

PRODUCT CODE- PPDNT15884

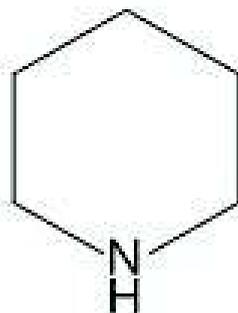
 Taj Pharmaceuticals Ltd.
Piperidine
CAS No. 110-89-4 

5841 PPDNT05 687112 365

Piperidine and its salts

Identifiers

CAS number : 110-89-4
Molecular formula : C₅H₁₁N
Molecular weight : 85.15 g/mol
Appearance : colourless liquid
Density : 0.862 g/ml, liquid
Melting point : -7 °C
Boiling point : 106 °C
Solubility in water : miscible
Acidity : (pKa) 11.24
Viscosity : 1.573 cP at 25 °C
Hazards : EU classification Flammable (F)
R-phrases : R11, R23/24, R34



Piperidine is an organic compound with the molecular formula (CH₂)₅NH. This heterocyclic amine consists of a six-membered ring containing five methylene units and one nitrogen atom. It is a colorless fuming liquid with an odor described as ammoniacal, pepper-like. The name comes from the genus name Piper, which is the Latin word for pepper. Piperidine is a widely used building block and chemical reagent in the synthesis of organic compounds, including pharmaceuticals.

Stability

Stable. Highly flammable. Incompatible with strong oxidizing agents, strong acids, organic acids, water. Vapours may flow along surfaces to a distant source of ignition.

Toxicology

Poison. May be fatal if inhaled or swallowed. Severe irritant. Skin contact may cause severe irritation or burns. Contact with the eyes may lead to permanent damage.

Toxicity data

ORL-RAT LD50 400 mg kg-1
IPR-MUS LD50 50 mg kg-1
SKN-RBT LD50 320 mg kg-1
ORL-MUS LD50 30 mg kg-1
ORL-RBT LD50 145 mg kg-1

Risk phrases

R11 R23 R24 R34. (Note: The risk phrases here are those given by Annex I. Annex I does not specify R22 or R25, but this material is clearly harmful if swallowed so should be treated as though R22 were included.)

Personal protection

Safety glasses, gloves, good ventilation. Remove sources of ignition from the working area.

Piperidine is an organic compound with the molecular formula $(CH_2)_5NH$. This heterocyclic amine consists of a six-membered ring containing five methylene units and one nitrogen atom. It is a colorless fuming liquid with an odor described as ammoniacal, pepper-like the name comes from the genus name Piper, which is the Latin word for pepper. Piperidine is a widely used building block and chemical reagent in the synthesis of organic compounds, including pharmaceuticals.

a colorless, liquid hydrocarbon, $(CH)_5NH$, found in many alkaloids and obtained by reducing pyridine or by treating piperine with alkali: used in making rubber, oils, fuels, etc.

Production

Industrially, piperidine is produced by the hydrogenation of pyridine, usually over a molybdenum sulfide catalyst.

Uses

Piperidine is used as a solvent and as a base. The same is true for certain derivatives: N-formylpiperidine is a polar aprotic solvent with better hydrocarbon solubility than other amide solvents, and 2,2,6,6-tetramethylpiperidine is highly sterically hindered base, useful because of its low nucleophilicity and high solubility in organic solvents.

Reactions

Piperidine is a widely used secondary amine. It is widely used to convert ketones to enamines. Enamines derived from piperidine can be used in the Stork enamine alkylation reaction. Piperidine can be converted to the chloramine $C_5H_{10}NCl$ with calcium hypochlorite. The resulting chloramine undergoes dehydrohalogenation to afford the cyclic imine.

SPECIFICATION

APPEARANCE : clear to light yellow liquid

PURITY (G.C) : 99.5% min

COLOR, APHA : 10 max

SPECIFIC GRAVITY: 0.857 - 0.867

MOISTURE : (K.F) 0.1% max

PACKING : 170kgs in drum

GENERAL DESCRIPTION & APPLICATIONS

Piperidine, hexahydropyridine, is a family of heterocyclic organic compound derived from pyridine through hydrogenation. It has one nitrogen atom in the cycle. It is a clear liquid with pepper-like aroma. It boils at 106 C, soluble in water, alcohol, and ether. The major application of piperidine is for the production of dipiperidinyldithium tetrasulfide used as a rubber vulcanization accelerator. In pharmaceutical synthesis industry, it is a skeleton in some drugs such as methylphenidate (central nervous system stimulant), budipine (antiparkinsonian drug) raloxifene (selective estrogen receptor modulator), minoxidil (an oral drug to treat high blood pressure). It is used as a special solvent in solid phase synthesis and a protecting group for peptide synthesis. Piperidine derivative compounds are used as intermediate to make crystal derivative of aromatic nitrogen compounds containing nuclear halogen atoms. Ring system compounds with nitrogen which have basic property playing important roles as cyclic component in industrial field such as raw materials for hardener of epoxy resins, corrosion inhibitors, insecticides, accelerators for rubber, urethane catalysts, antioxidants and as a catalyst for silicone esters. They are used in manufacturing pharmaceuticals. Piperidine is listed as a Table II precursor under the United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances.

This document plus the full buyer / prescribing information, prepared for health professionals can be found at:

<http://www.tajapi.com>

or by contacting the sponsor, Taj Pharmaceuticals Limited., at:

91 022 30601000.

This leaflet was prepared by
Taj Pharmaceuticals Limited,
Mumbai (India).

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