

PYRIDINE

PRODUCT IDENTIFICATION

CAS NO.	110-86-1
EINECS NO.	203-809-9
FORMULA	C ₅ H ₅ N
MOL WT.	79.10
H.S. CODE	2933.31
TOXICITY	Oral rat LD50: 891 mg/kg;
SYNONYMS	Azabenzene; Azine; Pyridin (German); Piridina (Spanish); Piridina (Italian); Pirydyna (Polish);



DERIVATION

CLASSIFICATION

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Colorless to yellow liquid
MELTING POINT	-41 C
BOILING POINT	115 C
SPECIFIC GRAVITY	0.982
SOLUBILITY IN WATER	Miscible
pH	8.5 (0.2m solution)
VAPOR DENSITY	2.72
AUTOIGNITION	480 C
REFRACTIVE INDEX	1.5102
NFPA RATINGS	Health: 2 ; Flammability: 3 ; Reactivity: 0
FLASH POINT	17 C
STABILITY	Stable under ordinary conditions.

GENERAL DESCRIPTION & APPLICATIONS

PYRIDINE, also called azabenzene and azine, is a heterocyclic aromatic tertiary amine characterized by a six-membered ring structure composed of five carbon atoms and a nitrogen which replace one carbon-hydrogen unit in the benzene ring (C₅H₅N). The simplest member of the pyridine family is pyridine itself. It is colorless, flammable, toxic liquid with a unpleasant odor, miscible with water and with most organic solvents, boils at 115 C. Its aqueous solution is slightly alkaline. Its conjugate acid is called pyridinium cation, C₅H₅NH⁺, used as a oxidation agent for organic synthesis.. Pyridine is a base with chemical properties similar to tertiary amines. Nitrogen in the ring system has an equatorial lone pair of electrons, that does not participate in the aromatic pi-bond. Its aqueous solution is slightly alkaline. It is incompatible and reactive with strong oxidizers and strong acids, and reacts violently with chlorosulfonic acid, maleic anhydride, oleum, perchromates, b-propiolactone, formamide, chromium trioxide, and sulfuric acid. Liquid pyridine easily evaporates into the air. If it is released to the air, it may take several months to years until it breaks down into other compounds. Usually, pyridine is derived from coal tar or synthesized from other chemicals, mainly acetaldehyde and ammonia. Pyridine compounds are found in nature. For example, nicotine from tobacco, ricinine from castor bean, pyridoxine or vitamin B and P products, alkaloids (such as coniine, piperine and nicotine), and etc. Some pyridine compounds consumed largely are;

Picoline : Three structural isomers of methyl pyridines (alpha, beta, gamma- positions)

Lutidine : Six structural isomers of dimethyl pyridines (2,3-, ,24-, 2,5-, 2,6-, 3,4-, 3,5-

positions)

Collidine : Three structural isomers of trimethyl pyridines (2,3,5-, 2,3,6-, 2,4,6- positions)

Pyrimidine: Pyridine alteration containing nitrogen atoms at positions 1 and 3

Piperidine: Hexahydropyridine (saturated form)

Nicotinic acid: pyridine-3-carboxylic acid

Pyridine and its derivatives are very important in industrial field as well as in bio chemistry. Nucleotide consist of either a nitrogenous heterocyclic base (purine or pyrimidine). Three major pyrimidines in living systems are cytosine, thymine, and uracil. Pyrimidine and its derivatives are biologically important components of nucleic acids (DNA, RNA) and coenzymes. Some pyridine system is active in the metabolism in the body. They can be the parent compound of many drugs, including the barbiturates. Pyridine and its derivatives are used as solvents and starting material for the synthesis of target compounds such as insecticides, herbicides, medicines, vitamins, food flavorings, feed additives, dyes, rubber chemicals, explosives, disinfectants, and adhesives. Pyridine is also used as a denaturant for antifreeze mixtures, as a dyeing assistant in textiles and in fungicides. Compounds not made from pyridine but containing its ring structure include niacin and pyridoxal; isoniazid, nicotine, and several other nitrogenous plant products.

SALES SPECIFICATION

APPEARANCE	Colorless to yellow liquid
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PURITY (GC)	99.8% min
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MOISTURE	0.05% max
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SPECIFIC GRAVITY	0.987 - 0.991
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COLOR, APHA	20max
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TRANSPORTATION

PACKING	195kgs in Drum
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HAZARD CLASS	3 (Packing Group: II)
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UN NO.	1282
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OTHER INFORMATION

Hazard Symbols: F XN, Risk Phrases: 11-20/21/22, Safety Phrases: 26-28