

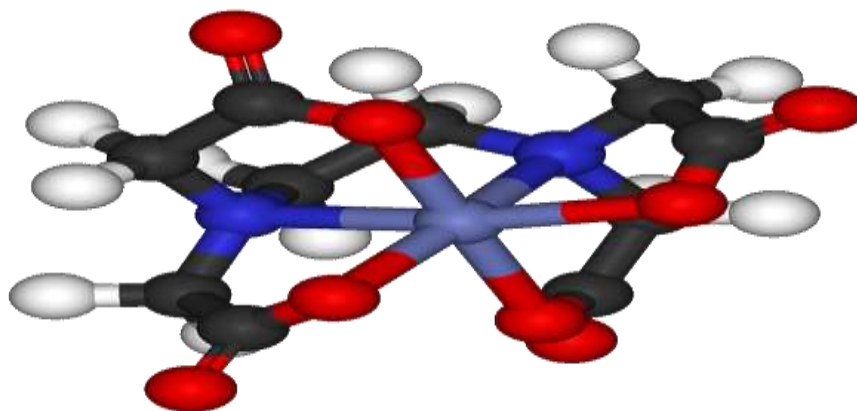


**AL-Mustaqbal University College**  
**Radiology Techniques Department**  
**First Class**

**Theoretical General Chemistry**

**(Organic Chemistry)**

**(Alkenes )**



2021-2020

## Organic Chemistry

Organic chemistry is the branches of chemistry. He studied the structure, properties and reactions of organic compounds and materials containing the element carbon it is concerned with the reactions and substances present in the formation of living organisms.

### The importance of organic chemistry in the life of living organisms:

- (1) The study of organic chemistry is very important because it studies life and chemical reactions in living organisms.
- (2) Organic chemistry is involved in the manufacture of medicines and treatments that cure many diseases for humans and animals
- (3) Organic chemistry is the basis of all biological processes that take place in the bodies of living things
- (4) Cosmetic products are organic chemicals, and it is important to study the effect of their reactions on the skin
- (5) Organic compounds are essential ingredients in many products Food, paint, explosives, and fertilizers

## Hydrocarbons

It is any chemical compound consisting of carbon (C) and hydrogen (H) only. These compounds consist of a chain of carbon and hydrogen atoms attached to that chain.



HYDROCARBONS

### ALIPHATICS:

- Alkanes
- Alkenes
- Alkynes
- Cycloalkanes

### AROMATICS:

- Monoaromat
- Polycyclic  
Aromatic  
Hydrocarbon

The general formula for saturated hydrocarbons is  $C_nH_{2n+2}$ , meaning an integer and a number Carbon atoms in the molecule.

## Alkenes

It is an unsaturated hydrocarbon containing at least one double bond between two carbon atoms. Simple alkenes with a single double bond are a homogeneous chain, and alkenes have the general formula  $C_nH_{2n}$ .

Alkene	
Formula	Name
.....	
$C_2H_4$	ethene
$C_3H_6$	propene
$C_4H_8$	butene
$C_5H_{10}$	pentene
$C_6H_{12}$	hexene
$C_7H_{14}$	heptene
$C_8H_{16}$	octene
$C_9H_{18}$	nonene
$C_{10}H_{20}$	decene

### The physical properties of alkenes

- (1) The first compounds containing 1-4 carbon atoms are gases. Compounds containing 5-15 carbon atoms are colorless liquids. Compounds containing 16 carbon atoms and above are solids.
- (2) The density of gaseous and liquid alkenes is less than that of water.

(3) Alkenes do not conduct electric current because they are neutral particles and do not contain moving ions or electrons.

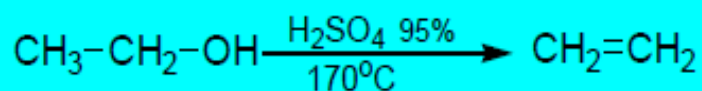
(4) Alkenes are compounds of very weak polarity and do not have the ability to form hydrogen bonds, so they do not dissolve in water

(5) melting and boiling points are low .

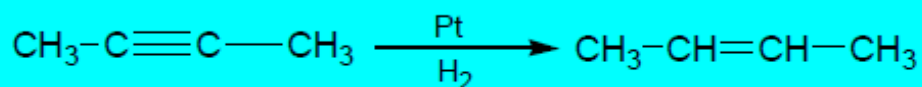
### **Methods for preparing alkenes:**

(1) Oxidation of alkanes

(2) Dehydration of alcohols



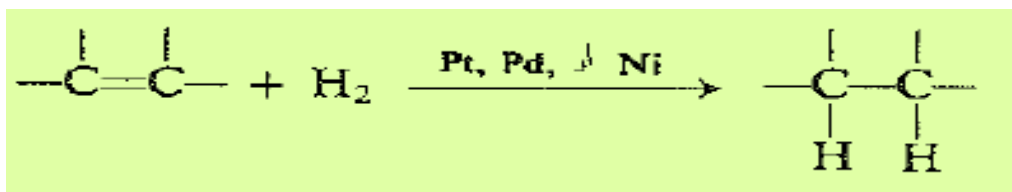
(3) Reduction of alkynes



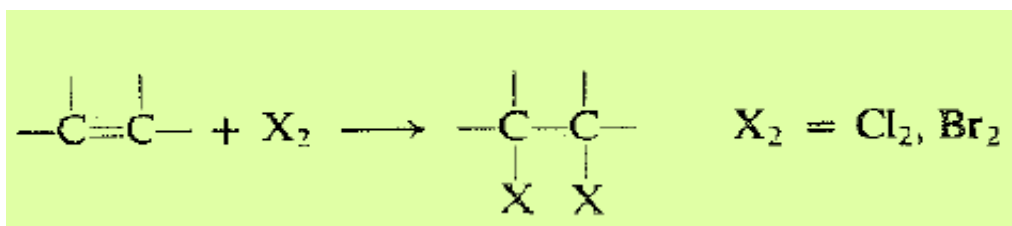
### **reactions of Alkenes**

(1) Combustion Alkenes burn and give H<sub>2</sub>O, CO<sub>2</sub> and energy. This reaction is not used as an energy source due to the use of alkenes in other reactions.

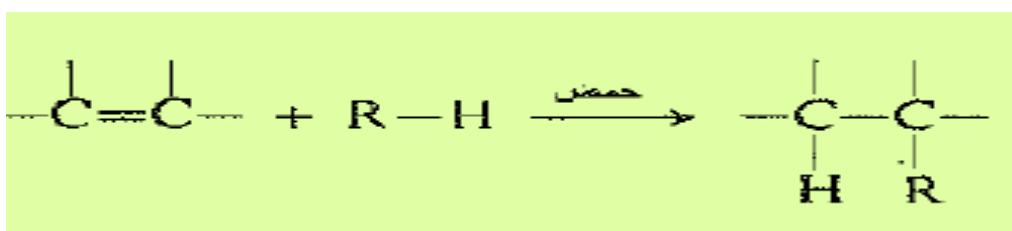
(2) Addition of hydrogen



(3) Add halogens.



(4) Alchyla.



(5) Addition of hydrogen halides

