

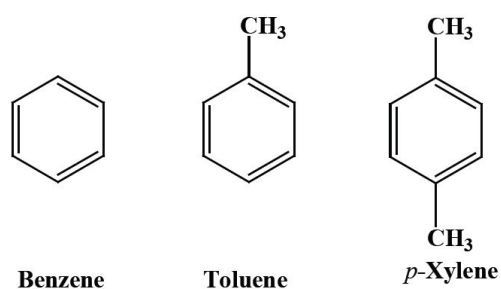
Answer on Question # 72607 - Chemistry - General Chemistry

What is the origin of the name aromatic hydrocarbons? Give three examples of aromatic hydrocarbons. Briefly describe the structural characteristics of benzene.

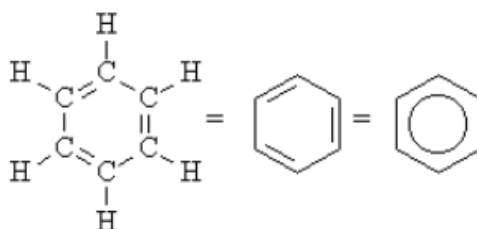
Solution

The term "aromatic" was given to a class of benzene compounds because of their specific "aromatic" odors. Modern definition of aromatic compounds is based on quantum mechanical principles; the number of π electrons in the hydrocarbon determines aromaticity.

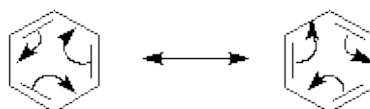
The most common aromatic hydrocarbons are derivatives of benzene, the structures are given below:



Benzene structure can be represented by three different ways:



The benzene ring consists of six coplanar carbon atoms bonded by alternating double and single bonds. The bond angles about the atoms is 120° . The double and single bonds can be thought of as alternating positions between the carbon atoms very rapidly:



The result is actually not alternating double and single bonds but what is known as a "hybrid" structure.

Sources:

<http://hyperphysics.phy-astr.gsu.edu/hbase/Organic/Aromatic.html> (Aromatic hydrocarbons)

http://www.chem.latech.edu/~deddy/chem121/Alkene_Alkyne_Aromatic.htm

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