HALOALKANES AND HALOARENES

CLASSIFICATION OF HALOARENES

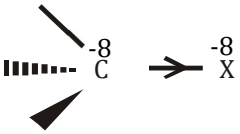
ALKYL HALIDE

ALIPHATIC HALOGEN DERIVATIVES

Compounds resulting from the substitution of one or more hydrogen atoms in hydrocarbons are termed halogen derivatives. These derivatives are categorized as alkyl halides (or haloalkanes), alkenyl halides (or haloalkenes), alkynyl halides (or haloalkynes), and aryl halides (or halobenzene's) when they are derived from alkanes, alkenes, alkynes, and arenes, respectively.

Alkyl halides: Monohalogen derivatives of alkanes are known as alkyl halides

Structure of alkyl halides



Classification of alkyl halides

(i) **Primary halide:** When the carbon atom bearing the halogen is either connected to just one other carbon atom or not connected to any carbon atom.

Example:

$$CH_3 - X, R - CH_2 - X$$

(ii) **Secondary halide:** If two carbon atoms are bonded to the halogen bearing carbon.

Example

(iii) **Tertiary halide:** Three other carbon atom bonded to the halogen bearing carbon atom.

Example

Haloalkanes can be categorized into the following three distinct groups:

(i) Mon haloalkanes: These are haloalkanes that contain only one halogen atom bonded to the alkane structure.

(ii) Dihaloalkanes: Dihaloalkanes are a class of haloalkanes in which there are two halogen atoms bonded to the alkane structure.

(iii) Polyhaloalkanes: This category comprises haloalkanes with more than two halogen atoms attached to the alkane structure, making them highly halogenated compounds.

These classifications help us differentiate haloalkanes based on the number of halogen substituents they possess, which can significantly affect their chemical properties and reactivity.