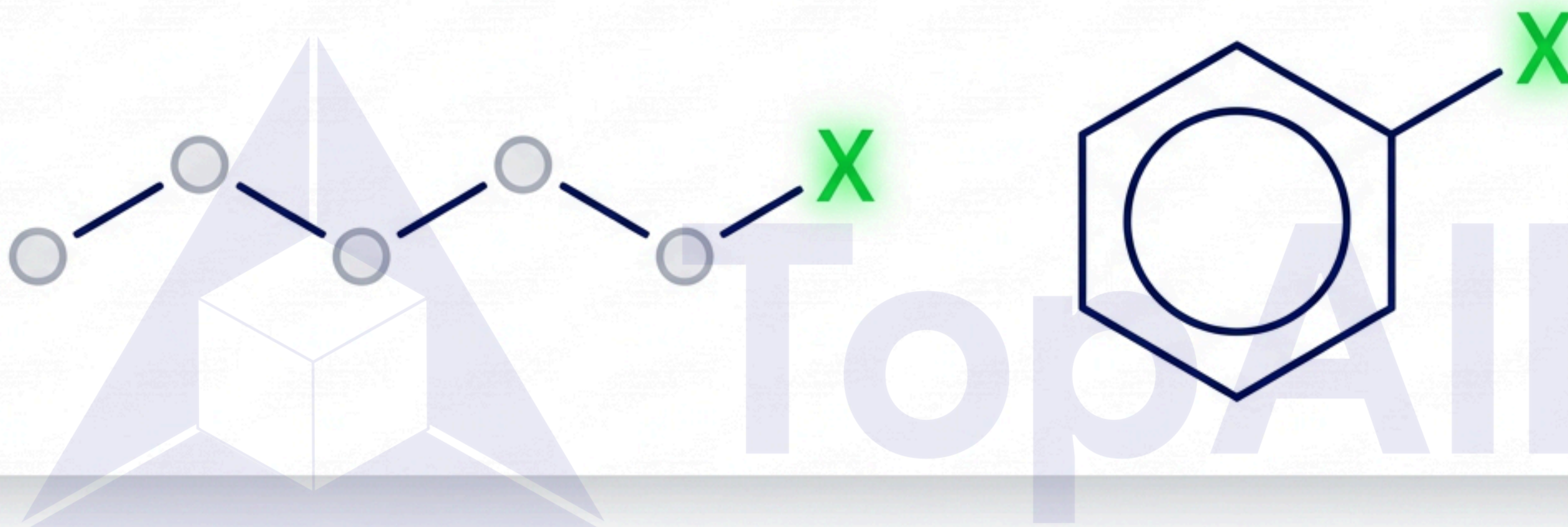


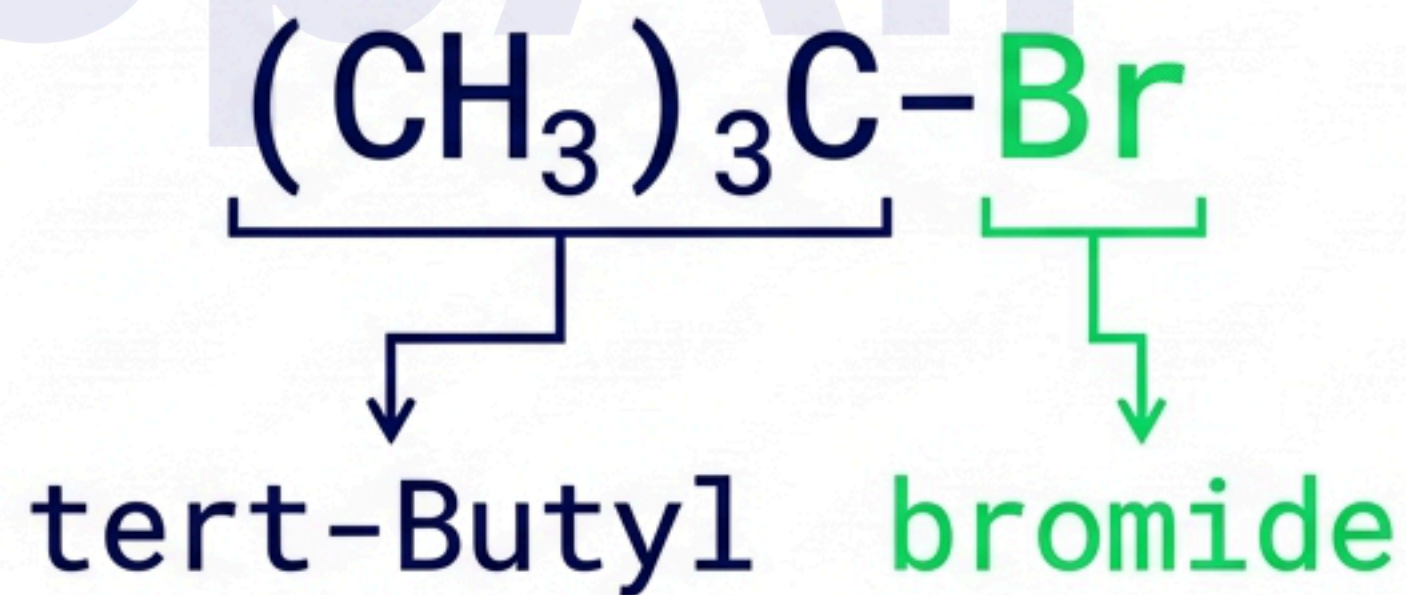
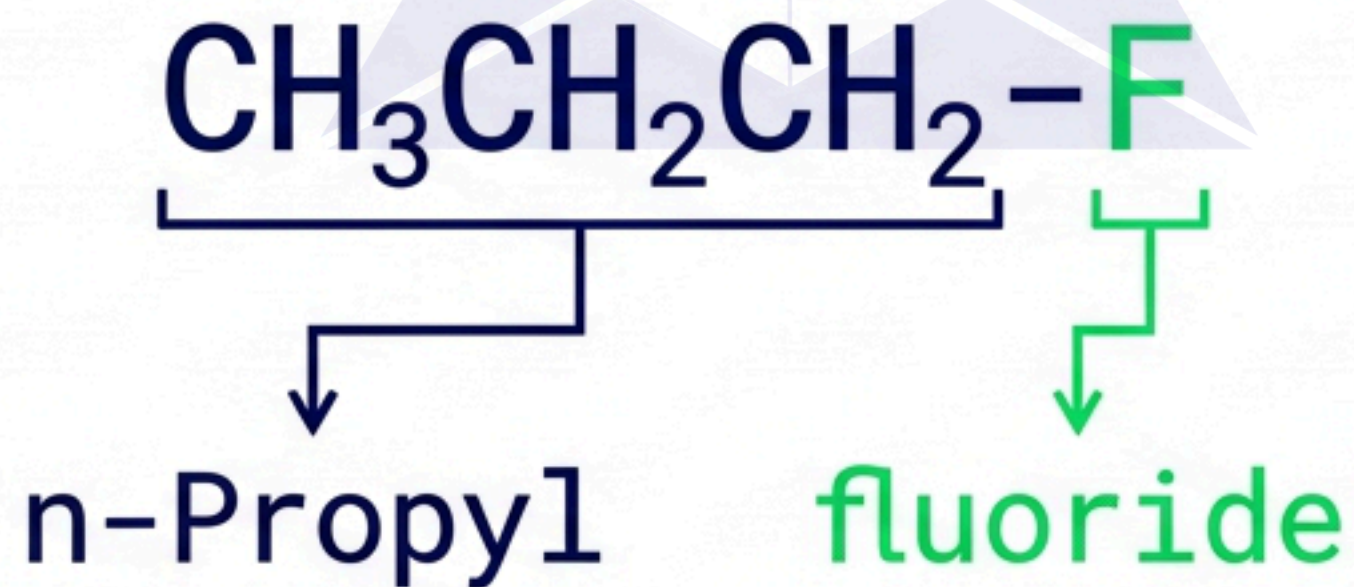


Naming Haloalkanes and Haloarenes

Decoding Common and IUPAC Nomenclature Systems

The Common Name Method

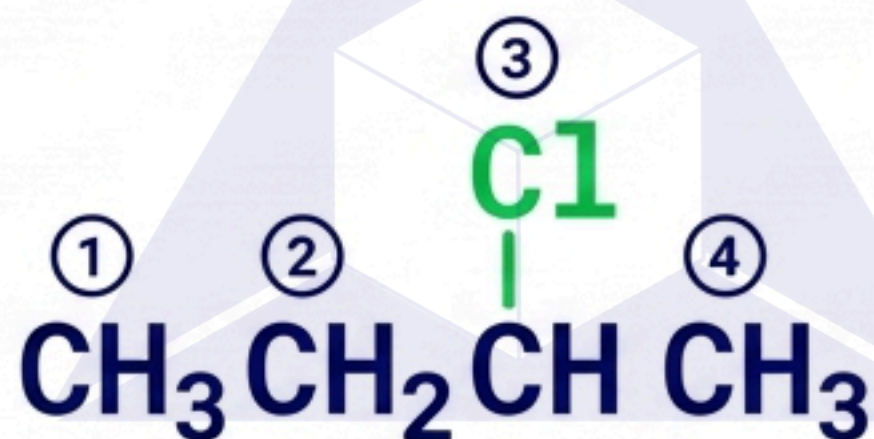
[Alkyl Group] + [Halide] = Common Name



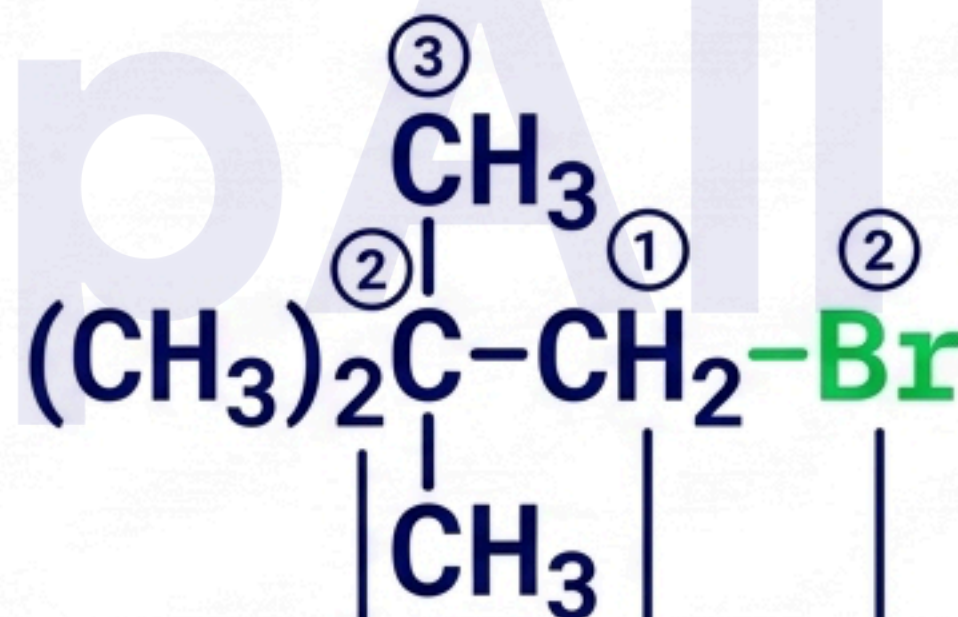
Halogen is treated as a substituent

The IUPAC Method

[Locant] - [Halo Prefix] + [Root Alkane]



2-Chlorobutane



1-Bromo-2,2-dimethylpropane



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$$E=mc^2$$



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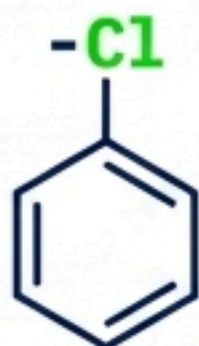
Mono-substituted Benzene Derivatives



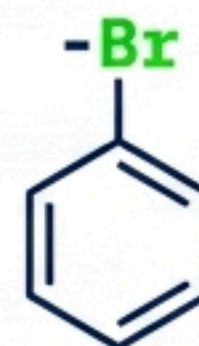
For mono-halogen substituted benzene, Common and IUPAC names are identical.



Halogen atom is directly attached to an sp^2 hybridized carbon of an aromatic ring.



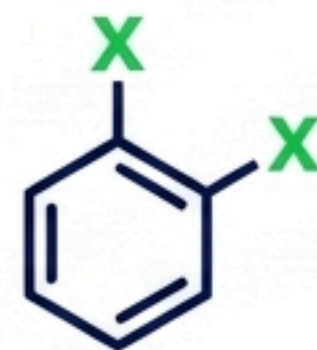
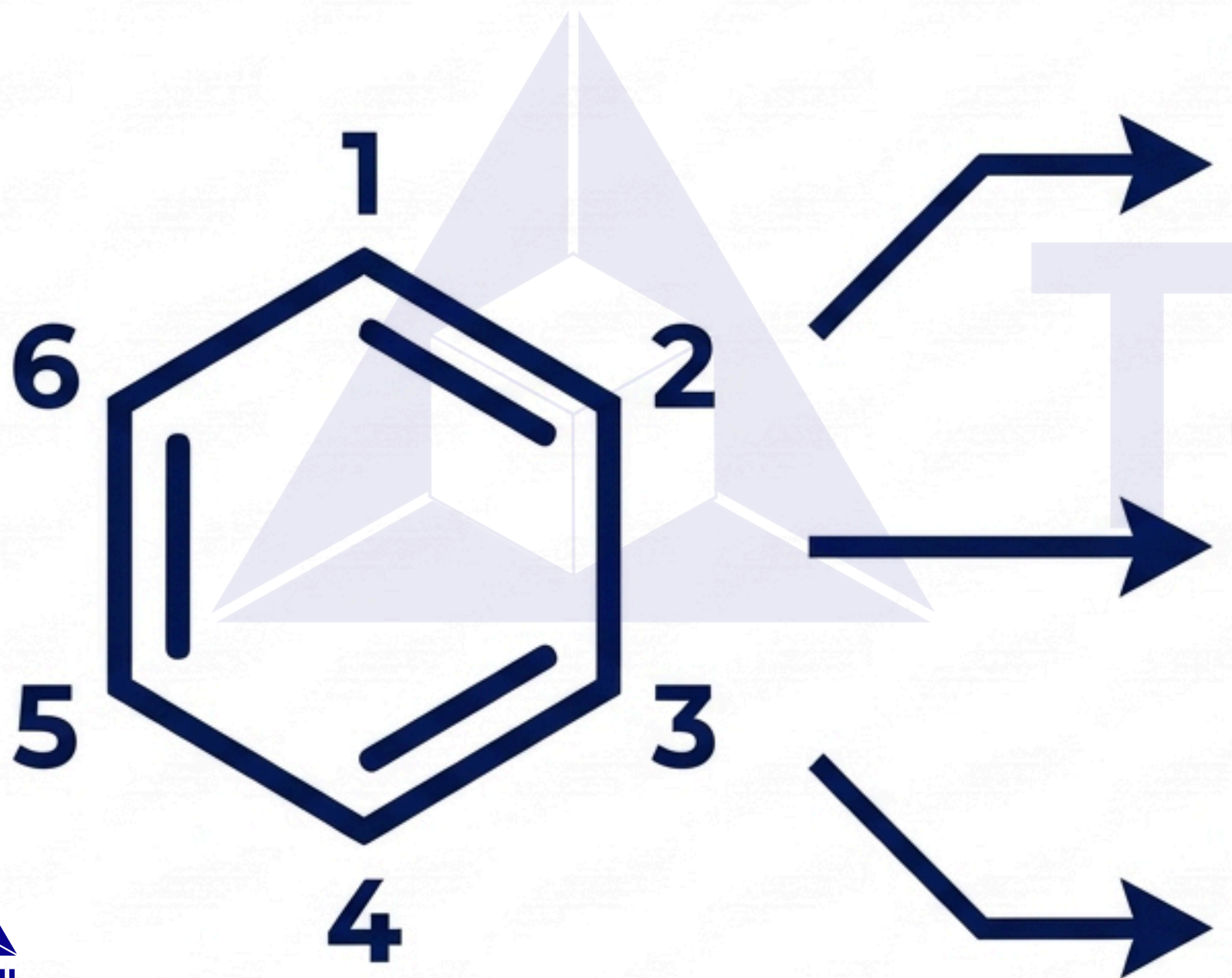
Chlorobenzene (C_6H_5Cl)



Bromobenzene (C_6H_5Br)

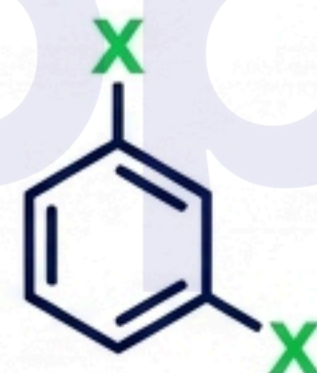
Positional Naming in Dihalogen Derivatives

Comparing Common prefixes with IUPAC numerals.



Positions 1,2 → ortho- (o-)

o-Dichlorobenzene
1,2-Dichlorobenzene



Positions 1,3 → meta- (m-)

m-Dichlorobenzene
1,3-Dichlorobenzene



Positions 1,4 → para- (p-)

p-Dichlorobenzene
1,4-Dichlorobenzene

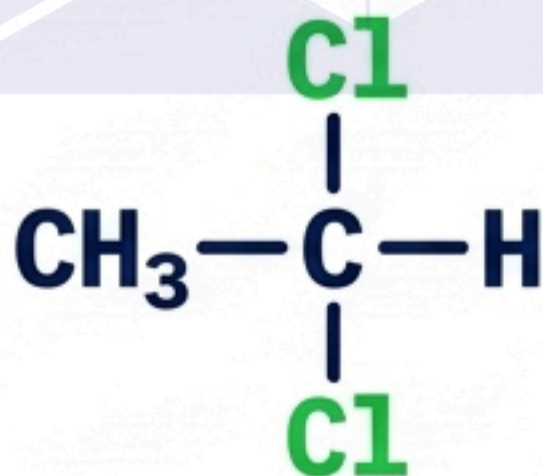
Classifying Dihaloalkanes



In the IUPAC system, both are named simply as **Dihaloalkanes** (e.g., **1,1-dichloroethane** vs **1,2-dichloroethane**).

Geminal Halides (gem-dihalides)

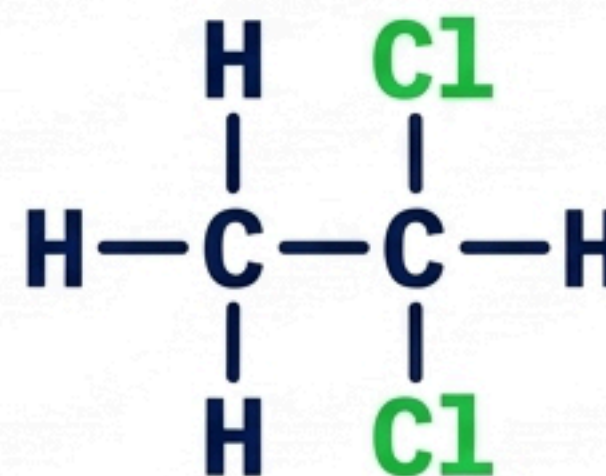
- **Definition:** Both halogens on the same carbon atom (Twins).
- **Common Name Rule:** Alkylidene halides.



Ethylidene chloride (CH_3CHCl_2)

Vicinal Halides (vic-dihalides)

- **Definition:** Halogens on adjacent carbon atoms (Neighbors).
- **Common Name Rule:** Alkylene dihalides.



Ethylene dichloride ($\text{CH}_2\text{ClCH}_2\text{Cl}$)

Essential Nomenclature Flashcards

Selected Key Examples from Table 6.1



Common:
Chloroform

IUPAC:
Trichloromethane



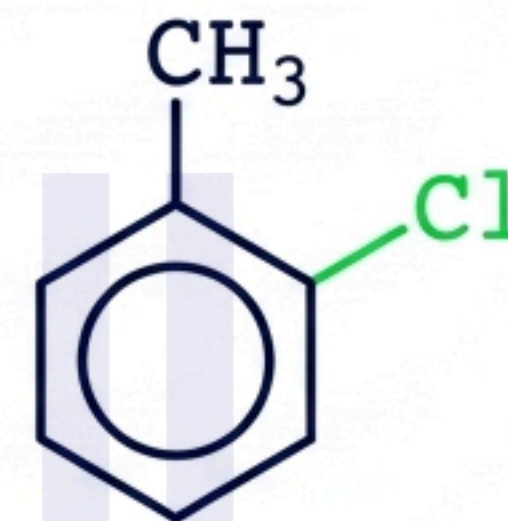
Common:
Vinyl chloride

IUPAC:
Chloroethene



Common:
Allyl bromide

IUPAC:
3-Bromopropene



Common:
o-Chlorotoluene

IUPAC:
1-Chloro-2-methylbenzene

IUPAC Naming Checklist



1
|
2
|
3
|
4

Step 1: Find the Root.

Identify the longest continuous carbon chain containing the halogen.

Step 2: Number the Chain.

Assign locant numbers starting from the end closest to the halogen (or double/triple bond if present).

Step 3: Alphabetize.

If multiple different halogens or alkyl groups are present, name them in alphabetical order (e.g., Bromo before Chloro).

Step 4: Assemble.

Combine locants, prefixes, and the root chain into one continuous word (hyphens between numbers/letters, commas between numbers).



Warning: Do not ignore double bonds. In $\text{CH}_2=\text{CHCH}_2\text{Br}$ (Allyl bromide), the double bond dictates numbering, resulting in **3-Bromopropene**, not **1-Bromopropene**.



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