AL-Mustaqbal University

College of Science

Department of Biochemistry

جامعة المستقبل

كلية العلوم

قسم الكيمياء الحياتية

جامعة اهلية معترف بها من قبل وزارة التعليم العالي والبحث العلمي بموجب الامر الاداري ذي العدد (ج ه / 3989) بتاريخ (2010/8/31)
وقرار مجلس الوزراء الموقر المرقم 427 لسنة 2009 .

MSC ISSA FARHAN

Second class ALKENES PROPERTIES LECTURE No 5

What are the characteristics of alkenes? Some of alkenes and alkanes' physical properties are similar: they are colourless, nonpolar, and combustible. Alkenes exist in all three phases at room temperature: solids, liquids, and gases

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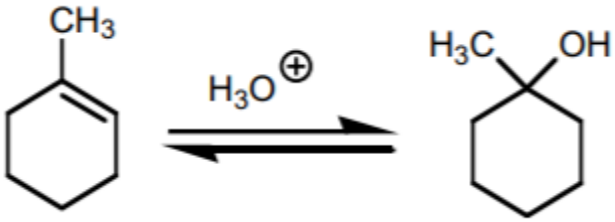
Some of alkenes and alkanes' physical properties are similar: they are colourless, nonpolar, and combustible. Alkenes exist in all three phases at room temperature: solids, liquids, and gases. Alkenes have similar melting and boiling points to alkanes; however, isomers of cis alkenes have lower melting points than trans isomers.

General Properties of Alkenes

1. **Physical state** – The members containing two or four carbon atoms are gases, five to seventeen, liquids, eighteen onwards, solids at room temperature and they burn in air with a luminous smoky flame.
2. **Density –** Alkenes are lighter than water.
3. **Solubility –** Alkenes are insoluble in water and soluble in organic solvents such as benzene etc.
4. **Boiling point –** The boiling points of alkenes show a gradual increase with an increase in the molecular mass or chain length, this indicates that the intermolecular attractions become stronger with the increase in the size of the molecule.

5. **1. ADDITION OF HBr, HCl, and HI.**
6. The addition of these substances to an alkene proceeds by an ionic mechanism, with formation of the most stable carbocation. Therefore, it follows Markovnikov's Rule.

7.
8. **2. ACID-CATALYZED ADDITION OF WATER.**
9. Produces Markovnikov alcohols, it is an equilibrium reaction, and proceeds with formation of carbocations in the rate-determining step.



10.
11. **3. OXYMERCURATION-DEMERCURATION SEQUENCE.**
12. This sequence consists of two steps. It is the most effective way to prepare Markovnikov alcohols from alkenes.