

Dérivés Halogénés

Les différents halogènes

1	2											3	4	5	6	7	0
																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac															

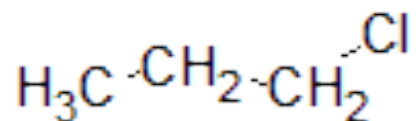
Group 7 Halogens

Dans l'ordre: Fluor-Chlore-Brome-Iode-Astate

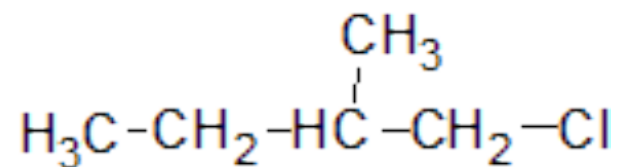
On utilisera en majorité **Cl Br et I**

Nomenclature et isomérisation

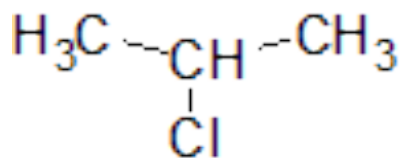
a. Halogénoalcane / Halogénure d'alkyle



1-Chloropropane

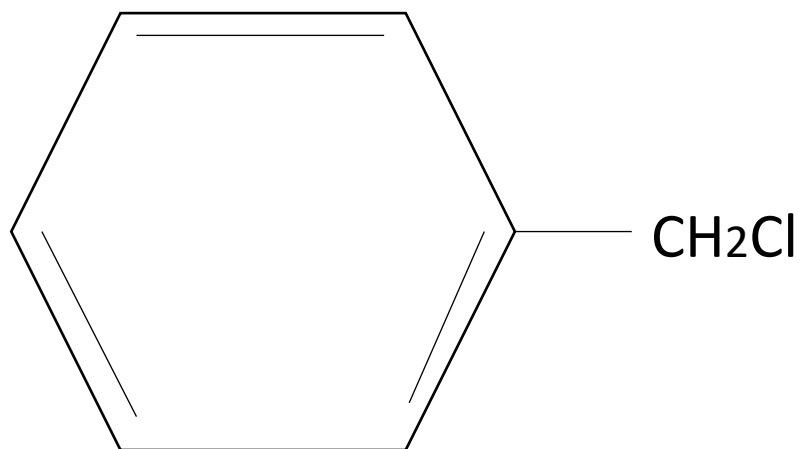


1-Chloro-2-méthylbutane



2-Chloropropane

b. Halogenoarene / Halogenure d'aryle



Chlorométhylbenzène

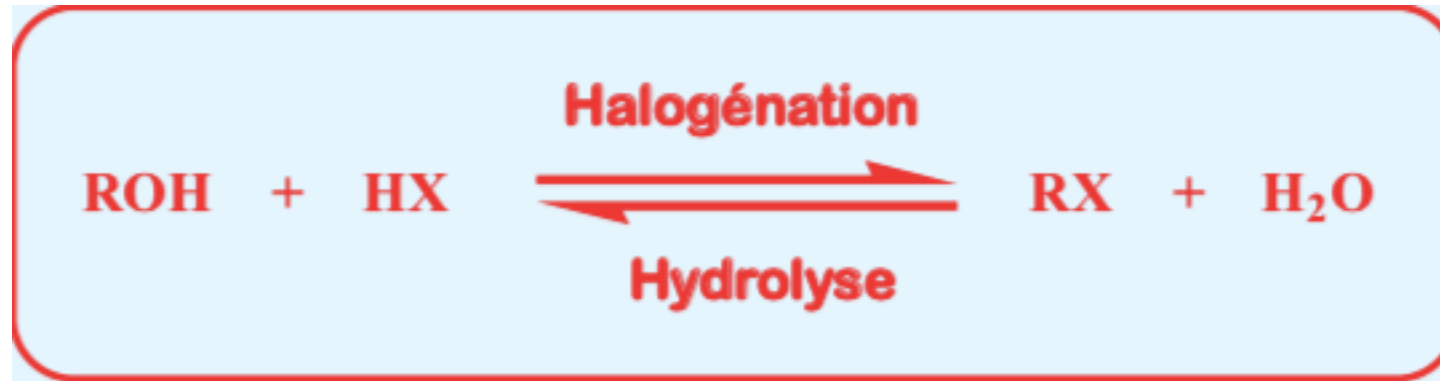
A dark blue, irregular ink splatter or blotch serves as the background for the text. The splatter has a textured, grainy appearance with some lighter blue and white areas around the edges, suggesting a liquid that has dried or been brushed. The text is centered within the dark blue area.

Préparation par réaction
de substitution

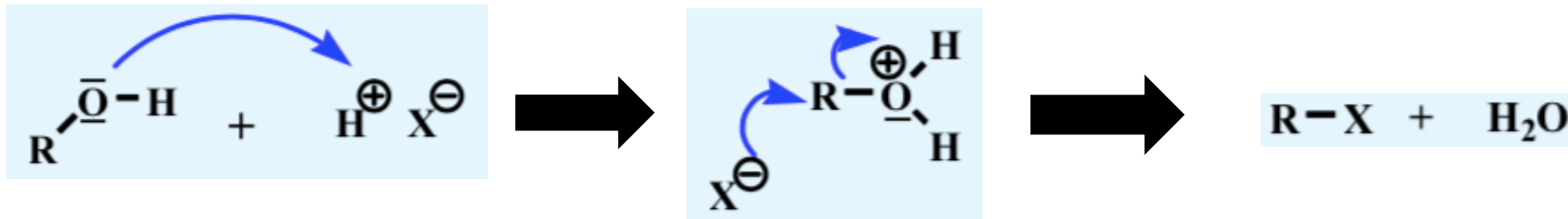
1/ Substitution des alcools



a. Action d'un hydracide



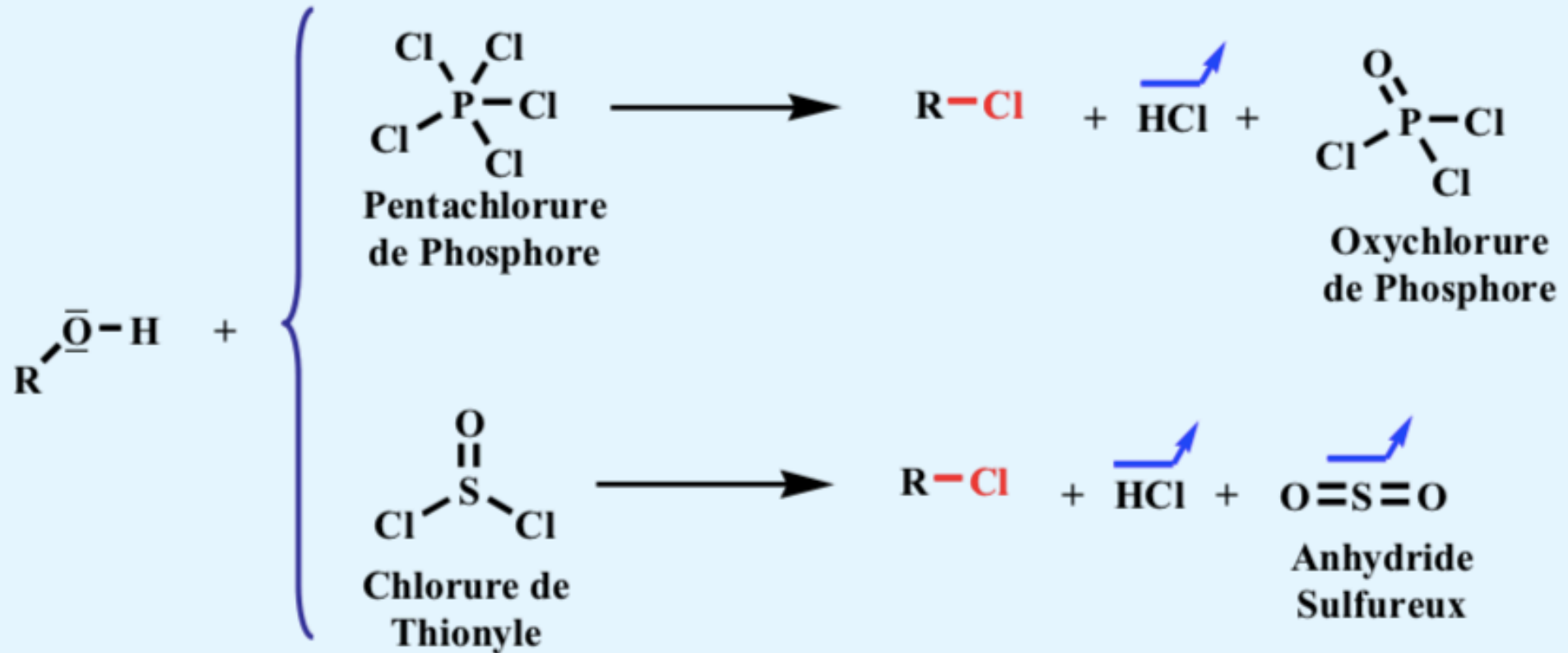
Mécanisme réactionnel:



Protonation de l'alcool

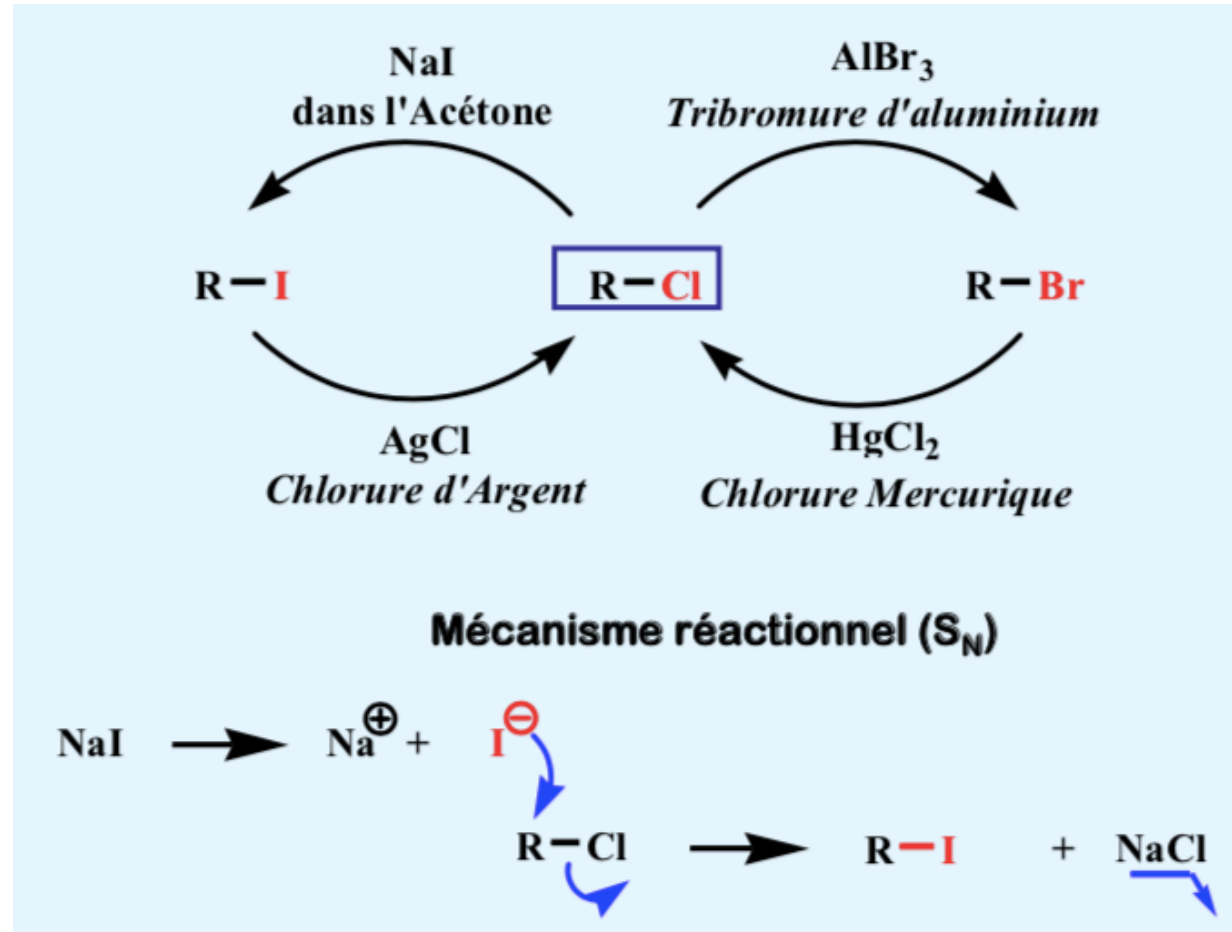
Substitution nucléophile

b. Action de PCl₅ ou de SOCl₂

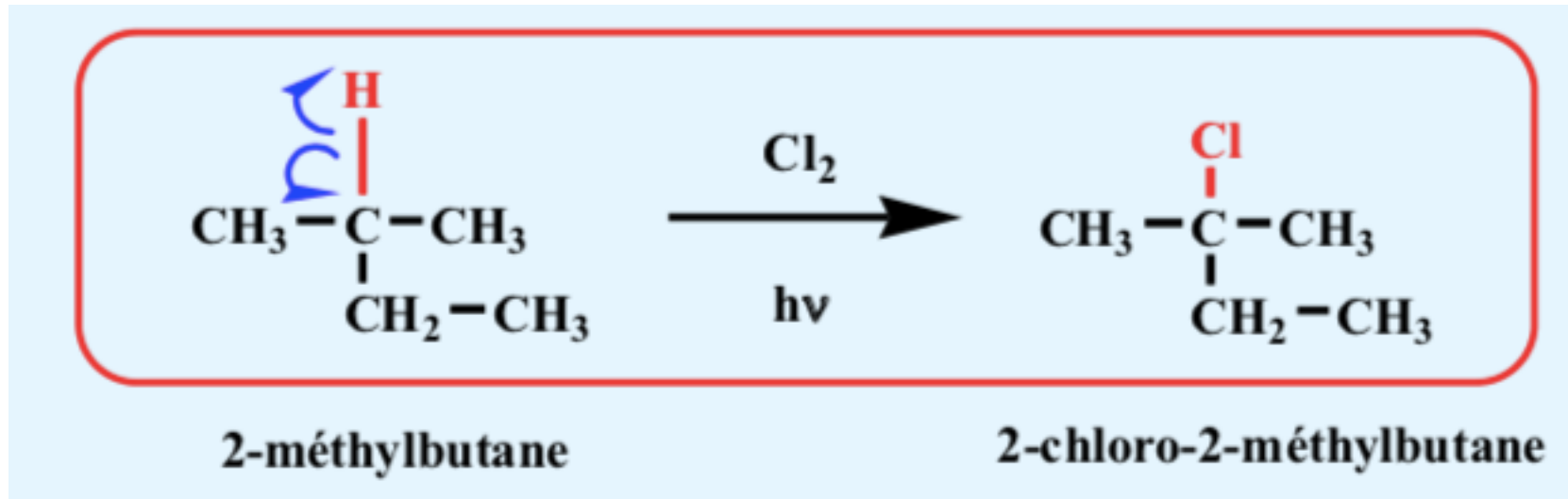


2/ Substitution des dérivés halogénés

Réaction de trans-halogénéation

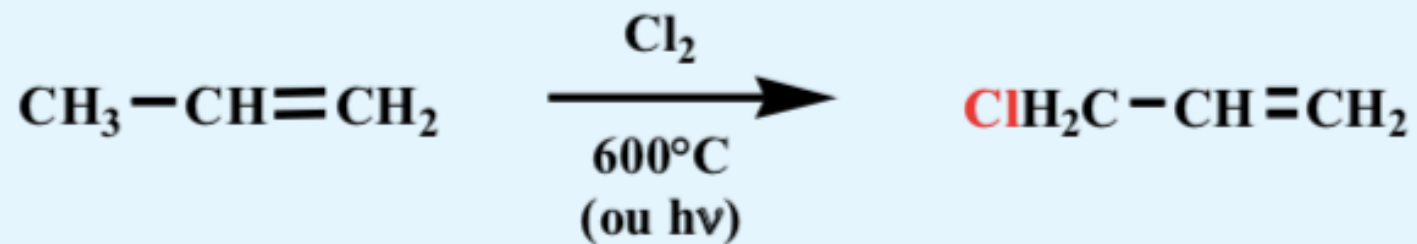


3 / Substitution des alcanes



Mécanisme :
substitution radicalaire

4 / Substitution des alcènes



Chlorure d'Allyle

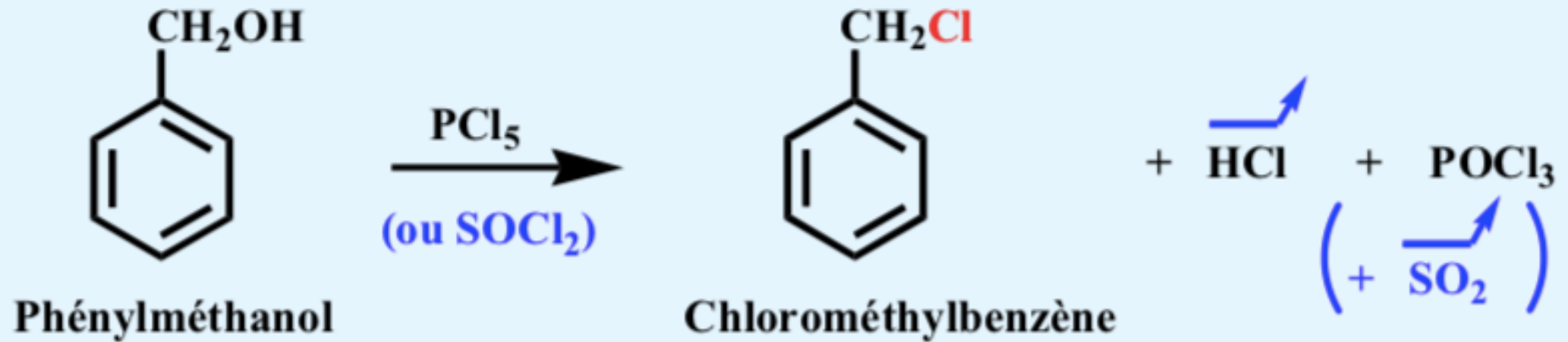


Radical Allyle

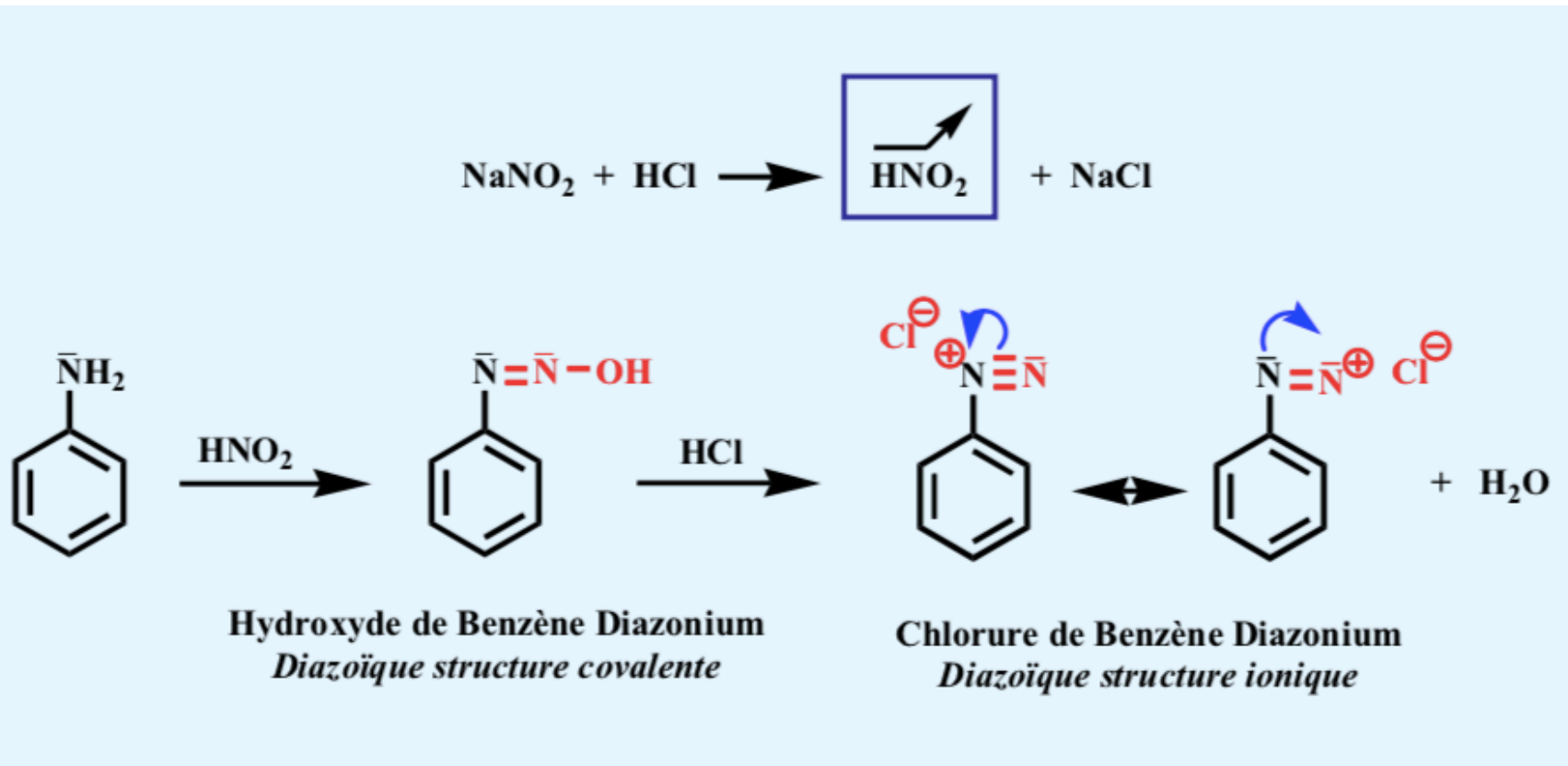
Mécanisme radicalaire

- Formation d'un radical allyle stabilisé par mésomérie
- Position **allylique** favorisée

5 / Substitution des arylméthanol

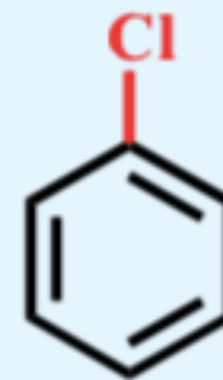
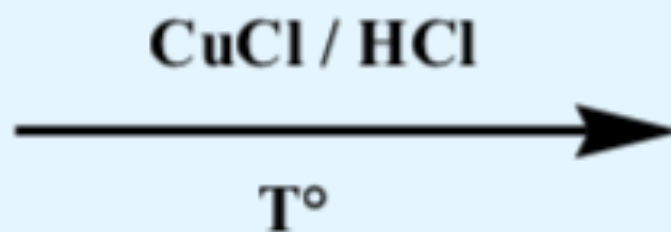
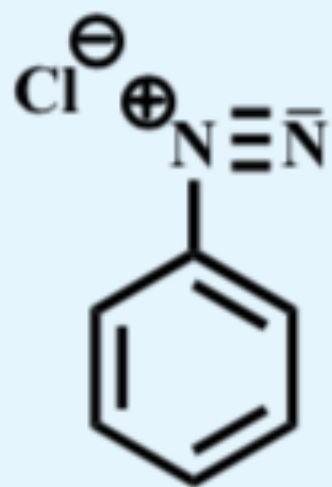


6 / Dégradation des diazoïques

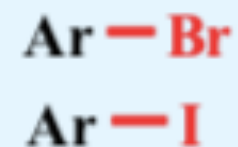
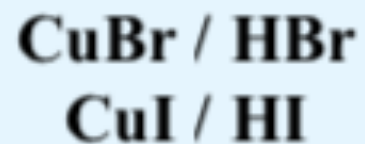
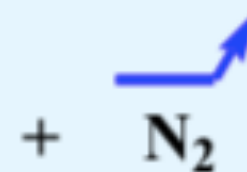


Synthèse des diazoïques

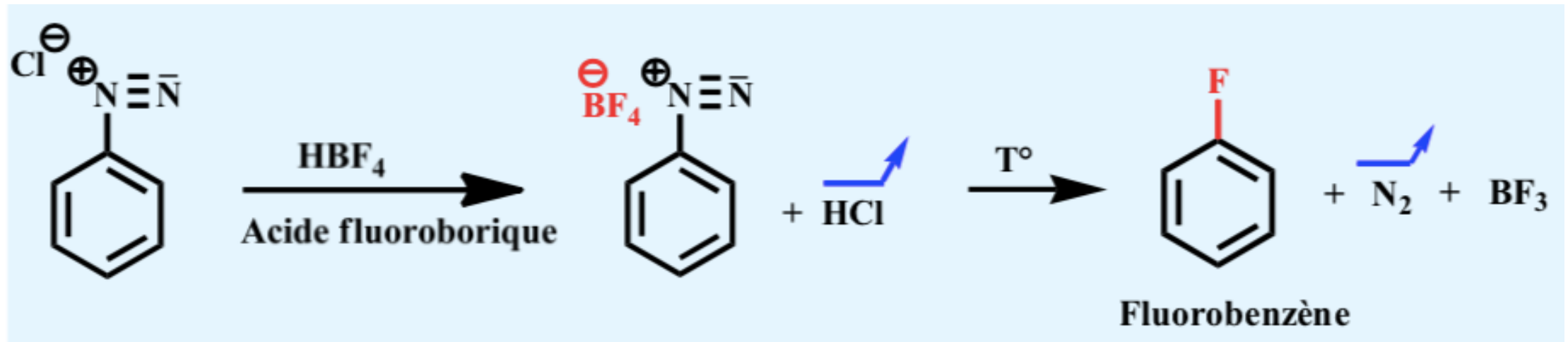
Méthode de Sandmeyer



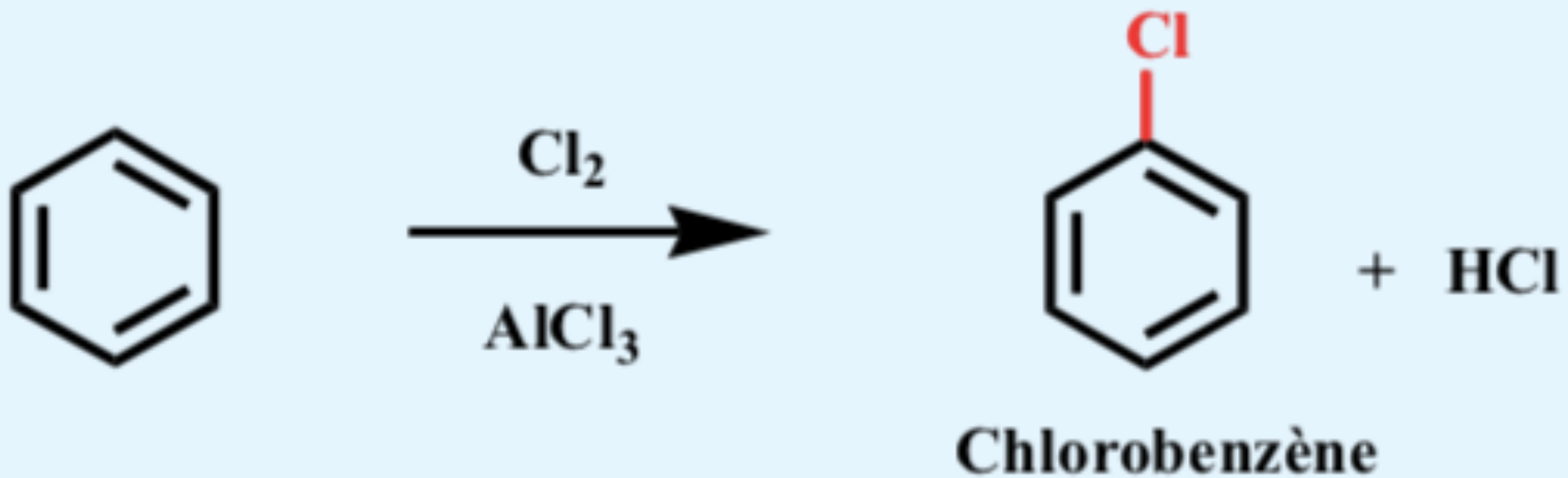
Chlorobenzène



Méthode de Schiemann

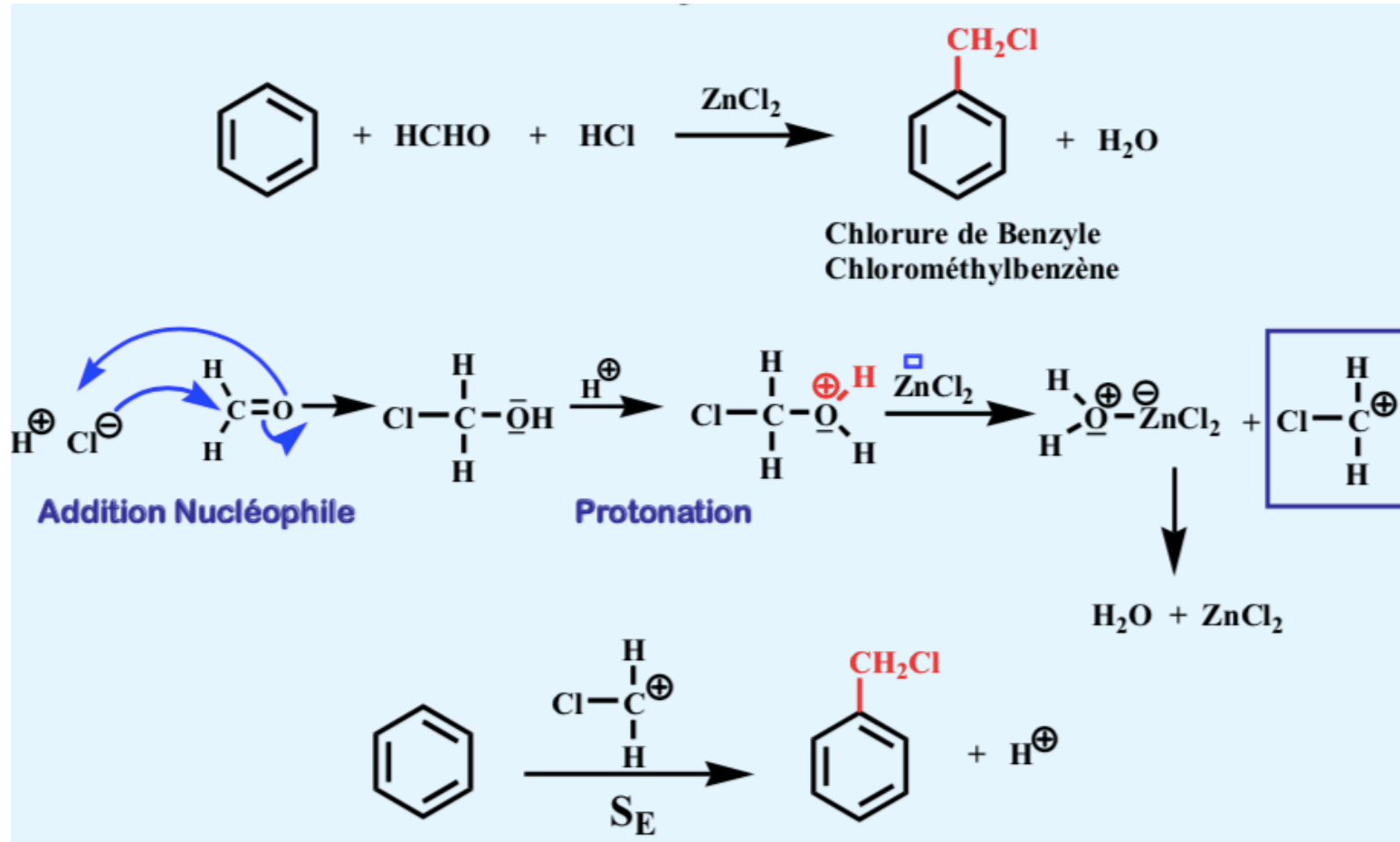


7 / Substitution des hydrocarbures aromatiques



VU AU COURS PRECEDENT

8/ Chlorométhylation de blanc

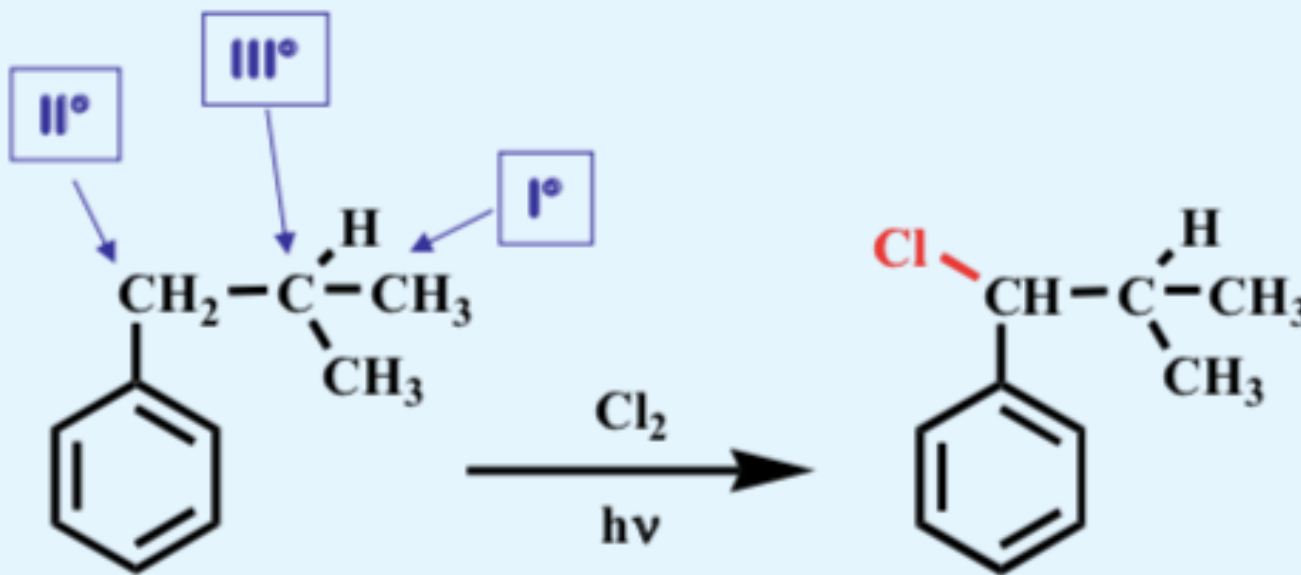


On utilise un acide de lewis : ZnCl_2

C'est une substitution électrophile

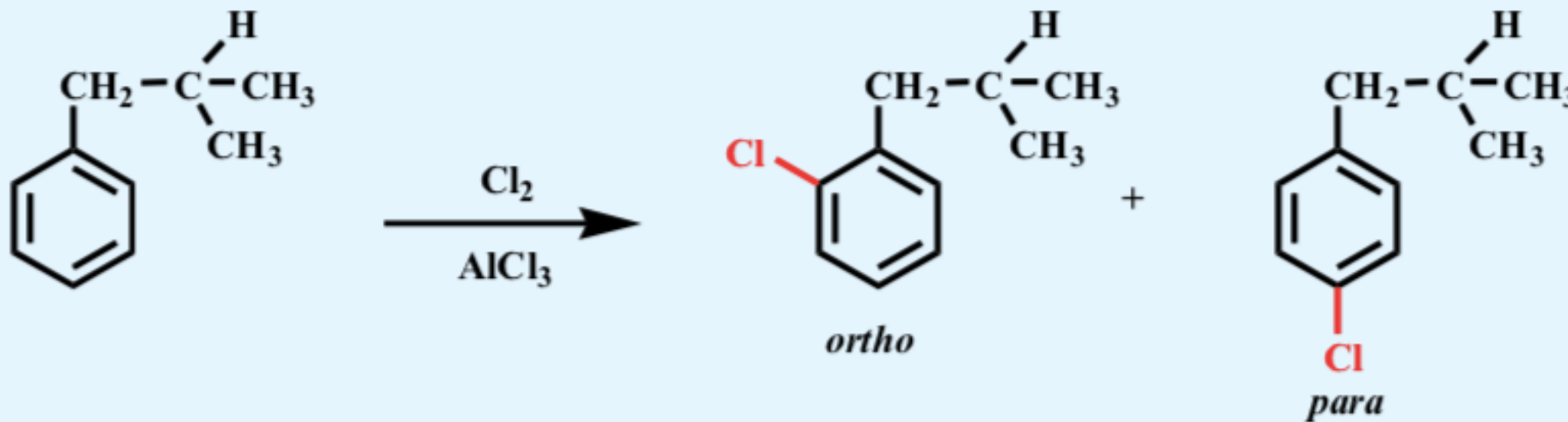
9 / Substitution des Arylalcane

Mécanisme radicalaire



La position **benzylique** est favorisée

Mécanisme ionique



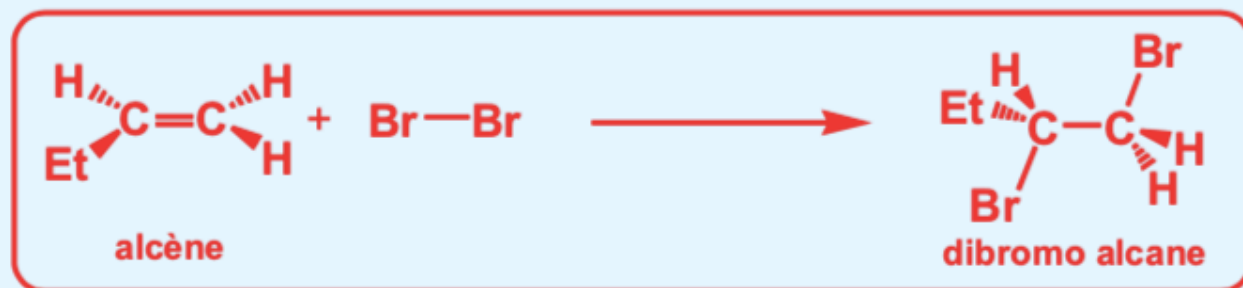
SE



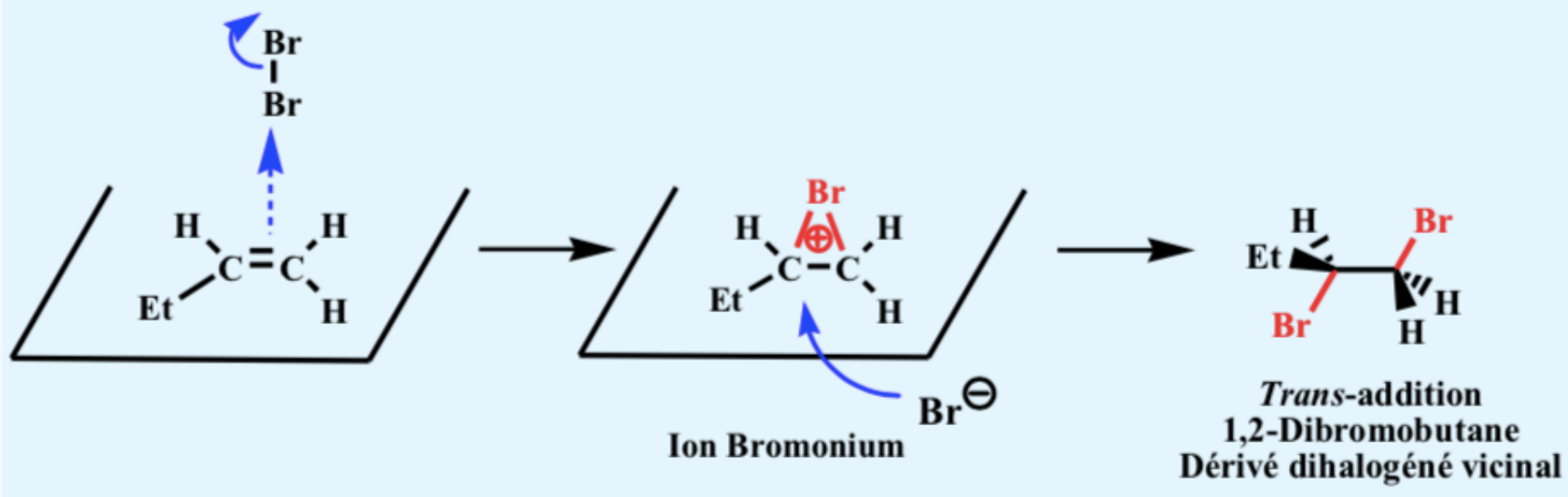
Préparation par
réaction d'addition

Addition sur alcenes

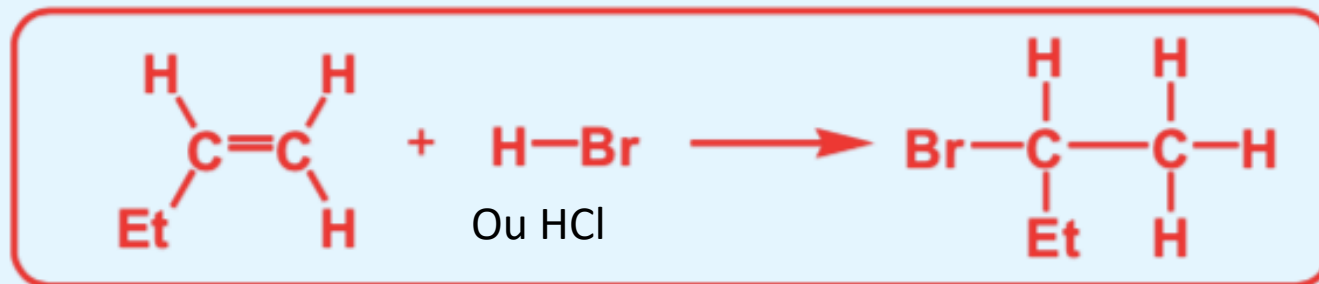
Halogénéation



- Trans-addition
- Passage par un intermédiaire

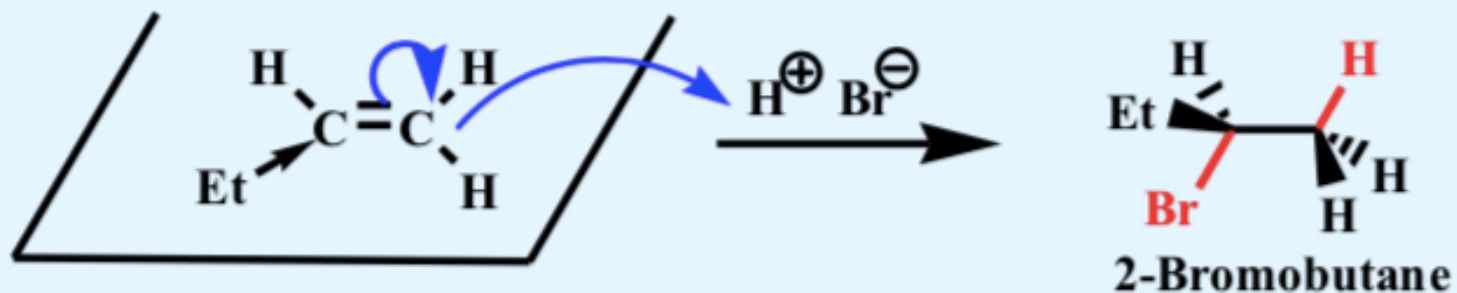


Hydro-Halogénéation

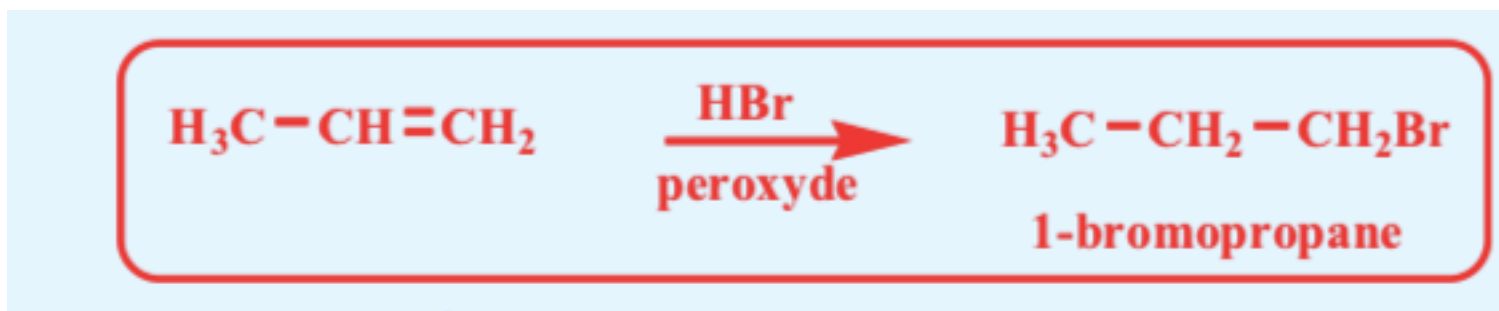


Markovnikov : si l'alcène est dissymétrique, l'halogène se fixe sur le carbone le plus substitué

Mécanisme Ionique (Règle de Markovnikov)

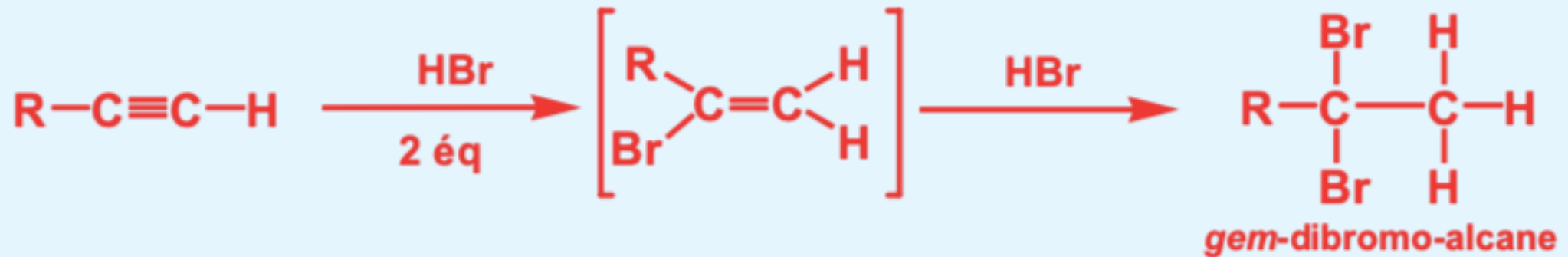


Mécanisme radicalaire

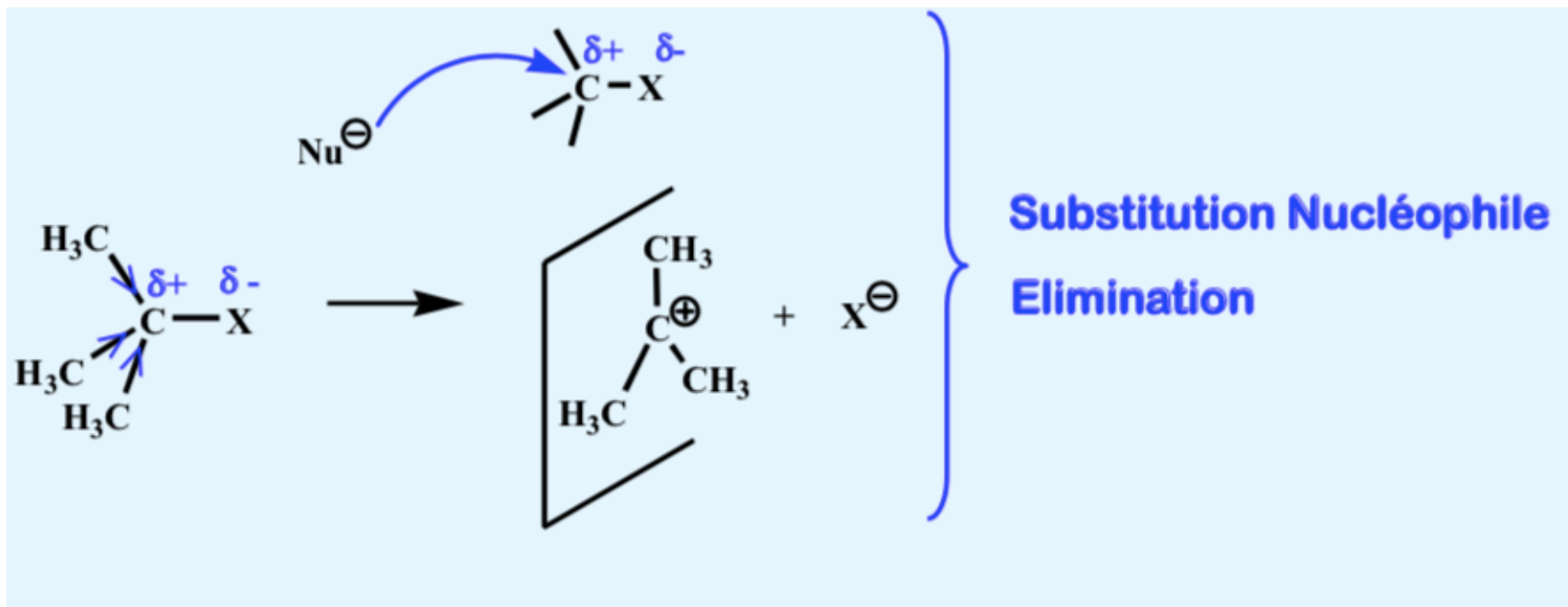


Effet **Karash** : c'est l'inverse de Markovnikov , l'halogène se fixe sur le carbone le moins substitué

Addition sur alcynes



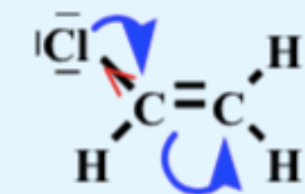
Réactivité



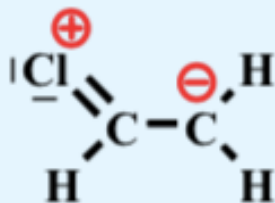
Ordre de réactivité: $\text{RF} \ll \text{RCl} < \text{RBr} < \text{RI}$

- Inversement proportionnel à l'électronégativité des halogènes
- Proportionnel à la taille de l'halogène

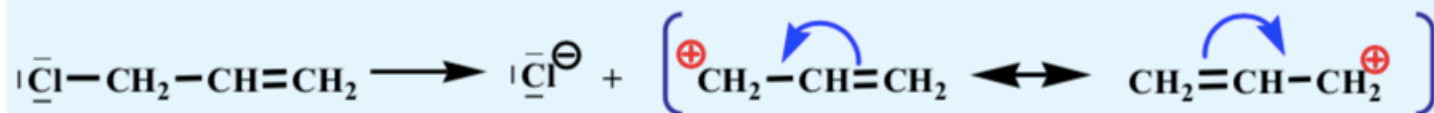
Dérivé halogénés insaturés



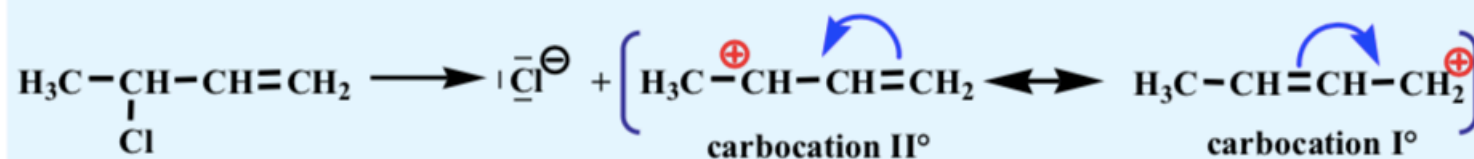
Chlorure de Vinyle



Halogénure vinylique



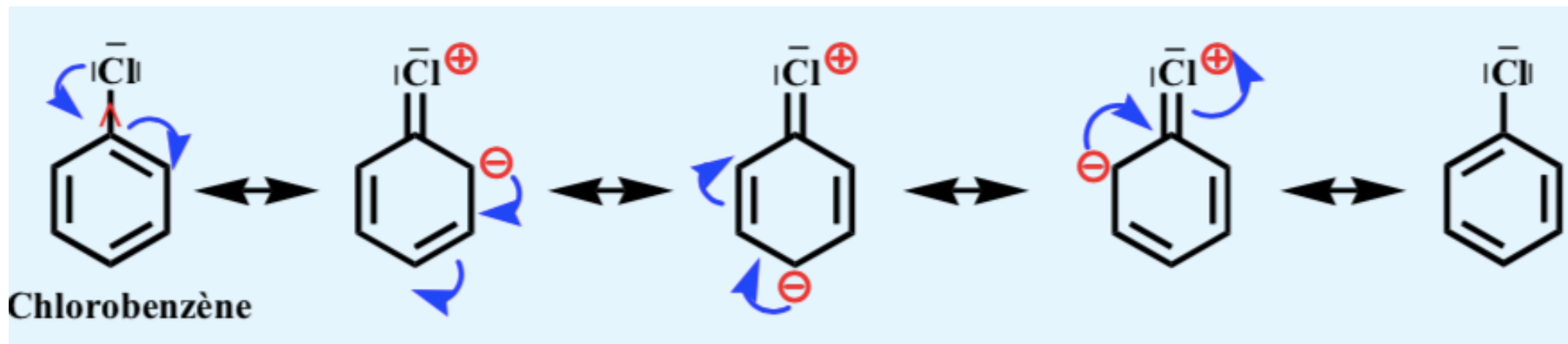
Chlorure d'allyle



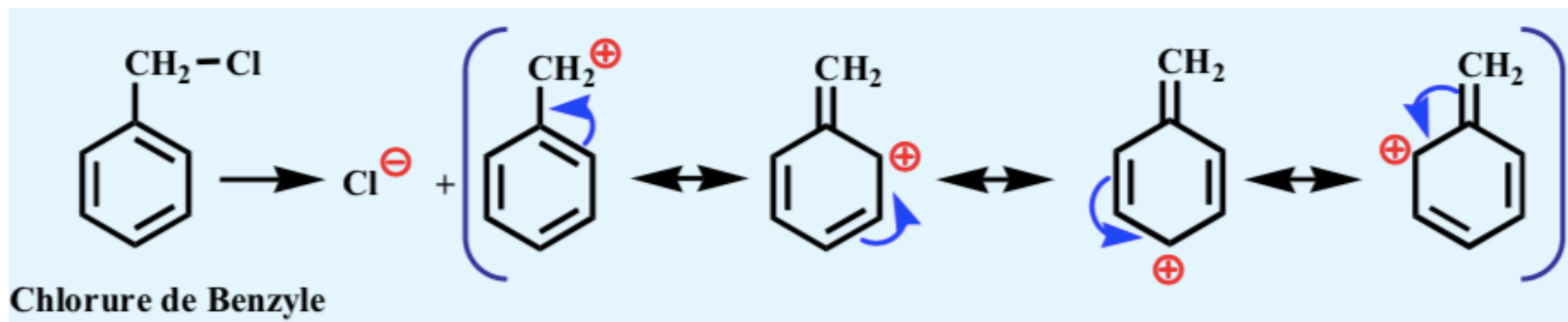
3-Chloro-but-1-ène

Halogénure allylique

Halogène nucléaire



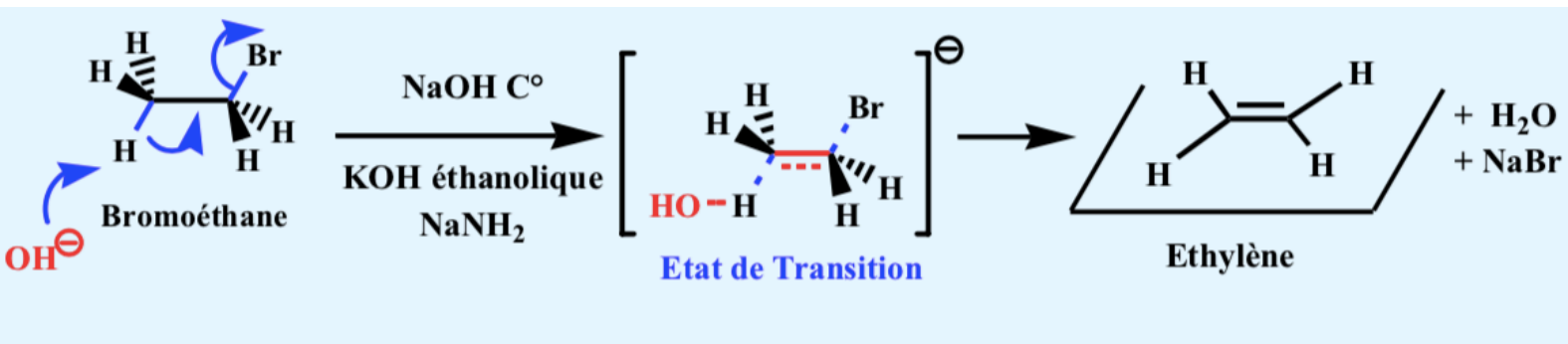
Halogène benzylique





Réaction d'élimination

Dérivé monohalogéné



- **RX Primaire** :
Mécanisme E2

- Zaitsev

Une température élevée favorise les réactions d'élimination



- **RX Tertiaire** :
mécanisme E1

- Zaitsev

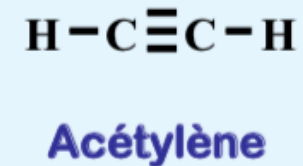
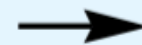
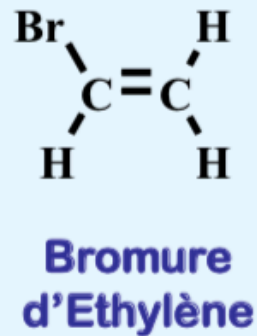
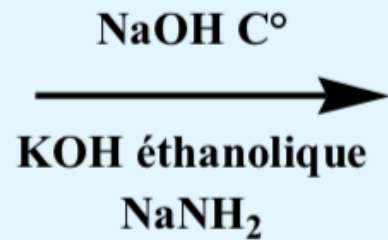
Dérivé Dihalogéné



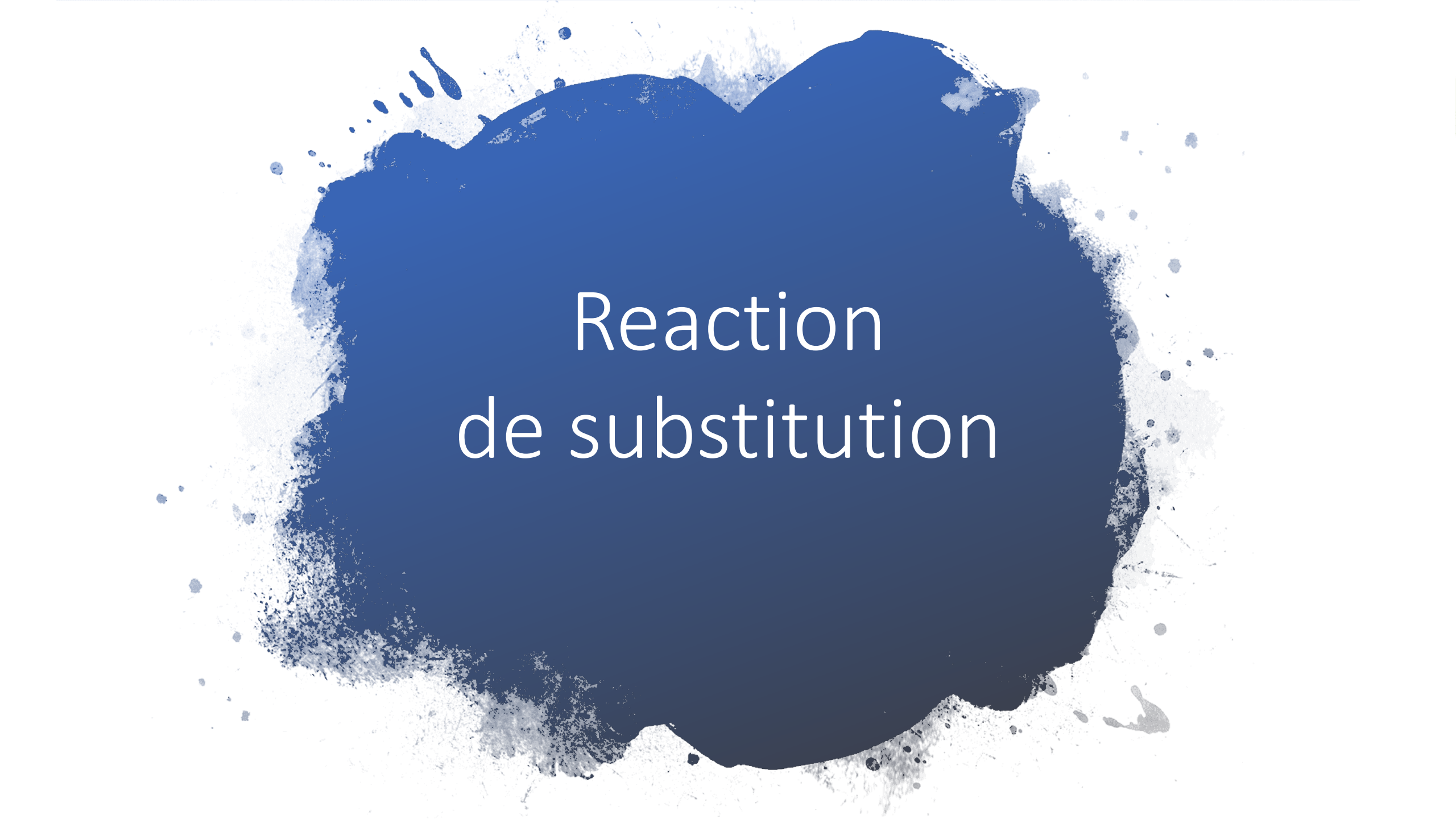
Vicinal



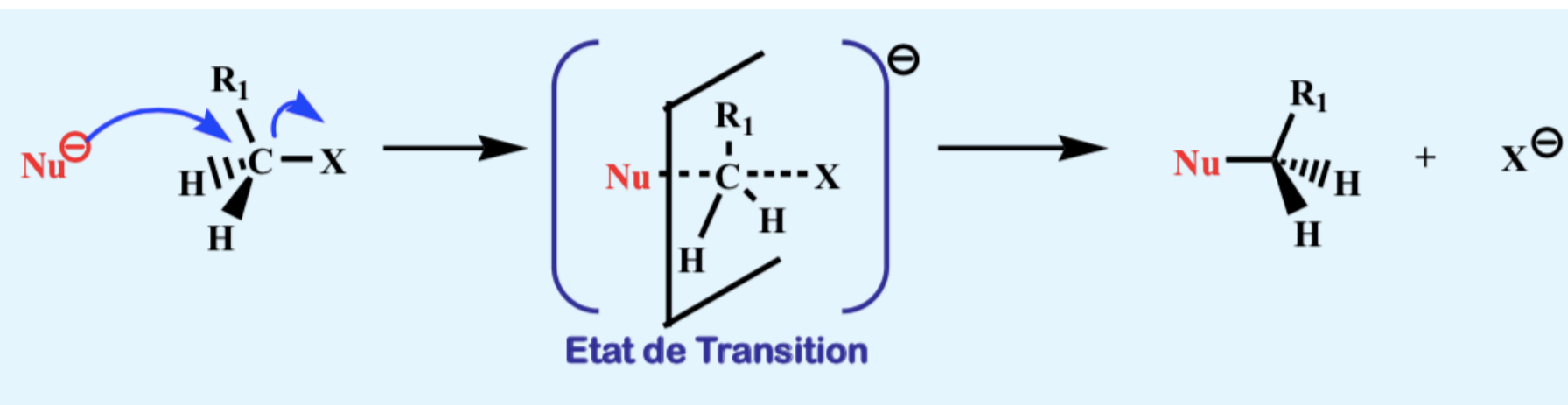
Géminé



Double élimination

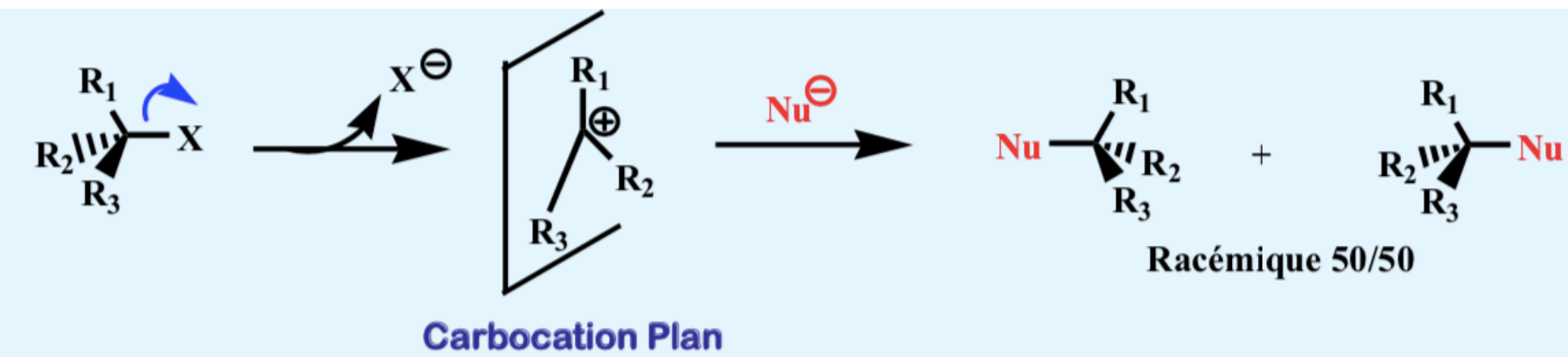
A dark blue, irregular ink splatter shape centered on a white background. The splatter has a textured, watercolor-like appearance with some lighter blue and white areas around the edges. The text "Reaction de substitution" is written in white, sans-serif font across the center of the blue shape.

Reaction de substitution



RX Primaire

SN2

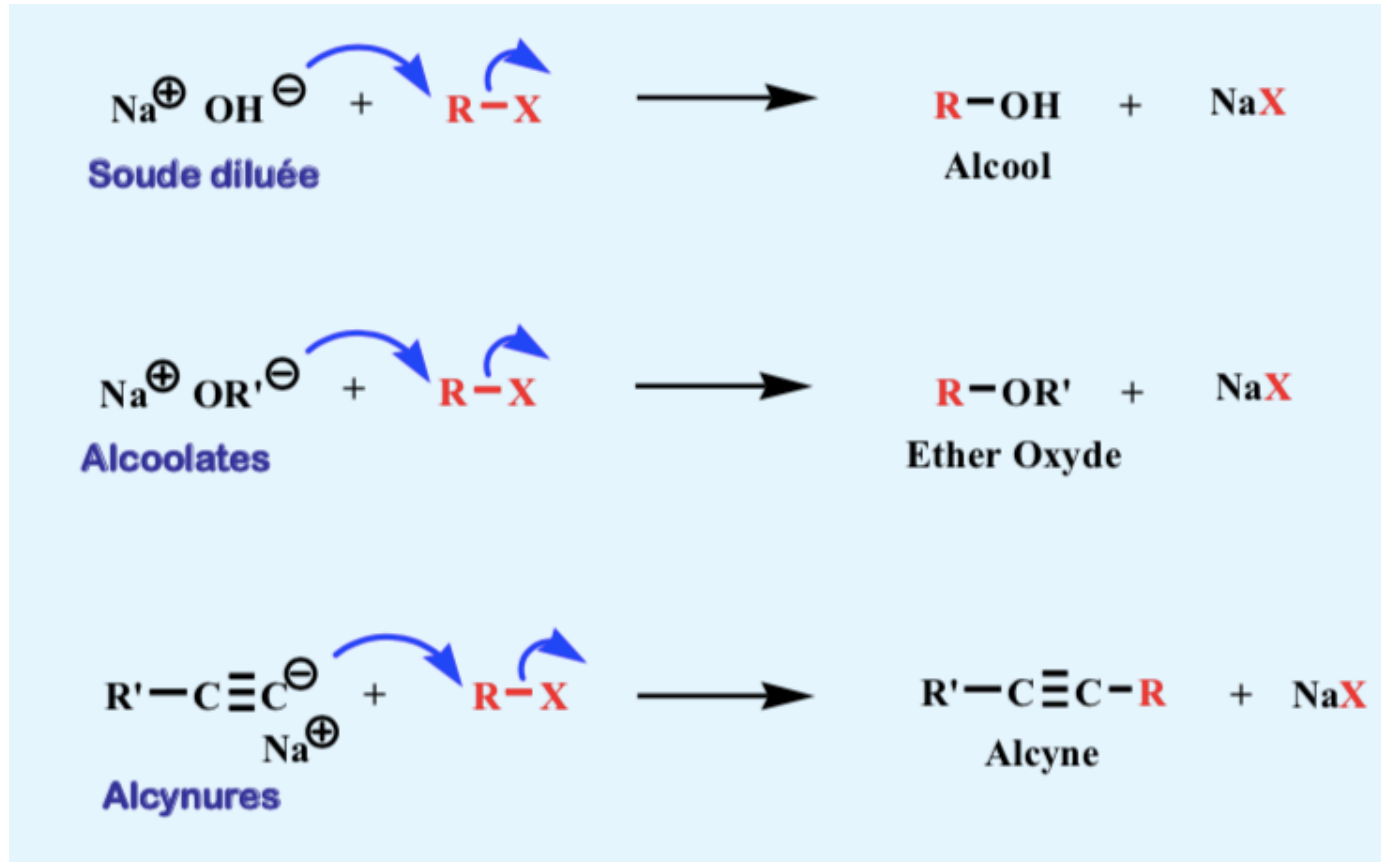


RX Tertiaire

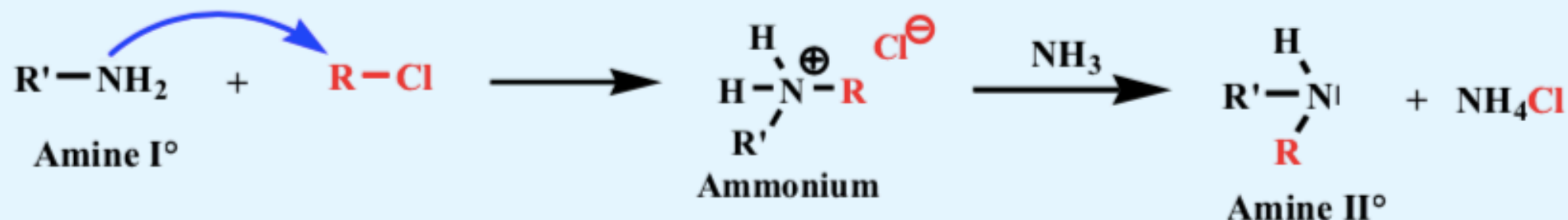
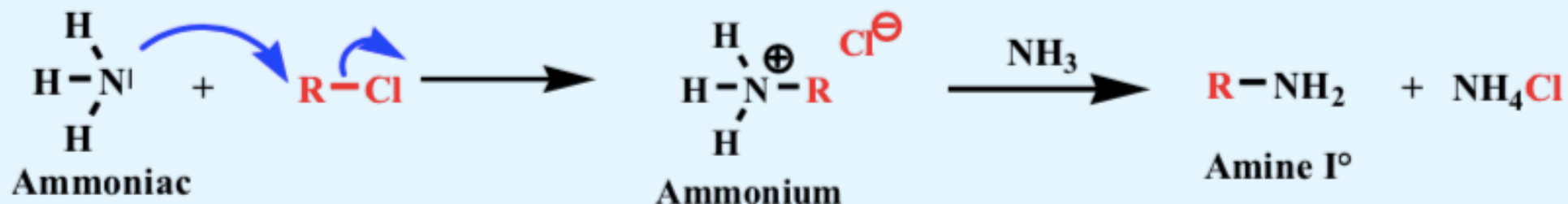
SN1

Mélange racémique

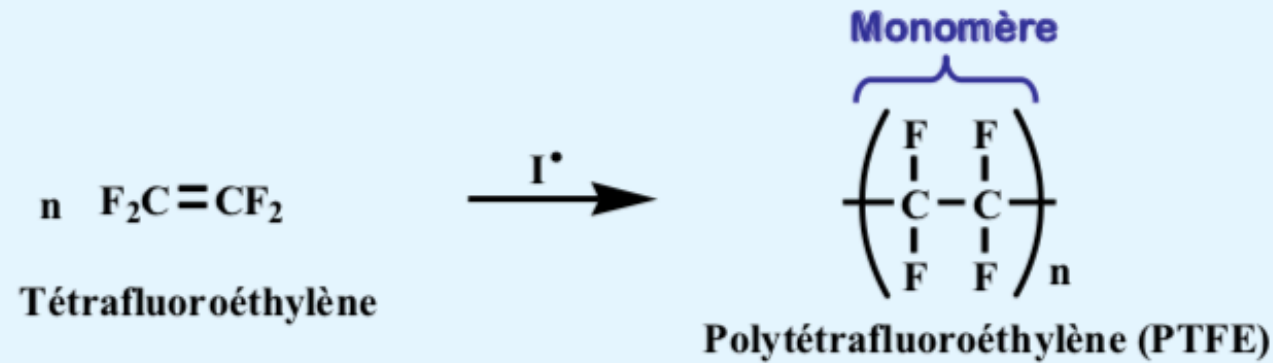
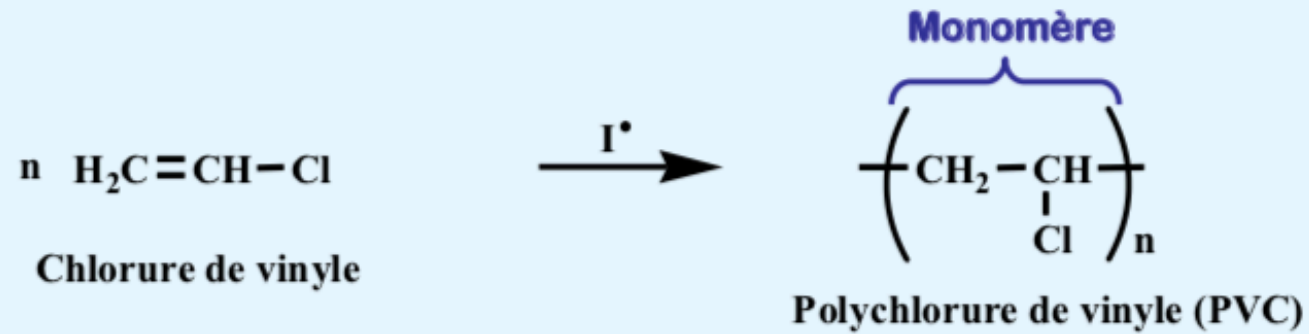
Réactivité avec divers nucléophile et bases



Méthode d'HOFMANN de préparation des Amines



3. Réactions de Polymérisation



Petite dédicace a ma fillotte (cc Nat) sans qui j'aurai pas pu faire ce diapo