvent]

Catalog Number	Q0034
Synonym	Azabenzene
Chemical Formula	C_5H_5N
CAS Number	110-86-1

Supplier
TCI America
9211 N. Harborgate St.
Portland OR
1-800-423-8616

In case of Emergency Call
Chemtrec®
(800) 424-9300 (U.S.)
(703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Pyridine, [Sequenation Solvent]	110-86-1	Min. 99.0 (GC)	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.	Rat LD_{50} (oral) 891 mg/kg Rabbit LD_{50} (dermal) 1121mg/kg Rat LC_{50} (inhalation) 28500 mg/m^3 /1H

Section III. Hazards Identification

Acute Health Effects

Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Chronic Health Effects

CARCINOGENIC EFFECTS : Carcinogenic by RTECS criteria.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Tumorigenic Effects.
Rat TDLo Oral 17472 mg/kg/104 weeks continuous.
TOXIC Effects:
Tumorigenic - Equivocal tumorigenic agent by RTECS criteria.
Kidney, Ureter, and Bladder - Kidney tumors.
Rat TDLo Oral 7350 mg/kg/105 weeks continuous.
TOXIC Effects:
Tumorigenic - Carcinogenic by RTECS criteria.
Blood - Leukemia.
Mouse TDLo Oral 25480 mg/kg/104 weeks continuous.
TOXIC Effects:
Tumorigenic - Carcinogenic by RTECS criteria.
Liver - Tumors.
DEVELOPMENTAL TOXICITY: Not available.
Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Section IV. First Aid Measures

Eye Contact

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact

In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Inhalation

If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.

Ingestion

INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

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Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	482°C (899.6°F)
Flash Points	16°C (60.8°F).	Flammable Limits	LOWER: 1.8% UPPER: 12.4%
Combustion Products	These products are toxic carbon oxides (CO, CO_2), nitrogen oxides (NO_x).		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	Flammable liquid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Flammable material. Harmful material. Irritating material. Carcinogenic material. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information	FLAMMABLE LIQUID. HARMFUL. IRRITANT. CARCINOGEN. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray. Always store away from incompatible compounds such as oxidizing agents, acids.

Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent. 
Exposure Limits	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Colorless Clear.)	Solubility	Miscible with water at 20°C, alcohol, benzene, acetone, ether, petroleum ether, oils, and many organic liquids.
Specific Gravity	0.987 (water=1)		
Molecular Weight	79.1	Partition Coefficient	Log P_{ow}: 0.65
Boiling Point	115°C (239°F)	Vapor Pressure	2.0 kPa (@ 20°C)
Melting Point	-42°C (-43.6°F)	Vapor Density	2.73 (Air = 1)
Refractive Index	1.5120	Volatility	Not available.
Critical Temperature	Not available.	Odor	Unpleasant.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with strong oxidizing agents, strong acids.

Continued on Next Page **Emergency phone number (800) 424-9300**

Section XI. Toxicological Information

RTECS Number
UR8400000

Routes of Exposure
Eye Contact. Ingestion. Inhalation.

Toxicity Data
Rat LD_{50} (oral) 891 mg/kg
Rabbit LD_{50} (dermal) 1121mg/kg
Rat LC_{50} (inhalation) 28500 mg/m^3/1H

Chronic Toxic Effects
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Section XII. Ecological Information

Ecotoxicity
Not available.

Environmental Fate
Pyridine's production and use as an industrial solvent and an intermediate in the production of vitamins, dyes, medicines and other organic compounds may result in its release to the environment through various waste streams. Pyridine is also a constituent of coal tar and many plants. If released to air, a vapor pressure of 20.8 mm Hg at 25 deg C indicates pyridine will exist solely as a vapor in the ambient atmosphere. Vapor-phase pyridine will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 43 days. If released to soil, pyridine is expected to have high mobility based upon an estimated Koc of 50. Pyridine has a pKa of 5.23, which indicates that this compound will partially exist in the protonated form in moist acidic soils, and cations adsorb more strongly to soils than neutral molecules. Therefore the mobility of pyridine is expected to be much lower in acidic soils than in neutral or alkaline soils. Volatilization of the neutral species from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 1.1X10-5 atm-cu m/mole. However, in moist acidic soils, where the protonated form is the dominant species, volatilization will not be important because cations do not volatilize. Pyridine may volatilize from dry soil surfaces based upon its vapor pressure. Pyridine was shown to undergo complete biodegradation in soils within 66-170 and 32-66 days under aerobic and anaerobic conditions, respectively. If released into water, pyridine is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization of the neutral species from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 3 and 25 days, respectively. In acidic waters where the protonated form is the dominant species, volatilization will not be an important fate process since cations do not volatilize. Pyridine was biodegraded in about 8 days in a river die-away test, suggesting biodegradation occurs rapidly in natural waters. However other studies have shown that pyridine is slowly biodegraded in sediment/water slurries. Pyridine may undergo indirect photolysis in sunlit surface waters. A BCF of 88 measured in guppies suggests bioconcentration in aquatic organisms is moderate. Occupational exposure to pyridine may occur through inhalation and dermal contact with this compound at workplaces where pyridine is produced or used. Monitoring data indicate that the general population may be exposed to pyridine via ingestion of food and inhalation of ambient air. Since pyridine has been identified as a component of tobacco smoke, persons who smoke or inhale second hand smoke may be exposed to higher levels of pyridine than the general population.

Section XIII. Disposal Considerations

Waste Disposal
Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification
DOT Class 3: Flammable liquid.

PIN Number
UN1282

Proper Shipping Name
Pyridine

Packing Group (PG)
II RQ: 1000 (454)

Continued on Next Page **Emergency phone number (800) 424-9300**

DOT Pictograms

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). On DSL.
EINECS Number (EEC)	203-809-9
EEC Risk Statements	R10- Flammable. R18- In use, may form flammable/explosive vapor-air mixture. R20/21/22- Harmful by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin. R52- Harmful to aquatic organisms. R45- May cause cancer.
Japanese Regulatory Data	ENCS No. (5)-710

Section XVI. Other Information

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Notice to Reader