

PRODUCT CODE- BZNT1190

Taj Pharmaceuticals Ltd.

B e n z e n e
CAS No. 71-43-2



5577 TM 2145 62131 792

Benzene

CAS number : 71-43-2

Molecular formula : C₆H₆

Molar mass : 78.11 g mol⁻¹

Appearance : Colorless liquid

Density : 0.8786 g/cm³

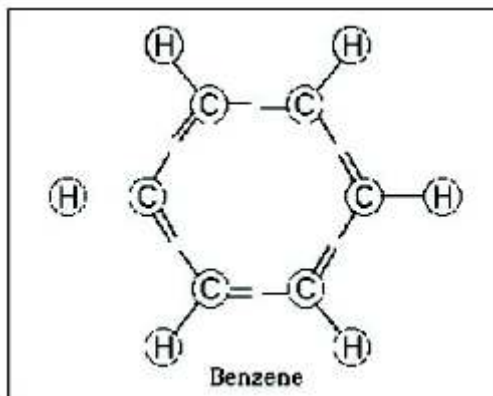
Melting point : 5.5 °C, 279 K, 42 °F

Boiling point : 80.1 °C, 353 K, 176 °F

Solubility in water : 0.8 g/L (25 °C)

Viscosity : 0.652 cP at 20 °C

Dipole moment : 0 D



Benzene, or benzol, is an organic chemical compound with the molecular formula C₆H₆. It is sometimes abbreviated Ph-H. Benzene is a colorless and highly flammable liquid with a sweet smell and a relatively high melting point. Because it is a known carcinogen, its use as an additive in gasoline is now limited, but it is an important industrial solvent and precursor in the production of drugs, plastics, synthetic rubber, and dyes. Benzene is a natural constituent of crude oil, and may be synthesized from other compounds present in petroleum. Benzene is an aromatic hydrocarbon and the second [n]-annulene ([6]-annulene), a cyclic hydrocarbon with a continuous pi bond.

Production

Trace amounts of benzene may result whenever carbon-rich materials undergo incomplete combustion. It is produced in volcanoes and forest fires, and is also a component of cigarette smoke. Benzene is a principal component of combustion products produced by the burning of PVC (polyvinyl chloride).

Until World War II, most benzene was produced as a by-product of coke production (or "coke-oven light oil") in the steel industry. However, in the 1950s, increased demand for benzene, especially from the growing plastics industry, necessitated the production of benzene from petroleum. Today, most benzene comes from the petrochemical industry, with only a small fraction being produced from coal.

Four chemical processes contribute to industrial benzene production: catalytic reforming, toluene hydrodealkylation, toluene disproportionation, and steam cracking. In the US, 50% of benzene comes from catalytic reforming and 25% from steam cracking. In Western Europe, 50% of benzene comes from steam cracking and 25% from catalytic reforming.

Uses

In the 19th and early-20th centuries, benzene was used as an after-shave lotion because of its pleasant smell. Prior to the 1920s, benzene was frequently used as an industrial solvent, especially for degreasing metal. As its toxicity became obvious, benzene was supplanted by other solvents, especially toluene (methyl benzene), which has similar physical properties but is not as carcinogenic.

In 1903, Ludwig Roselius popularized the use of benzene to decaffeinate coffee. This discovery led to the production of Sanka (the letters "ka" in the brand name stand for kaffein). This process was later discontinued. Benzene was historically found as a significant component in many consumer products such as Liquid Wrench, Testors model cement, several paint strippers, rubber cements, spot removers and other hydrocarbon-containing products. Some, like Testors, ceased manufacture of its benzene formula about 1950 while others continued to use benzene as a component or significant contaminant until the late 1970s when leukemia deaths were found associated with Goodyear's Pliofilm production operations in Ohio. Until the late 1970s, many hardware stores, paint stores, and other retail outlets sold benzene in small cans, such as quart size, for general-purpose use. Many students were exposed to benzene in school and university courses while performing laboratory experiments with little or no ventilation in many cases. This very dangerous practice has been almost totally eliminated.

As a gasoline (petrol) additive, benzene increases the octane rating and reduces knocking. Consequently, gasoline often contained several percent benzene before the 1950s, when tetraethyl lead replaced it as the most widely-used antiknock additive. With the global phaseout of leaded gasoline, benzene has made a comeback as a gasoline additive in some nations. In the United States, concern over its negative health effects and the possibility of benzene entering the groundwater have led to stringent regulation of gasoline's benzene content, with limits typically around 1%.

European petrol specifications now contain the same 1% limit on benzene content. The United States Environmental Protection Agency has new regulations that will lower the benzene content in gasoline to 0.62% in 2011.

Benzene is an aromatic hydrocarbon that is produced by the burning of natural products. It is a component of products derived from coal and petroleum and is found in gasoline and other fuels. Benzene is used in the manufacture of plastics, detergents, pesticides, and other chemicals. Research has shown benzene to be a carcinogen (cancer-causing). With exposures from less than five years to more than 30 years, individuals have developed, and died from, leukemia. Long-term exposure may affect bone marrow and blood production. Short-term exposure to high levels of benzene can cause drowsiness, dizziness, unconsciousness, and death.

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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Mumbai (India).

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