

PYRIDINE

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: *Pyridine; Azabenzene; Azine*

Chemical Family: *Heterocyclic aromatic compound*

Chemical Formula: C_5H_5N

Product Use: *Laboratory solvent*

Manufacturer's Name and Address:

Caledon Laboratories Ltd.

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HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	%	TLV Units	CAS No.
<i>Pyridine</i>	<i>>98</i>	<i>5 ppm</i>	<i>110-86-1</i>

PHYSICAL DATA

Physical State: *Liquid*

Odour and Appearance: *Colourless or slightly yellow liquid; penetrating, obnoxious, "fishy" odour*

Odour Threshold (ppm): *0.013 to 4.2 ppm. Good warning properties, detectable well below TLV, but odour perception may decline quickly (olfactory fatigue).*

Vapour Pressure (mm Hg): *20 mm Hg @ 25°C*

Vapour Density (Air = 1): *2.73*

Evaporation Rate: *Not available*

Boiling Point (°C): *115.4°C*

Freezing Point (°C): *-42°C*

pH: *8.5 (0.2M, aqueous)*

Specific Gravity (water=1): *0.982*

Coefficient of Water/Oil distribution: *Not available*

SHIPPING DESCRIPTION

UN: *1282*

T.D.G. Class: *3*

Pkg. Group: *II*

REACTIVITY DATA

Chemical Stability: *Stable*

Incompatibility with other substances: *Vigorous or violent exothermic reaction with acids, maleic anhydride. May react violently with formamide, iodine. May react vigorously or explosively with oxidizing agents, increasing risk of fire or explosion. Forms shock-sensitive salts with silver perchlorate. Produces flammable solid by reaction with BrF_3 , unstable with CrO_3 , incandescs on contact with fluorine, reacts violently with N_2O_4 . Pyridine-metal perchlorate complexes are explosive. May attack some forms of plastics, rubbers and coatings.*

Reactivity: *Slowly darkens on exposure to light. Keep away from heat, sparks and open flames. Avoid all combustible or incompatible materials, generation of mist.*

Hazardous Decomposition Products: *Emits toxic fumes of cyanides and possibly ammonia.*

FIRE AND EXPLOSION DATA

Flammability: *Flammable liquid and vapour. Can release vapours that form explosive mixtures with air at or above 17°C.*

Vapour is heavier than air and may travel considerable distance to source of ignition and flash back. Liquid can float on water to ignition source and flash back and/or spread fire.

Extinguishing Media: *CO, dry chemical, alcohol foam. Water may be ineffective for extinguishing, but as spray or fog may be used to cool containers, disperse vapours, dilute chemical to non-flammable mixture. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment (NIOSH/OSHA approved self-contained breathing apparatus) and clothing (Bunker Gear) sufficient to prevent inhalation of mists or vapours, and contact with skin and eyes. Closed containers may rupture violently during fire; withdraw immediately in case of rising sound from vent or discoloration of tank.*

Flash Point (Method Used): *17°C (TCC)*

Autoignition Temperature: *482°C*

Upper Flammable Limit (% by volume): *12.4*

Lower Flammable Limit (% by volume): *1.8*

Hazardous Combustion Products: *NO_x , CO_x . Toxic hydrogen cyanide may be formed.*

Sensitivity to Impact: *None. Some reactions produce shock-sensitive salts (See "Incompatibility . . .")*

Sensitivity to Static discharge: *Mixtures of vapour with air may be ignited by static discharge. Liquid can accumulate static charge by flow or agitation.*

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

TOXICOLOGICAL DATA:

LD₅₀: *(oral, rat) 891 mg/kg; (dermal, rabbit) 1,121 mg/kg*

LC₅₀: *(rat) 28,500 mg/m³/1h*

EFFECTS OF ACUTE EXPOSURE TO PRODUCT:

Inhaled: *Irritating to upper respiratory tract. Concentrations >10 ppm are objectionable, so exposure is usually terminated. Overexposure can cause central nervous system depression, headaches, nausea, giddiness and vomiting. Exposure to high levels may result in liver and kidney damage, convulsions, coma and death.*

In contact with skin: *Can cause burning sensation, severe irritation and redness. May be absorbed in toxic amounts causing systemic effects as in "Inhaled", although such effects have not been reported in humans.*

In contact with eyes: *Vapour can cause burning sensation, irritation and redness. Liquid is corrosive, causing severe irritation and possible permanent damage.*

Ingested: *Irritating to mouth and throat. Small doses (~ 1mL) can cause nausea, vomiting, diarrhea and central nervous system depression, possible kidney, liver damage (See "Inhaled").*

EFFECTS OF CHRONIC EXPOSURE TO PRODUCT:

Prolonged or repeated exposure may cause liver, kidney, and CNS damage. Symptoms are headache, dizziness, nervousness, sleeplessness, nausea and vomiting, increased urination. Prolonged or repeated skin exposure may cause redness and thickening of skin, dermatitis; may cause hypersensitivity to sunlight, resulting in severe skin eruptions.

Carcinogenicity: *ACGIH, A3, confirmed animal carcinogen with unknown relevance to humans*

Teratogenicity: *Insufficient data available*

Reproductive Effects: *Insufficient data available*

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Mutagenicity: Both positive and negative results in salmonella typhimurium, results inconclusive. No mammalian test results available.

Synergistic Products: None known

PREVENTIVE MEASURES

Engineering Controls: Non-sparking, grounded exhaust ventilation, separate from other ventilation systems.

Respiratory Protection: Up to 125 ppm: NIOSH/OSHA approved supplied-air respirator in continuous-flow mode, or powered air-purifying respirator with organic vapour cartridge. Up to 250 ppm: full face-piece chemical cartridge respirator with organic vapour cartridge, or powered air-purifying respirator with tight-fitting face-piece and organic vapour cartridge. Up to 1000 ppm: positive-pressure, full face-piece supplied-air respirator. Higher or unknown concentrations, as in fire or spill conditions: positive-pressure full face-piece self-contained breathing apparatus or full face-piece supplied-air respirator with auxiliary positive-pressure self-contained breathing apparatus.

Eye Protection: Chemical safety goggles and/or face shield.

Skin Protection: Barrier (PE/PA/PE), Silver Shield/4H™ (polyethylene/ethylene vinyl alcohol), Responder™, Tychem™BR/LV, Tychem™TK gloves. Other impervious clothing, overalls, apron, boots, sufficient to prevent contact if splash occurs.

Other Personal Protective Equipment: Safety shower and eye wash in the work area.

Leak and Spill Procedure: Evacuate area, and provide maximum ventilation. Eliminate all sources of ignition (sparks, flames, hot surfaces). Do not touch spilled material. Cleanup personnel must be thoroughly trained in handling hazardous chemicals, and must wear protective equipment and clothing sufficient to prevent inhalation of mists or vapours and any contact with skin and eyes. Dike and soak up spilled material with inert absorbent. Prevent from entering sewers or waterways. Put contaminated material in suitable, labelled, closed containers for collection by disposal agency. Contaminated absorbent may pose the same hazards as the product, so handle with caution. Flush area of spill thoroughly with copious amounts of running water.

Waste Disposal: Follow all federal, provincial and local regulations for disposal.

Handling Procedures and Equipment: FLAMMABLE, TOXIC. Workers must be thoroughly trained in the handling of hazardous materials and in the hazards of this material and its safe use, and must wear appropriate protective equipment and clothing. Eliminate all ignition sources. Post "No Smoking" signs. Ground and bond equipment and containers to prevent a static charge buildup. Use spark-resistant tools and avoid "splash filling" of containers. Keep storage and work areas free of combustible or incompatible materials. Avoid generating mists or vapours. Avoid all contact and inhalation. Use the smallest amount possible for the purpose, in a designated area with adequate ventilation. Empty containers may contain hazardous residues; treat with caution.

Storage Requirements: Store in suitable, corrosion-resistant, labelled containers, in a cool, dry, well-ventilated area, away from all sources of ignition and incompatible or combustible materials. Keep containers tightly closed. Protect from damage, and inspect frequently for signs of damage. Post "NO SMOKING" signs. Have appropriate fire extinguishers and spill cleanup equipment near the storage area. Storage facilities should be made of fire-resistant materials. Provide raised sills

and trenches to drain to a safe area.

FIRST AID MEASURES

SPECIFIC MEASURES:

Eyes: IMMEDIATELY flush eyes with warm gently running water for at least twenty (20) minutes, holding eyelids open and away from eyeball while flushing. Take care not to flush contaminated water into unaffected eye. Wear gloves to avoid contact. Get medical attention immediately.

Skin: Remove contaminated clothing (including rings, watches, belts and shoes). Wear gloves to avoid contact. IMMEDIATELY flush exposed area with large amounts of warm running water for at least twenty (20) minutes, or until no trace of chemical remains. If irritation persists, get medical attention immediately. Decontaminate clothing before reuse, or discard.

Inhalation: Immediately remove to fresh air (caution must be used by rescuers to avoid exposure to contaminating fumes). Give oxygen and get medical attention for breathing difficulty. If breathing has stopped give artificial respiration. If breathing and pulse are absent give CPR. IMMEDIATELY OBTAIN MEDICAL ATTENTION. Stay with casualty until medical assistance is reached.

Ingestion: DO NOT INDUCE VOMITING. Danger of aspiration with emesis. If casualty is alert and NOT convulsing, rinse mouth with water and give 1 to 2 cups of water to drink to dilute material. Immediately get medical attention. If spontaneous vomiting occurs, have casualty lean forward with head down to avoid breathing in of vomitus. Rinse mouth and give more water to drink.

REFERENCES USED

CCINFO disc: Cheminfo
Budavari: The Merck Index, 12th ed., 1997
Royal Society of Chemistry: Chemical Safety Data Sheets, Vol. 1, 1992
Sax, Lewis: Hawley's Condensed Chemical Dictionary, 11th ed., 1987
Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: March 1989

Revision: January 2012

MSDS: 8700-1, 8701-2, 8703-2, 8703-7, CAL 1191, CAL 1346

Proposed WHMIS Designation: B2; D2B (irritation)
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