

Complete
CHEMISTRY

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CLASS 11 & 12th



Learning Inquiry
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CLASS 12th

Haloalkanes & Haloarenes

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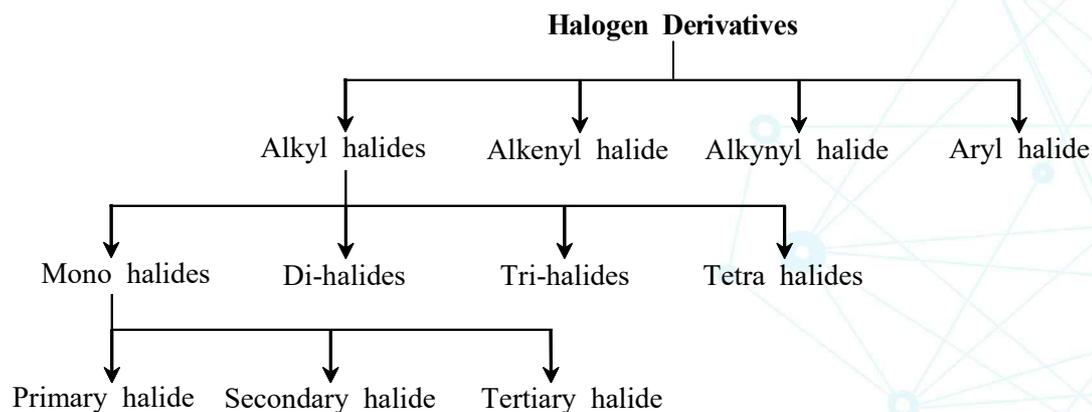


01. Introduction

Compounds derived from hydrocarbons by replacement of one or more H-atoms by corresponding no. of halogen atoms are known as halogen derivatives.

Classification :

On the basis of nature of hydrocarbon from which they are obtained, hydrocarbon derivatives can be classified as :



- (i) **Mono halides** : These involves replacement of one H-atom by halogen atom.

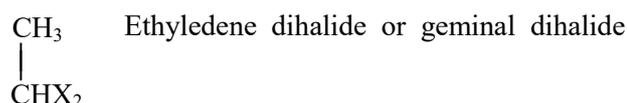
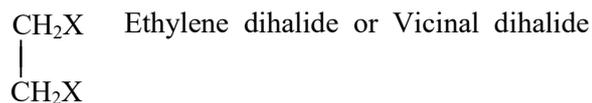
General formula $C_nH_{2n+1}X$, where $X = F, Cl, Br, I$.

Example : CH_3Cl Methyl chloride (Chloro methane)
 CH_3CH_2Br Ethyl bromide (Bromo ethane)

- (ii) **Dihalides** : Replacement of two H-atom by halogen atoms.

General formula $C_nH_{2n}X_2$,

Example :



- (iii) **Trihalides** : Replacement of three H-atoms by halogen atoms.

General formula $C_nH_{2n-1}X_3$.

Example : CHX_3 Trihalo methane or haloform

- (iv) **Tetra halide and Perhalo compounds** : Replacement of 4 H-atoms by halogen atom (in

$CH_4 \rightarrow CCl_4$) \rightarrow Tetrahalides.

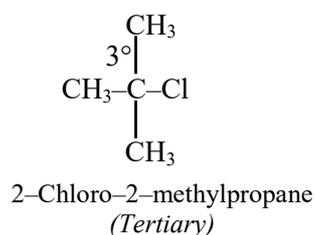
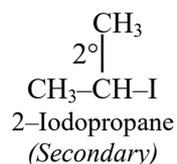
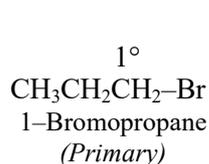
When all the H-atoms from an alkene are replaced by halogen atoms, then the compounds are called as perhalo compound.

General formula $C_nH_{2n-2}X_4$ (tetra halide).

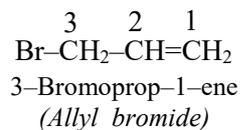
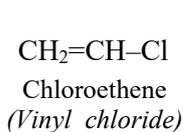
$CH_4 \rightarrow CX_4$ (per halo methane)

02. IUPAC Nomenclature

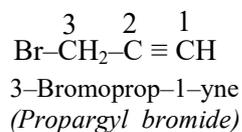
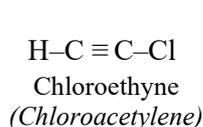
Classification of alkyl halides



Haloalkenes or Alkenyl halides

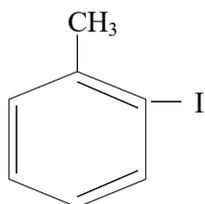


Haloalkynes or Alkynyl halides



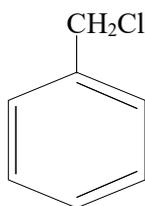
Aromatic halogen compounds

(i) Nuclear halogen derivatives

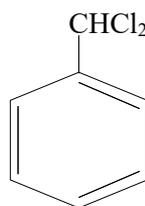


2-Iodo-1-methylbenzene or
2-Iodotoluene (*o*-Iodotoluene)

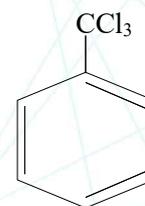
(ii) Side chain halogen derivatives aralkyl halides :



1-chloro-1-phenylmethane
(Benzyl chloride)



1,1-Dichloro-1-phenylmethane
(Benzal dichloride)



1,1,1-Trichloro-1-phenylmethane
(Benzotrichloride)

Allylic halides

