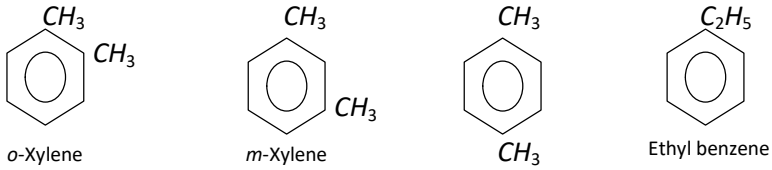
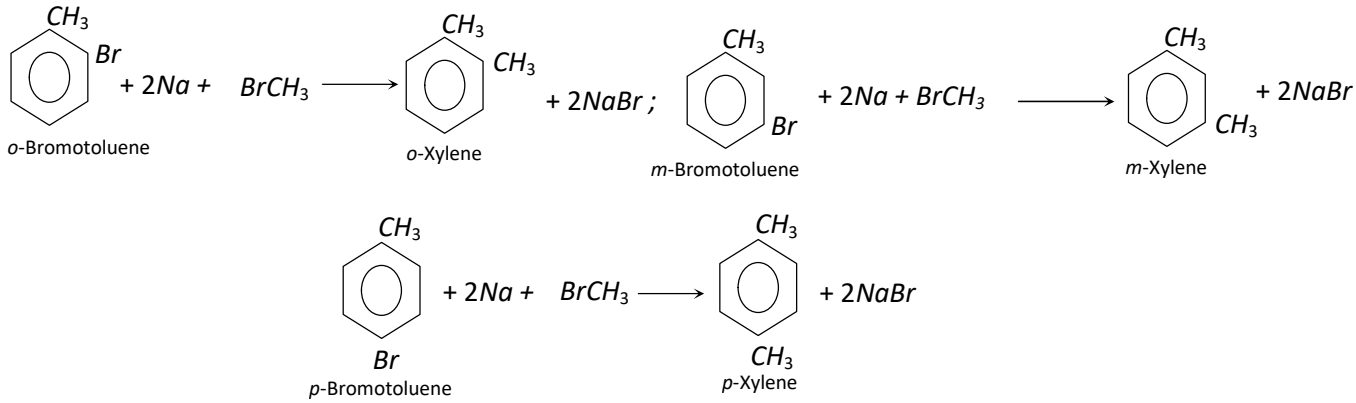
Xylenes (Dimethyl benzene) $C_6H_4(CH_3)_2$.

The molecular formula, C_8H_{10} represents four isomers.

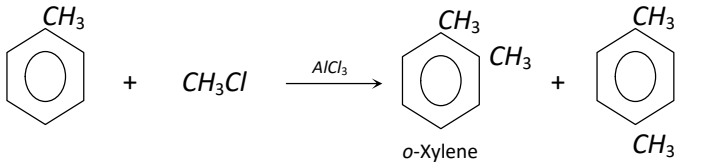


These are produced along with benzene, toluene and ethylbenzene when aromatisation of $C_6 - C_8$ fraction of petroleum naphtha is done. The xylenes are isolated from the resulting mixtrue (BTX) by fractional distillation.

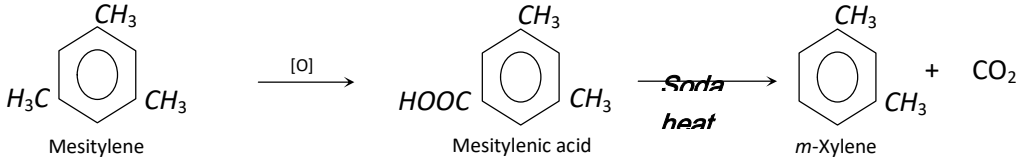
These can be prepared by Wurtz – Fittig reaction. A mixture of bromotoluene and methylbromide is treated with sodium in dry ethereal solution to form the desired xylene.



• These can also be obtained by Friedel – craft's synthesis,



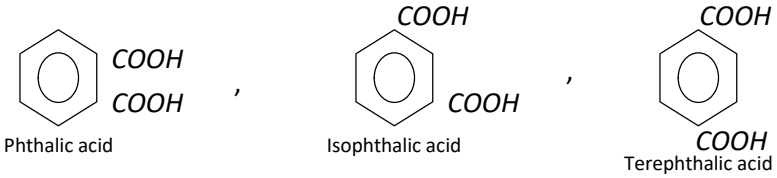
•m-Xylene can be obtained from mesitylene.



Xylenes are colourless liquids having characteristic odour. The boiling points of three isomers are,

o-Xylene = 144°C; m-Xylene = 139°C; p-Xylene = 138°C.

Xylenes undergo electrophilic substitution reactions in the same manner as toluene. Upon oxidation with $KMnO_4$ or $K_2Cr_2O_7$, Xylenes form corresponding dicarboxylic acids.



Phthalic acid , Isophthalic acid , Terephthalic acid

Xylenes are used in the manufacture of lacquers and as solvent for rubber. o-Xylene is used for the manufacture of phthalic anhydride.