


PRODUCT CODE- MTHMNT6281

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



1222 54621 8874 3139005

Methylamine

Methylamine IUPAC name : aminomethane

Other names : monomethylamine MMA

Identifiers

CAS number : [74-89-5]

Molecular formula : CH₅N

Molar mass : 31.06 g mol⁻¹

Appearance : Colorless Gas

Density : d_{40.699} (-10.8 °C) / 0.902 g/cm³, 40w/w% in water

Melting point : -94 °C (179.15 K)

Boiling point : -6 °C (267.2 K)

Solubility in water : 108 g/100 mL (20 °C)

Acidity (pKa) : 10.64 (value for protonated amine, pKaH)

Basicity (pKb) : 3.36

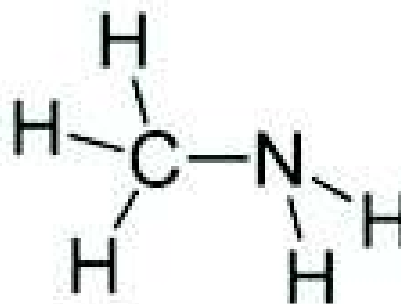
Viscosity : 0.23 cP at 0 °C

Structure : Molecular shape tetrahedral

Dipole moment : 1.31 D (gas)

R-phrases : 11-36/37 (40% solution in water)

Flash point : 8 °C



Methylamine is the organic compound with a formula of CH₃NH₂. This colourless gas is a derivative of ammonia, wherein one H atom is replaced by a methyl group. It is the simplest primary amine. It is sold as a solution in methanol, ethanol, THF, and water, or as the anhydrous gas in pressurized metal containers. Industrially methylamine is sold in its anhydrous form in pressurized railcars and tank trailers. It has a strong odour similar to fish. Methylamine is used as a building block for the synthesis of many other commercially available compounds.

Production

Methylamine is prepared commercially by the reaction of ammonia with methanol in the presence of a silicoaluminate catalyst. Dimethylamine and trimethylamine are coproduced; the reaction kinetics and reactant ratios determine the ratio of the three products.

Applications

Methylamine is a good nucleophile as it is highly basic and unhindered. Its use in organic chemistry is pervasive. Some reactions involving simple reagents include: with phosgene to methyl isocyanate, with carbon disulfide and sodium hydroxide to the sodium methylthiocarbamate, with chloroform and base to methyl isocyanide and with ethylene oxide to methylethanolamines.



Representative commercially significant chemicals produced from methylamine include the pharmaceuticals ephedrine and theophylline, the pesticides carbofuran, carbaryl, and metham sodium, and the solvents N-methylformamide and N-methylpyrrolidone. The preparation of some surfactants and photographic developers require methylamine as a building block.

Liquid methylamine can be used as a solvent analogous to liquid ammonia. It shares some of the properties of liquid ammonia, but is better for dissolving organic substances, in the same way that methanol is better than water.

Biological chemistry

Methylamine arises naturally as the result of putrefaction

Putrefaction

Putrefaction is the decomposition of animal proteins, especially by Anaerobic organism, described as putrefying bacteria. Decomposition is a more general process and is a substrate for methanogenesis

Methanogenesis

Methanogenesis or biomethanation is the formation of methane by microbes known as methanogens. Organisms capable of producing methane have been identified only from the Kingdom Archaea, a group Phylogenetics distinct from both eukaryotes and bacteria, although many live in close association with anaerobic bacteria. It serves as a buffering agent.

Buffering agent

A buffering agent adjusts the pH of a solution. The function of a buffering agent is to drive an acidic or basic solution to a certain pH state and prevent a change in this pH in the lumen of the chloroplast

Chloroplast

Chloroplasts are organelles found in plant cells and other eukaryote organisms that conduct photosynthesis. Chloroplasts capture light energy to conserve Thermodynamic free energy in the form of Adenosine triphosphate and reduce NADP to NADPH through a complex set of processes called photosynthesis in plants, effectively siphoning off protons that are heading for ATP synthase

An ATP synthase is a general term for an enzyme that can synthesize adenosine triphosphate from adenosine diphosphate and inorganic phosphate by using some form of energy.



Safety

In toxicology, the median lethal dose, LD50, or LCt50 of a toxic substance or radiation is the Dose required to kill half the members of a tested population (mouse) is 2400 mg/m³. Methylamine is also controlled as a List 1 substance by the United States Drug Enforcement Agency (DEA)

Drug Enforcement Administration

The Drug Enforcement Administration is a United States Department of Justice law enforcement agency tasked with combating War on Drugs Not only is the DEA the lead agency for domestic enforcement of the drug policy of the United States, it also has sole responsibility for coordinating and pursuing U.S. lists methylamine as a precursor (to methamphetamine).

Methamphetamine is a stimulant and sympathomimetics psychoactive drug. It is a member of the family of phenylethylamines. The levorotary levomethamphetamine is an over-the-counter drug and used in Vicks Inhalers for nasal decongestion and does not possess the Central nervous system activity of dextro or racemic methamphetamine.

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
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