

Compounds Containing sp^3 C—X Bond

Classification, Structures, and Primary Distinctions

Essential Terminology

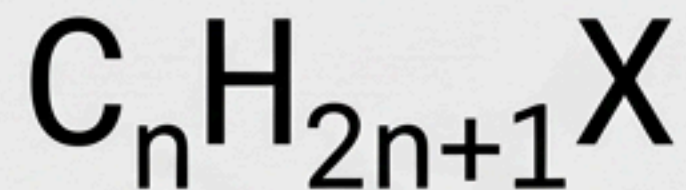
Alkyl Halide
(R—X)

Primary / Secondary
Secondary / Tertiary

Allylic Halide

Benzylic Halide

Homologous Series (Alkyl)



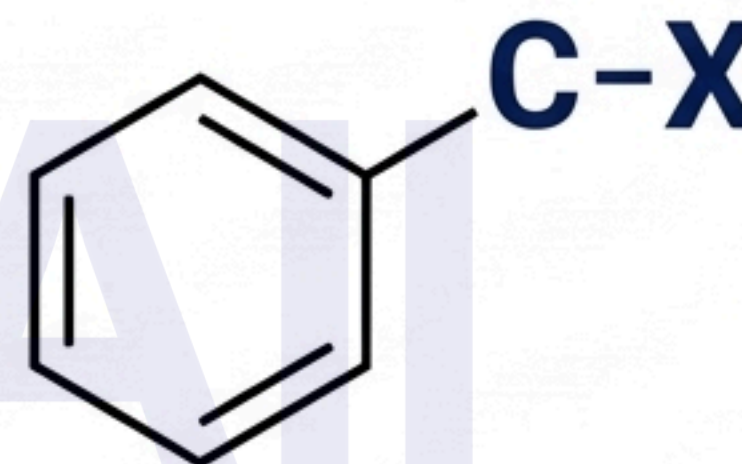
The Three sp^3 Families



Bonded to a
standard alkyl group



Adjacent to a $C=C$
double bond.



Attached to an
aromatic ring.



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Let's Test Them Now.**

$$E=mc^2$$



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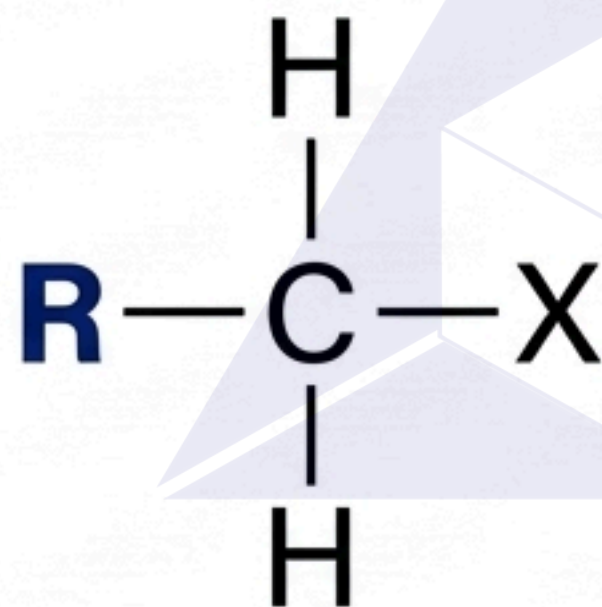
Key Highlights

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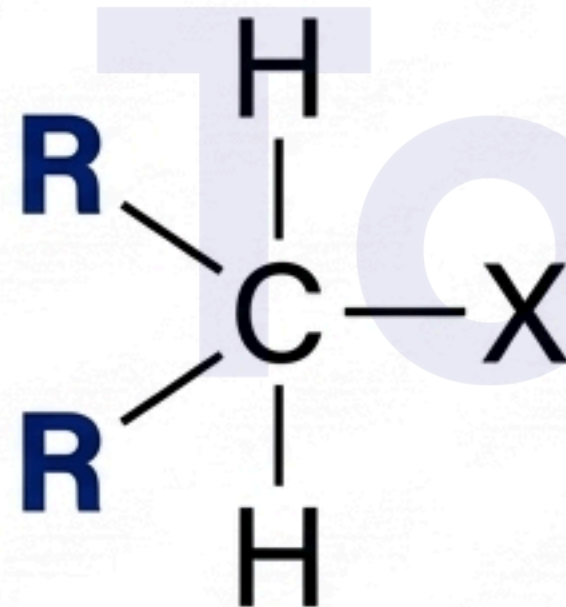


Classifying by Carbon Count

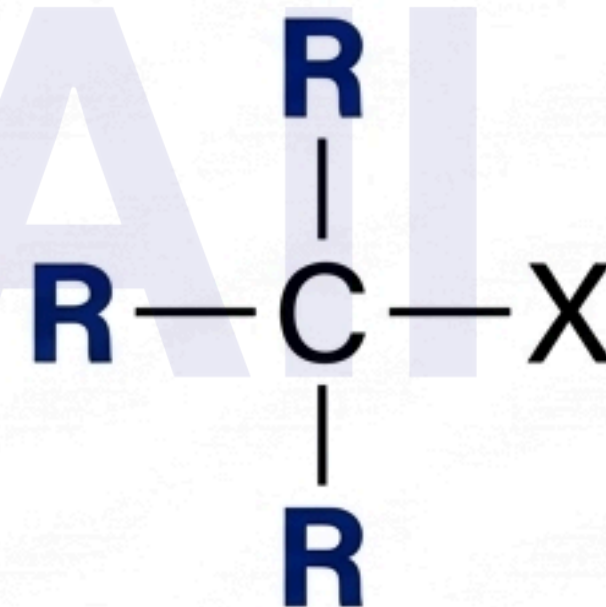
How many other carbons attach to the halogen-bearing carbon?



1° Alkyl Halide

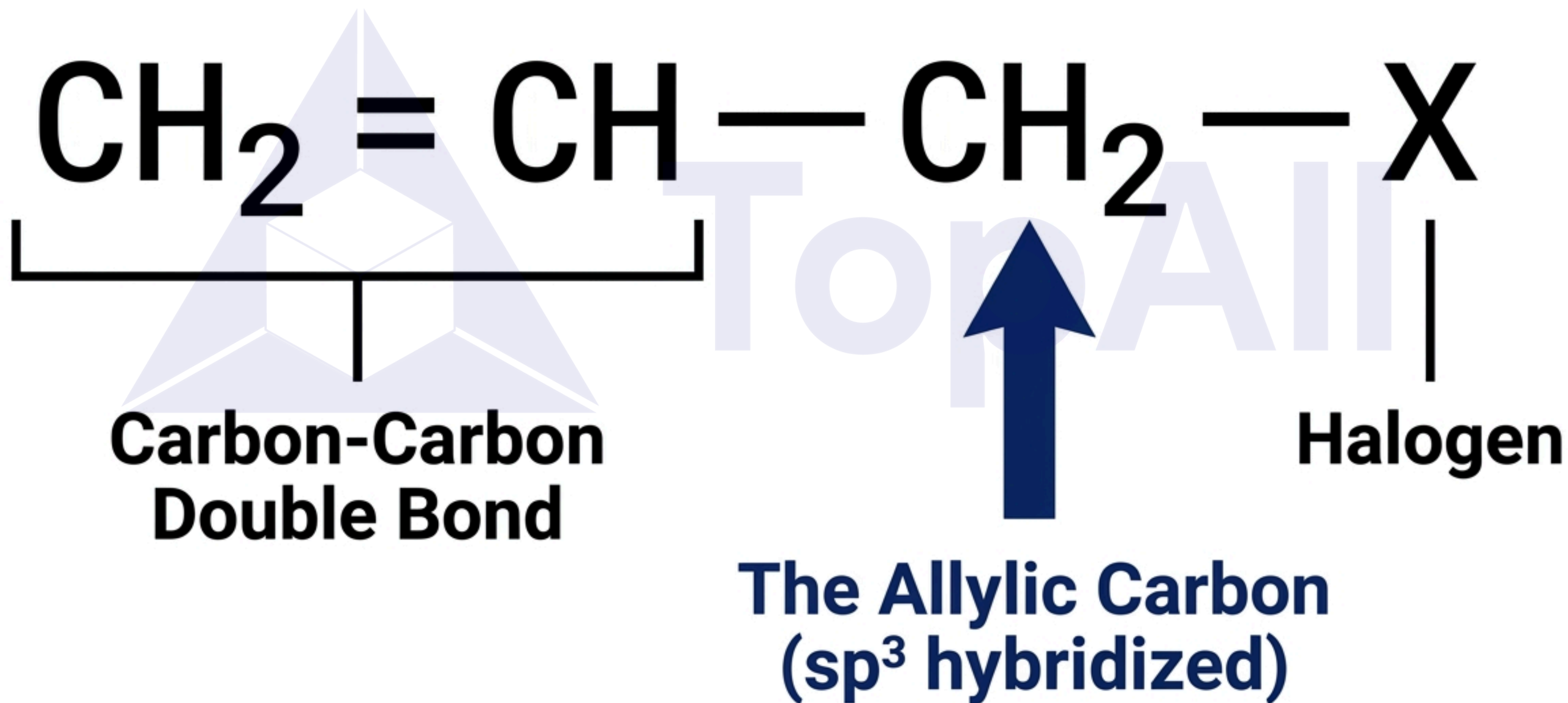


2° Alkyl Halide



3° Alkyl Halide

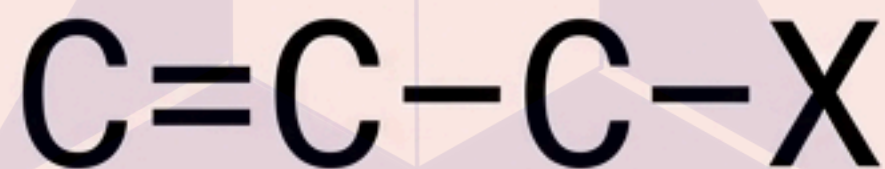
Anatomy of an Allylic Halide



Exam Diagnostic

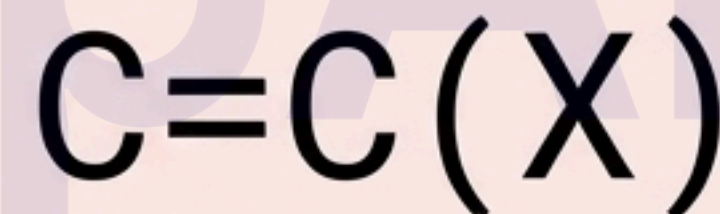
Watch for this subtle structural difference to secure easy nomenclature points:

Allylic Halide



sp^3 carbon **NEXT TO**
the $\text{C}=\text{C}$ bond.

Vinylic Halide



sp^2 carbon **ON** the
 $\text{C}=\text{C}$ bond.

Concept Wrap-Up



Compounds with an sp^3 C—X bond are grouped by what their anchor carbon attaches to: an alkyl chain, an allylic double bond, or an aromatic ring.



Alkyl halides are further classified (1° , 2° , 3°) solely based on the number of other carbons bonded directly to the halogen-bearing carbon.



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