

## 15. Alkynes

### Alkynes

- General formula is  $C_nH_{2n-2}$
- They are named as the corresponding alkanes replacing 'ane' by the suffix 'yne'.
- Each carbon atom of ethyne has two *sp* hybridised orbitals.
- **Preparation of Ethynes**
  - From calcium carbide ( $CaC_2$ )
  - From vicinal dihalides
- **Properties**
  - Colourless, odourless, weakly polar
  - Immiscible in water
  - Hydrogen attached to triply bonded carbon atom is acidic
  - Undergoes addition reactions
    - Addition of dihydrogen
    - Addition of halogens
    - Addition of hydrogen halides ( $HX$ ;  $X = Cl, Br, I$ )
    - Addition of water
  - Undergoes linear and cyclic polymerisation
  - Shows oxidation reaction
  - Undergoes ozonolysis to produce ozonides
- **Uses:**
  - Oxy-acetylene welding at very high temperatures
  - Illuminant in oxy-acetylene lamp
  - Ripening and preservation of fruits
  - Manufacture of several products like polymers. artificial rubber, oxalic acid, acetaldehyde, acetic acid, etc.