Material Safety Data Sheet
Pyridine, 99+%

ACC# 96453

Section 1 - Chemical Product and Company Identification

MSDS Name: Pyridine, 99+%
Catalog Numbers: AC131780000, AC131780010, AC131780025, AC131780500, AC131782500, AC9501283, XXPYRLW4LI
Synonyms: Azabenzene; Azine.
Company Identification:
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
110-86-1	Pyridine	> 99	203-809-9

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

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless to light yellow liquid. Flash Point: 68 deg F. May cause severe eye and skin irritation with possible burns.
Flammable liquid and vapor. May cause central nervous system depression. **Danger!** Stench. May be harmful if swallowed, inhaled, or absorbed through the skin. May cause respiratory tract irritation.
Target Organs: Blood, kidneys, central nervous system, liver, eyes, skin, mucous membranes.

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. Substance is readily absorbed through the skin. Pyridine was determined not to be a skin sensitizer in guinea pigs.
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 nausea, headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation. Prolonged exposure may result in dizziness and general weakness. Other symptoms reported with acute exposure to pyridine include nervousness, insomnia, and loss of appetite.
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. Exposures to doses of pyridine that are too low to produce overt clinical symptoms can cause liver damage and repeated low-level exposures can cause cirrhosis. Feeding studies in rats produced blood effects like changes in clotting factors.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.
Skin: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid. Wash clothing before reuse.
Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 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 and vapor. 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. Solid streams of water may be ineffective and spread material.
Flash Point: 68e deg F (20.00 deg C)
Autoignition Temperature: 900 deg F (482.22 deg C)
Explosion Limits, Lower: 1.8%
Upper: 12.4%
NFPA Rating: (estimated) Health: 3; Flammability: 3; Instability: 0

Section 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. vermiculite, sand or earth), then place in suitable 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. Prevent spreading of vapors through sewers, ventilation systems and confined areas. Evacuate unnecessary personnel. Approach spill from upwind. U.S. regulations require reporting spills and releases to soil, water and air in excess of reportable quantities.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. 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 pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Do not breathe vapor. Use only with adequate ventilation.
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. Isolate from oxidizing materials and acids.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. 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 TWA	5 ppm TWA; 15 mg/m3 TWA 1000 ppm IDLH	5 ppm TWA; 15 mg/m3 TWA

OSHA Vacated PELs: Pyridine: 5 ppm TWA; 15 mg/m3 TWA
Personal Protective Equipment
Eyes: Wear chemical goggles and face shield.
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 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: colorless to light yellow
Odor: strong odor - fish-like
pH: 8.5 (0.2 M aq soln)
Vapor Pressure: 18 mm Hg @ 20 deg C
Vapor Density: 2.73 (Air=1)
Evaporation Rate: Not available.
Viscosity: 0.95 mPa s 20 deg C
Boiling Point: 115 deg C
Freezing/Melting Point:-42 deg C
Decomposition Temperature: Not available.
Solubility: Miscible in water. Volatile in steam.
Specific Gravity/Density:.9780
Molecular Formula:C5H5N
Molecular Weight:79.10

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: 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, cyanide fumes.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 110-86-1: UR8400000
LD50/LC50:
CAS# 110-86-1:
Dermal, guinea pig: LD50 = 1 gm/kg;
Draize test, rabbit, skin: 500 mg/24H Mild;
Inhalation, rat: LC50 = 28500 mg/m3/1H;
Oral, mouse: LD50 = 1500 mg/kg;
Oral, rat: LD50 = 891 mg/kg;
Skin, rabbit: LD50 = 1121 mg/kg;

Carcinogenicity:
CAS# 110-86-1:
California: carcinogen; initial date 5/17/02
IARC: IARC Group 3 - not classifiable
Epidemiology: No information available.
Teratogenicity: Pyridine caused muscle/skeletal effects when injected into developing chickens but was not teratogenic in frogs at sublethal doses. The relevance of these studies to human reproduction is unclear.
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 produc t. See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: 106mg/L; 96H; Flow-through No data available.
Environmental: Terrestrial: Should have very high mobility. It is adsorbed to acid clay to a moderate extent. Complete degradation in one soil occurred in less than 8 days. Aquatic: Should biodegrade after an acclimation period and can also be lost through volatilization. Atmospheric: Exists in the vapor phase based on a vapor pressure of 20.80 mm Hg and react slowly with photochemically produced hydroxy radicals with experimental half-lives of 32 and 16 days in clean and moderately polluted atmospheres, respectively. Bioconcentration in aquatic organisms should not be significant.
Physical: No information available.
Other: For more information, see "HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."

Section 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 Parts 261.3. 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.

Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	PYRIDINE				No information available.
Hazard Class:	3				
UN Number:	UN1282				
Packing Group:	II				

Section 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: 10/4/82; Sunset Date: 10/4/92
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

CERCLA Hazardous Substances and corresponding RQs
CAS# 110-86-1: 1000 lb final RQ; 454 kg final RQ
SARA Section 302 Extremely Hazardous Substances
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 373.
Clean Air Act:
This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.
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
CAS# 110-86-1 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act: WARNING: This product contains Pyridine, a chemical known to the state of California to cause cancer. 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...

WGK (Water Danger/Protection)
CAS# 110-86-1: 2
Canada - DSL/NDSL
CAS# 110-86-1 is listed on Canada's DSL List.
Canada - WHMIS
This product has a WHMIS classification of B2, D2A, D2B.
Canadian Ingredient Disclosure List
CAS# 110-86-1 is listed on the Canadian 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);Ski n 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 pp m (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-UNITE D 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, SINGAPO RE, VIETNAM check ACGI TLV

Section 16 - Additional Information

MSDS Creation Date: 4/22/1998
Revision #6 Date: 3/18/2003