



MATERIAL SAFETY DATA SHEET

Pyridine MSDS

1. IDENTIFICATION :

MSDS Name : Pyridine, 99+%

Synonyms : Azabenzene; Azine.

2. COMPOSITION AND INFORMATION ON INGREDIENTS

CAS#	Chemical Name	%	EINECS#
99%	203-809-9		110-86-1

Pyridine

Hazard Symbols: XN F
Risk Phrases: 11 20/21/22

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance: colorless to light yellow. Flash Point: 68 deg F. Warning! Flammable liquid. May be harmful if absorbed through the skin. May be harmful if swallowed. May cause central nervous system depression. May cause severe respiratory and digestive tract irritation with possible burns. May cause severe eye and skin irritation with possible burns.

Target Organs: Kidneys, central nervous system, liver, bone marrow.

Potential Health Effects

Eye:

Contact with eyes may cause severe irritation, and possible eye burns.

Skin:

May cause skin irritation. May be harmful if absorbed through The skin. Effects may be delayed. May cause smarting of the skin and first-degree burns on short exposure.

Ingestion:

May cause gastrointestinal irritation with nausea, vomiting And diarrhea. May cause liver and kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. May cause effects similar to those for inhalation exposure. Effects may be delayed.

Inhalation:

Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation. Prolonged exposure may result in dizziness and general weakness.

Chronic:

Prolonged or repeated skin contact may cause dermatitis. Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. May cause liver and kidney damage.

4. FIRST AID MEASURES**Eyes:**

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin:

Get medical aid immediately. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion:

Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation:

Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. DO NOT use mouth-to-mouth respiration.

Notes to Physician:

Treat symptomatically and

5. FIRE FIGHTING MEASURES**General Information:**

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an

explosive mixture with air. Vapors can travel to a source of ignition and flash back. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water.

Containers may explode in the heat of a fire. Flammable Liquid. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Extinguishing Media:

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Do NOT use straight streams of water. Cool containers with flooding quantities of water until well after fire is out.

6. ACCIDENTAL RELEASE MEASURES

General Information:

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Absorb spill with inert material, (e.g., dry sand or earth), then Place into a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

7. HANDLING AND STORAGE

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Ground and bond containers when transferring material. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid contact with heat, sparks and flame. Do not ingest or inhale. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage:

Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Ventilation fans and other electrical service must be non-sparking

and have an explosion-proof design.

Exposure Limits			
Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Pyridine	5 ppm	5 ppm TWA; 15 mg/m ³ TWA 1000 ppm IDLH	5 ppm TWA; 15 mg/m ³ TWA

OSHA Vacated PELs:

Pyridine:

- ⇒ 5 ppm TWA; 15 mg/m³ TWA
- ⇒ Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	colorless to light yellow
Odor:	strong odor - fish-like
pH:	8.5 (0.2 M solution)
Vapor Pressure:	18 mm Hg @20c
Vapor Density:	2.73 (Air=1)
Evaporation Rate:	Not available.

Viscosity: 0.95 mPa s 20 C
Boiling Point: 115 deg C
Freezing/Melting Point: -44 deg C
Autoignition Temperature: 900 deg F (482.22 deg C)
Flash Point: 68 deg F (20.00 deg C)
NFPA Rating: (est.) Health: 2; Flammability: 3; Reactivity: 0

Explosion Limits,

Lower: 1.80

Upper: 12.40

Decomposition Temperature: Not available.

Solubility: Miscible in water. Volatile in steam.

Specific Gravity/Density: .9780

Molecular Formula: C5H5N

Molecular Weight: 79.0417

10. STABILITY AND REACTIVITY

Chemical Stability:

Stable under normal temperatures and pressures. When heated to decomposition cyanide fumes are released.

Conditions to Avoid:

Incompatible materials, ignition sources, excess heat, electrical sparks, exposure to flame.

Incompatibilities with Other Materials:

Acids; acid chlorides; oxidizing agents; chloroformates; bromine trifluoride; mixtures with formamide, iodine, and sulfur trioxide, chlorosulfonic acid, chromic acid, maleic anhydride, sulfuric acid, perchromates, and dinitrogen tetroxide

Hazardous Decomposition Products:

Nitrogen oxides, carbon monoxide, carbon dioxide, nitrogen.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

RTECS#:

CAS# 110-86-1: UR8400000

LD50/LC50:

CAS# 110-86-1: Oral, mouse: LD50 = 1500 mg/kg; Oral, rat: LD50 = 891 mg/kg; Skin, rabbit: LD50 = 1121 mg/kg.

Carcinogenicity:

Pyridine :

Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology:

No information available.

Teratogenicity:

No studies in mammals were found. Tests in the hydra did not suggest the material should be tested in mammals.

Reproductive Effects:

No information available.

Neurotoxicity:

No information available.

Mutagenicity:

Pyridine's mutagenicity potential is equivocal. It was reported to be both positive and negative in *Salmonella typhimurium* strains. It was not mutagenic in tests for chromosome aberrations, but did give weak positive results in tests that detect sister chromatid exchanges.

Other Studies:

Hazards associated with pyridine may be seen in this product. See actual entry in RTECS for complete information.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: Fathead Minnow: 106mg/L; 96H; Flow-through Other For more information, see "HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."

13. DISPOSAL CONSIDERATIONS

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Part 261. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: CAS# 110-86-1: waste number U196.

14. TRANSPORTATION INFORMATION

US DOT

Shipping Name: PYRIDINE

Hazard Class: 3

UN Number: UN1282

Packing Group: II

Canadian TDG

Shipping Name: PYRIDINE

Hazard Class: 3(6.1)

UN Number: UN1282

Other Information: FLASHPOINT 17

15. REGULATORY INFORMATION

US FEDERAL

TSCA

⇒ CAS# 110-86-1 is listed on the TSCA inventory.

Health & Safety Reporting List

⇒ CAS# 110-86-1: Effective Date: October 4, 1982; Sunset Date: October 4, 1992

⇒ Chemical Test Rules: None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

⇒ None of the chemicals are listed under TSCA Section 12b. TSCA Significant New Use Rule: None of the chemicals in this material have a SNUR under TSCA.

SARA

⇒ Section 302 (RQ)

⇒ CAS# 110-86-1: final RQ = 1000 pounds (454 kg)

⇒ Section 302 (TPQ)

⇒ None of the chemicals in this product have a TPQ.

SARA Codes

⇒ CAS # 110-86-1: acute, chronic, flammable.

Section 313

This material contains Pyridine (CAS# 110-86-1, 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40

CFR Part 372.

Clean Air Act:

- ⇒ This material does not contain any hazardous air pollutants.
- ⇒ This material does not contain any Class 1 Ozone depleters.
- ⇒ This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

- ⇒ None of the chemicals in this product are listed as Hazardous Substances under the CWA.
- ⇒ None of the chemicals in this product are listed as Priority Pollutants under the CWA.
- ⇒ None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

- ⇒ None of the chemicals in this product are considered highly Hazardous by OSHA.

STATE

Pyridine can be found on the following state right to know lists:

California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

California No Significant Risk Level:

- ⇒ None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN F

Risk Phrases:

- ⇒ R 11 Highly flammable.
- ⇒ R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

Safety Phrases:

- ⇒ S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- ⇒ S 28 After contact with skin, wash immediately with plenty of soap and water.

WGK (Water Danger/Protection)

- ⇒ CAS# 110-86-1: 2

United Kingdom Occupational Exposure Limits

- ⇒ CAS# 110-86-1: OES-United Kingdom, TWA 5 ppm TWA; 16 mg/m³ TWA
- ⇒ CAS# 110-86-1: OES-United Kingdom, STEL 10 ppm STEL; 33 mg/m³

STEL**Canada**

- ⇒ CAS# 110-86-1 is listed on Canada's DSL/NDSL List.
- ⇒ This product has a WHMIS classification of B2, D1A, D2B.
- ⇒ CAS# 110-86-1 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

- ⇒ CAS# 110-86-1: OEL-ARAB Republic of Egypt:TWA 5 ppm (15 mg/m³)
- ⇒ OEL-AUSTRALIA:TWA 5 ppm (15 mg/m³)
- ⇒ OEL-BELGIUM:TWA 5 ppm (16 mg/m³)
- ⇒ OEL-CZECHOSLOVAKIA:TWA 5 mg/m³;STEL 10 mg/m³ JAN9
- ⇒ OEL-DENMARK:TWA 5 ppm (15 mg/m³)
- ⇒ OEL-FINLAND:TWA 5 ppm (15 mg/m³);STEL 10 ppm (30 mg/m³);Skin
- ⇒ OEL-FRANCE:TWA 5 ppm (15 mg/m³);STEL 10 ppm (30 mg/m³)
- ⇒ OEL-GERMANY:TWA 5 ppm (15 mg/m³)
- ⇒ OEL-HUNGARY:TWA 5 mg/m³;STEL 10 mg/m³;Skin
- ⇒ OEL-THE NETHERLANDS:TWA 5 ppm (15 mg/m³)
- ⇒ OEL-THE PHILIPPINES:TWA 5 mg/m³
- ⇒ OEL-POLAND:TWA 5 mg/m³
- ⇒ OEL-RUSSIA:STEL 5 mg/m³
- ⇒ OEL-SWEDEN:TWA 5 ppm (16 mg/m³);STEL 10 ppm (35 mg/m³)
- ⇒ OEL-SWITZERLAND:TWA 5 ppm (15 mg/m³);STEL 10 ppm (30 mg/m³)
- ⇒ OEL-TURKEY:TWA 5 ppm (15 mg/m³)
- ⇒ OEL-UNITED KINGDOM:TWA 5 ppm (15 mg/m³);STEL 10 ppm (30 mg/m³)
- ⇒ OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
- ⇒ OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

16. ADDITIONAL INFORMATION

MSDS Creation **Date:** 4/22/1998

MSDS Revision #4 **Date:** 8/02/2000

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or N implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.