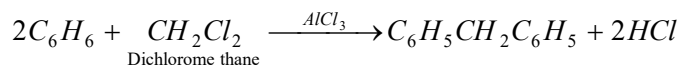


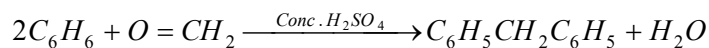
Diphenyl methane.

(1) Methods of preparation

(i) **Friedel-craft's reaction** : $C_6H_5CH_2Cl + C_6H_6 \xrightarrow{AlCl_3} C_6H_5CH_2C_6H_5 + HCl$ or
Benzyl chloride Benzene Diphenyl methane

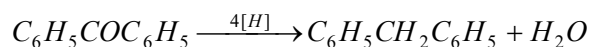


(ii) **By action of formaldehyde on benzene in presence of conc. sulphuric acid**

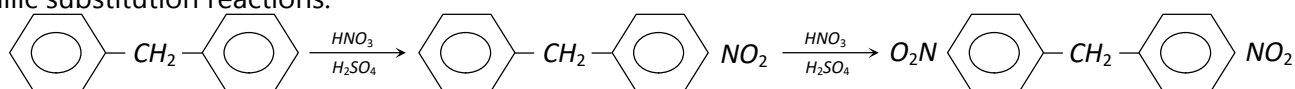


(iii) **By Grignard reaction** : Phenyl magnesium bromide reacts with benzyl bromide to form diphenyl methane.
 $C_6H_5MgBr + BrCH_2C_6H_5 \longrightarrow C_6H_5CH_2C_6H_5 + MgBr_2$

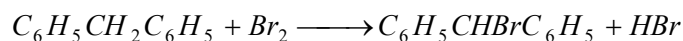
(iv) **By reduction of benzophenone** : Reduction can be done with $LiAlH_4$ or P and HI.



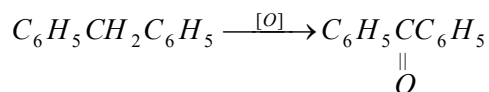
(2) **Properties** : It is a colourless solid, melting point $26^\circ C$. Like biphenyl, it also easily undergoes electrophilic substitution reactions.



The methylene hydrogens of diphenylmethane are situated on carbon atom linked by two electron attracting benzene rings. Thus, these are somewhat acidic in nature.



When oxidised with $K_2Cr_2O_7 / H_2SO_4$ mixture, it forms benzophenone.



It forms fluorene when its vapours are passed through a red hot tube.

