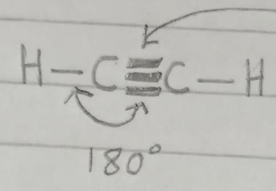
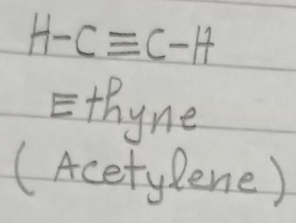


نقاط مختصرة وبسيطة :-

1. Alkynes,  $C_n H_{2n-2}$  :

The simplest (smallest) member of the alkyne family

is Ethyne,  $C_2 H_2$  (acetylene)



the carbon-carbon triple bond is the functional gp. of the alkyne.

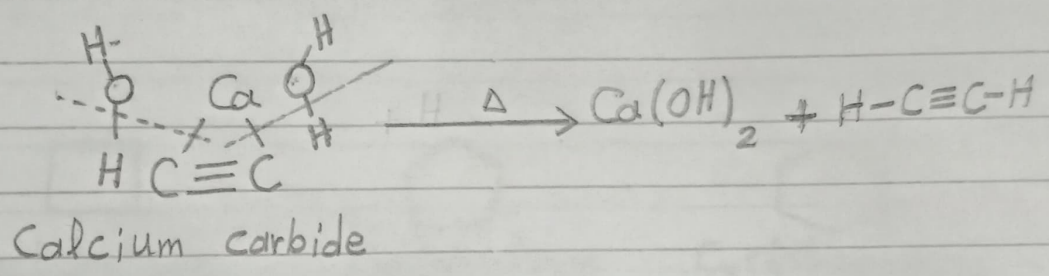
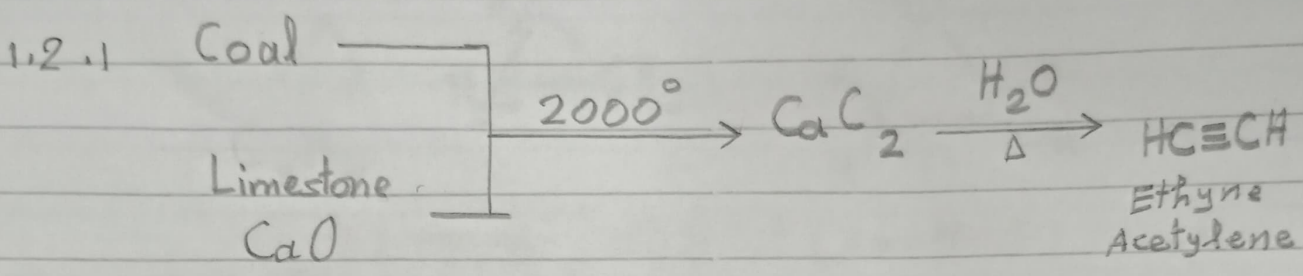
1.1 Nomenclature :

	$HC \equiv CH$	$CH_3-C \equiv CH$	$CH_3-C \equiv C-CH_3$
IUPAC:	Ethyne	Propyne	2-Butyne
Common:	Acetylene	Methylacetylene	Dimethylacetylene

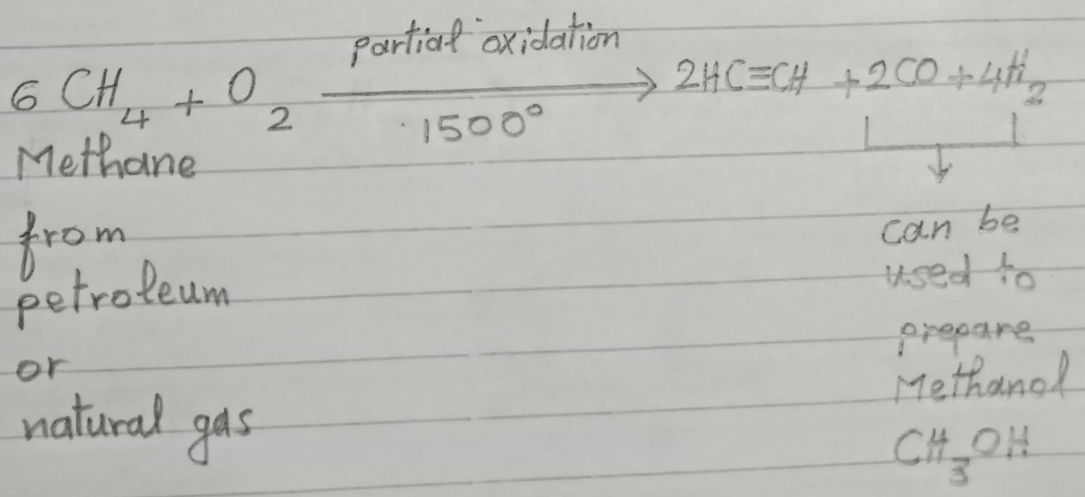
Physical Properties:

It is about the same as those of alkanes.

## 1.2 Industrial Source of Acetylene;



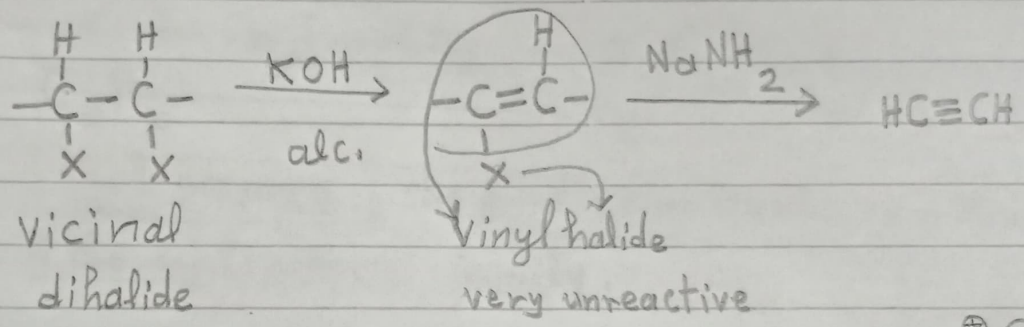
## 1.2.2 Preparation of Acetylene based on Petroleum (or natural gas);



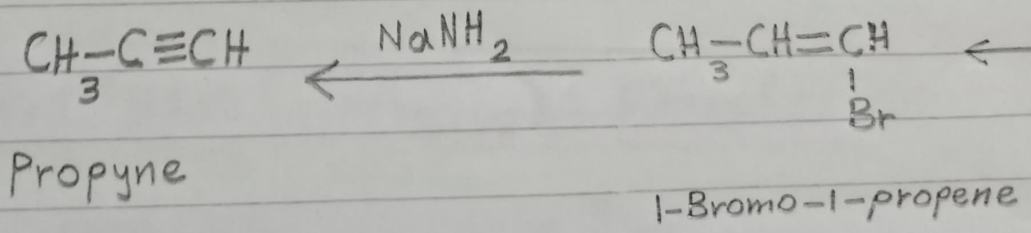
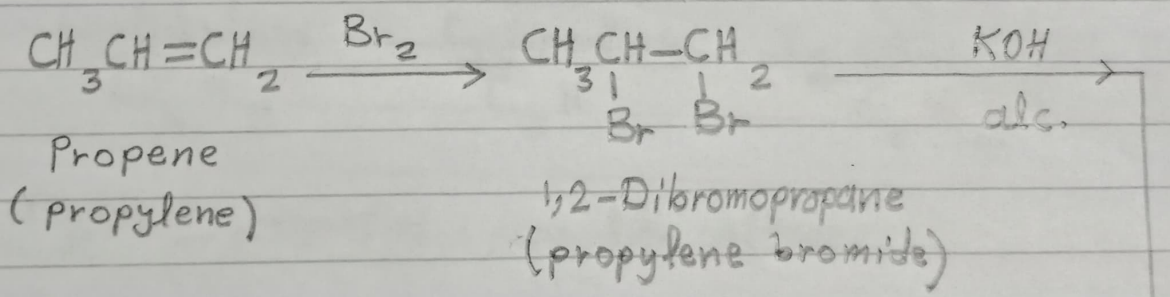
### 3. Preparation of Alkynes:

Preparation of acetylenes through:-

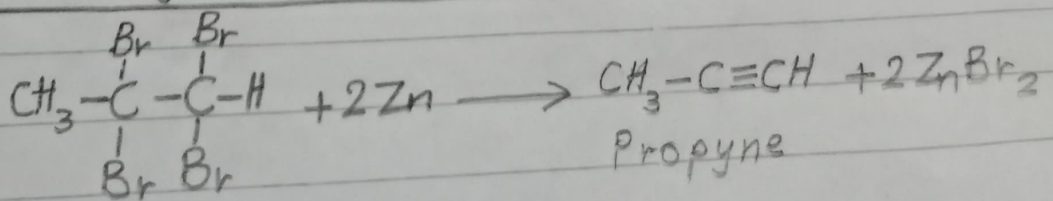
#### 3.1 Dehydrohalogenation of alkyl dihalides:



$\text{F, Cl, Br, I}$  [Sodamide  $\text{NaNH}_2$ ]



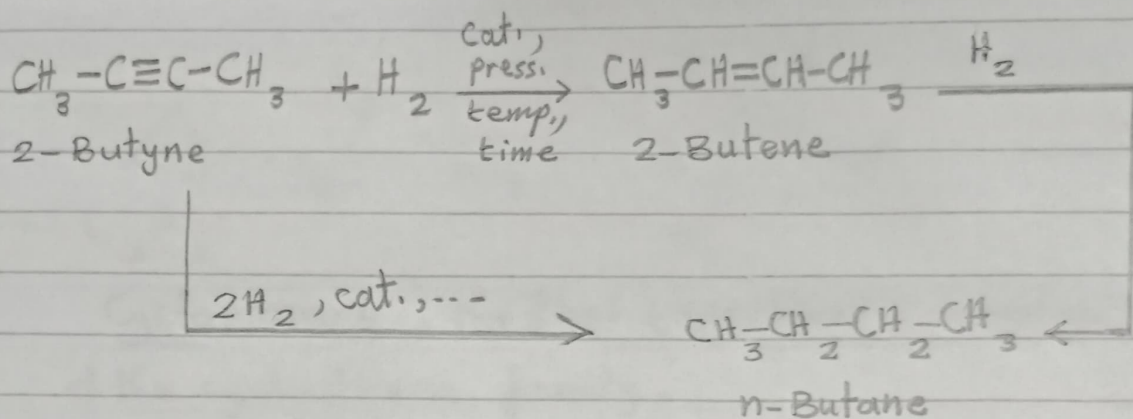
#### 3.2 Dehalogenation of tetrahalides:



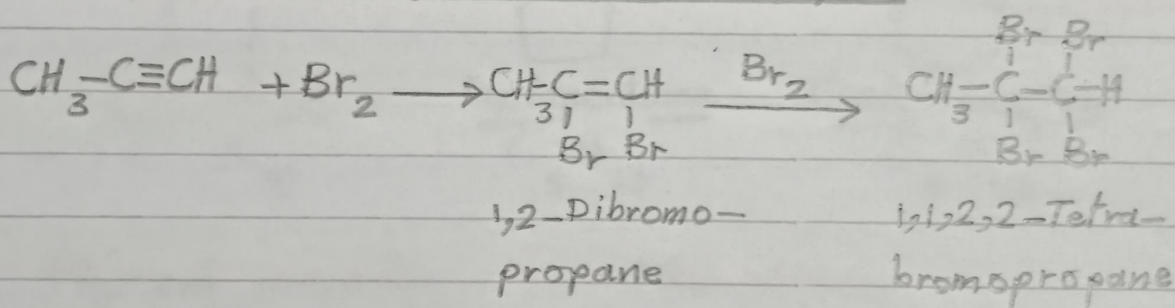
1,1,2,2-Tetrabromo-  
ethane

#### 4. Reactions of Alkynes ; Addition Reactions :

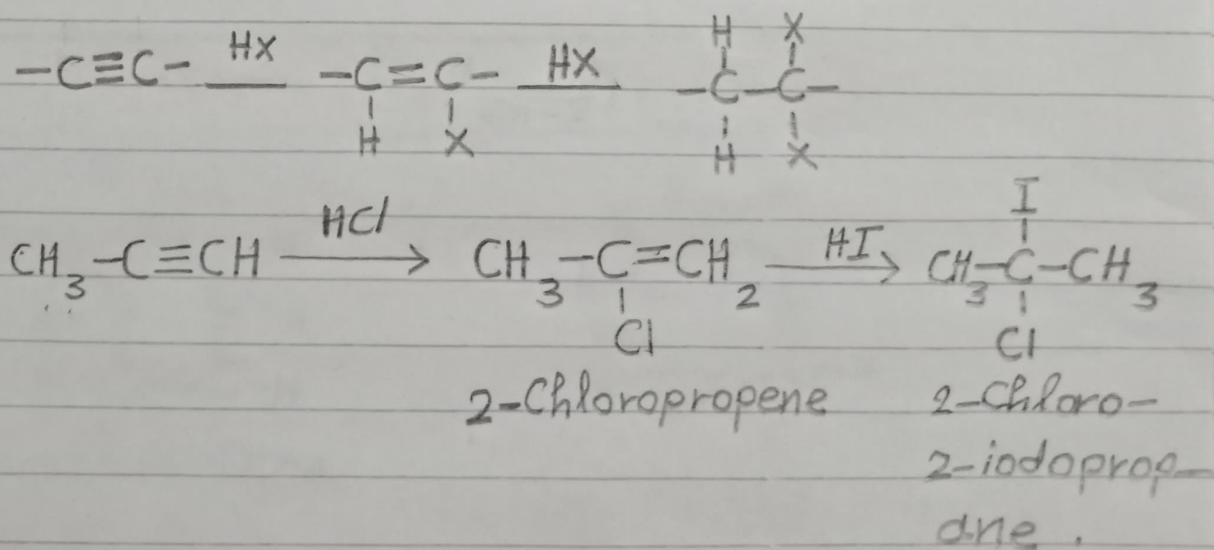
##### 4.1 Addition of Hydrogen :



##### 4.2 Addition of halogen (Cl<sub>2</sub>, Br<sub>2</sub>) :

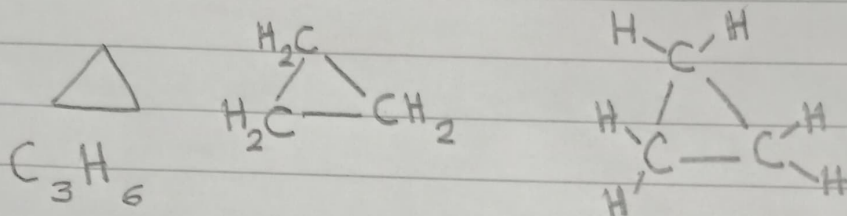


##### 4.3 Addition of Hydrogen halide (HCl, HBr, HI) :

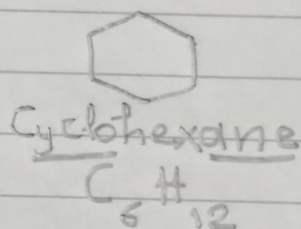
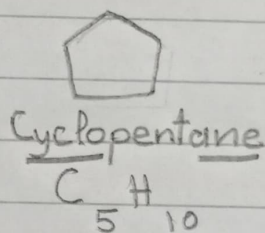
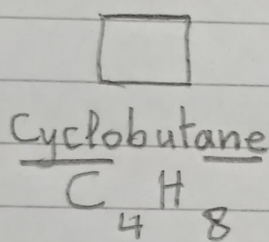


## 5. Cyclic Aliphatic Hydrocarbons:

### 5.1 Cycloalkanes ( $C_n H_{2n}$ ): Examples:-



Cyclopropane, the first (smallest) member of the cycloalkane family.



5.1.1 Physical properties: ..... like alkanes.

5.1.2 Industrial source: Petroleum.

### 5.2 Cycloalkenes ( $C_n H_{2n-2}$ ): Examples:

