



D I A G R A M S H E E T

OCR AS Level Chemistry

Companion to: Core Organic Chemistry - Basic Concepts and Nomenclature Explanation Sheet

AS LEVEL

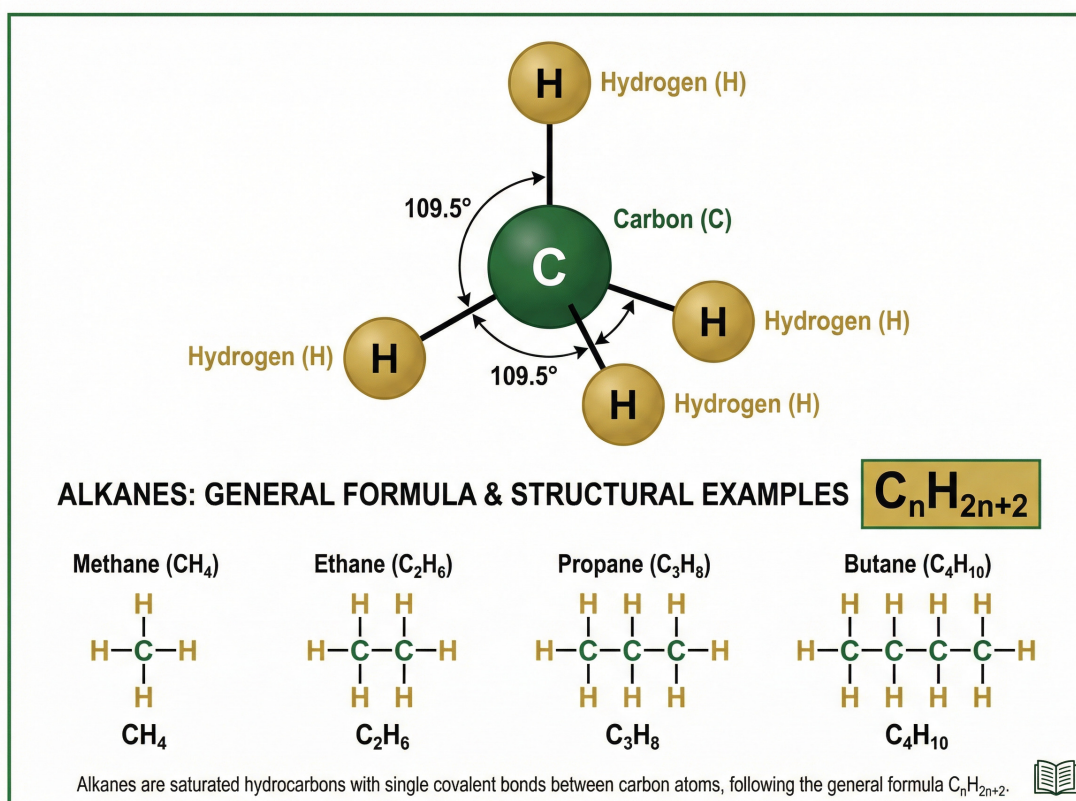
Core Organic Chemistry - Basic Concepts and Nomenclature

Figures in this Sheet

- 1 **Figure 1:** General Molecular Structure of Alkanes
- 2 **Figure 2:** General Molecular Structure of Alkenes
- 3 **Figure 3:** Comparison of Saturated and Unsaturated Hydrocarbons

Core Organic Chemistry - Basic Concepts and Nomenclature — Diagram Sheet

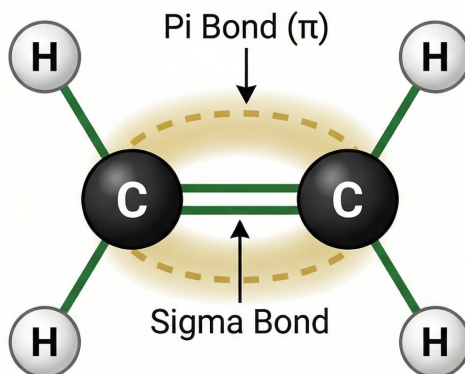
Figure 1: General Molecular Structure of Alkanes



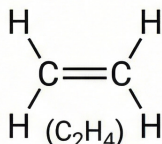
This diagram illustrates the **general molecular structure of alkanes**, highlighting their saturated nature with only single covalent bonds between carbon atoms. The example shown is methane (CH_4), the simplest alkane, with a tetrahedral shape around the central carbon atom. Each carbon atom forms four single bonds with hydrogen atoms, emphasizing the **saturated hydrocarbon** characteristic. Understanding the structure is fundamental because the single bonds allow free rotation, influencing the physical properties and reactivity of alkanes.

Figure 2: General Molecular Structure of Alkenes

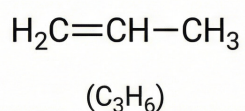
GENERAL FORMULA: C_nH_{2n}



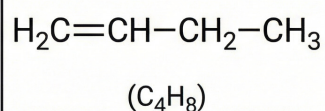
Ethene: $H_2C=CH_2$ (C_2H_4)



Propene:

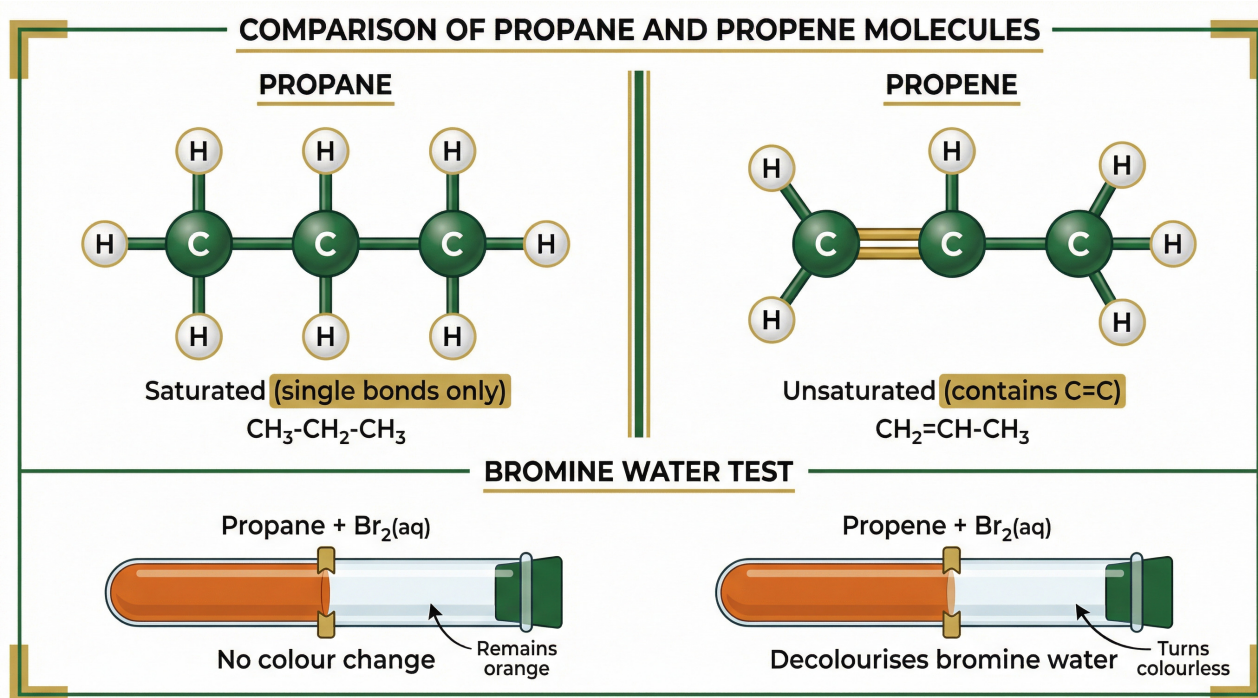


Butene:



This figure depicts the **general molecular structure of alkenes**, focusing on ethene (C_2H_4) as the simplest alkene. It shows the presence of a **carbon-carbon double bond**, which distinguishes alkenes from alkanes and introduces rigidity into the molecule. The double bond restricts rotation, affecting the shape and reactivity of alkenes. The diagram also illustrates how each carbon atom forms three sigma bonds and one pi bond, underlining the difference in bonding that leads to unsaturation in alkenes.

Figure 3: Comparison of Saturated and Unsaturated Hydrocarbons



This comparative diagram contrasts the **saturated structure of alkanes** with the **unsaturated structure of alkenes** by displaying propane (C_3H_8) and propene (C_3H_6). It highlights the presence of only single bonds in propane versus the carbon-carbon double bond in propene. The figure demonstrates how saturation affects molecular formula, bonding, and potential chemical reactivity. This visual comparison is crucial for understanding the fundamental differences in bonding and properties between alkanes and alkenes.

Study Notes

Use this space to annotate the diagrams above, add your own labels, or note down exam-style questions that relate to each figure. Try covering the labels and testing yourself from memory.