

Benzene and the Kekule Model

Pre-lesson assignment- textbook page 432-434 (scanned)

Define the following terms

- Arene
- π -bond

Make notes on the Kekule model

Use the following questions as guidance

1. Draw a diagram showing a π -bond in ethene
2. Predict the reaction of ethene with Br₂
3. Draw the first step of the mechanism of the reaction of ethene with Br₂
 - a. Why is the orientation of the Br₂ important?
 - b. Why is Br₂ an electrophile in this reaction?
4. Draw the Kekule model of Benzene.
 - a. Show, using an equation, the reaction that **should** happen when Br₂ is added to Kekule’s benzene
 - b. Using a ruler, sketch the shape of Kekule’s benzene. C-C bonds are 0.153nm in length, and C=C bonds are 0.134nm in length. Use a scale of 1cm=0.100nm. What do you notice about the resulting hexagon?
 - c. Use the data below to calculate the enthalpy change of hydrogenation for Kekule’s benzene (WARNING – I will be able to tell whether you just copied it out of the textbook!)

Bond	Average Bond Enthalpy / kJ mol ⁻¹
C=C	612
C-C	347
C-H	413
H-H	436

Now watch the video on Kekule’s model of benzene

5. List three pieces of evidence that disprove the Kekule model