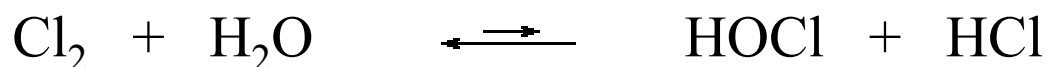
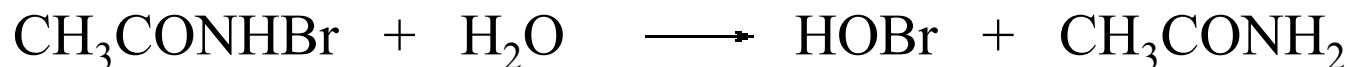


5. Addizione di acidi ipoalosi

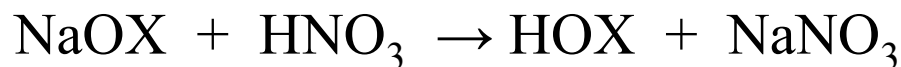
- Cloro acquoso è in equilibrio con *acido ipocloroso* e acido cloridrico, $K_{\text{eq}} \approx 10^{-4}$. La concentrazione di HOCl può essere aumentata aggiungendo AgOH.



- L'acido ipobromoso HOBr viene formato per idrolisi di N-bromoacetammide:

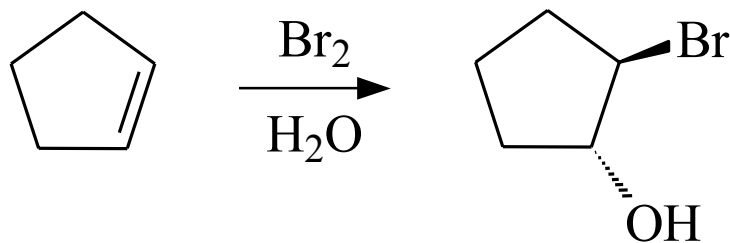
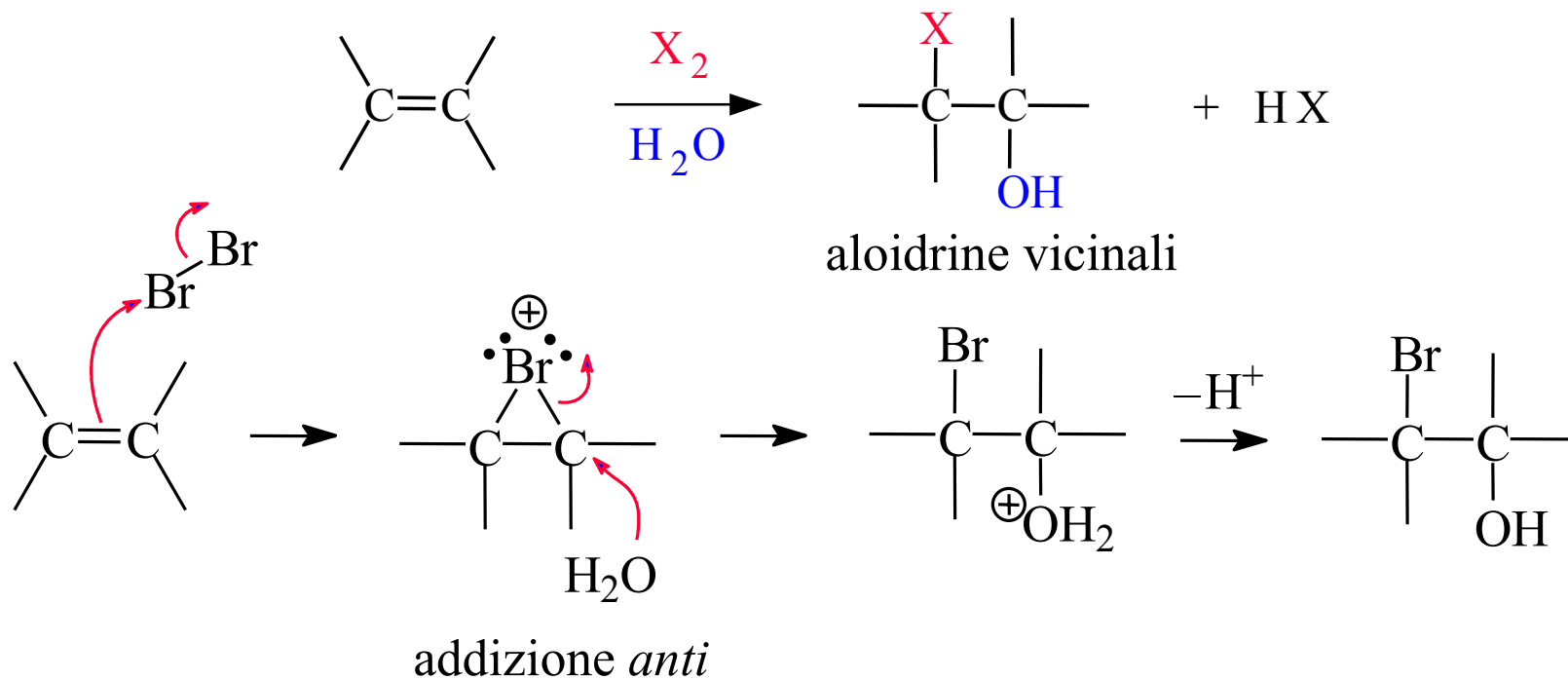


- Entrambi si formano per addizione di acido forte sui rispettivi sali:

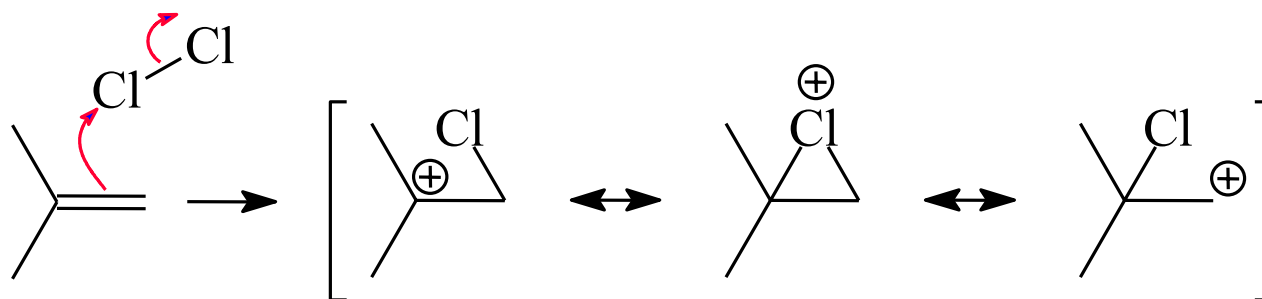
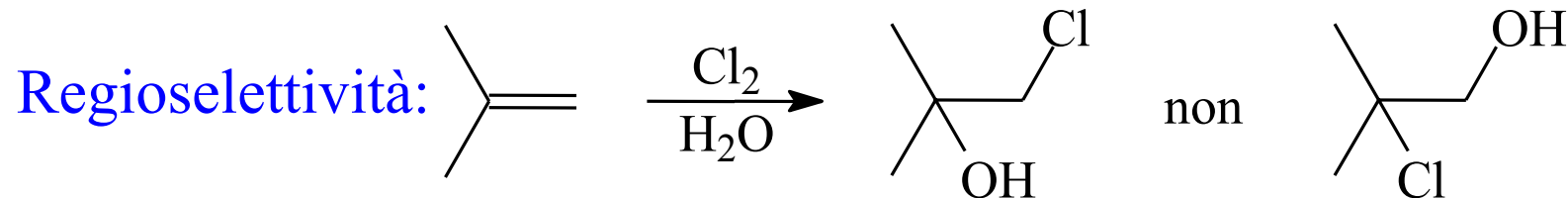


5. Addizione di acidi ipoalosi

Formazione di aloidrine



5. Addizione di acidi ipoalosi

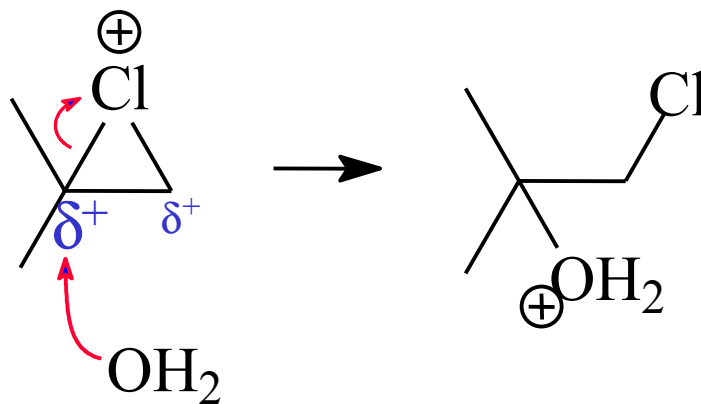


maggiore
contribuente
del catione 1°

forma
contribuente
maggiore

5. Addizione di acidi ipoalosi

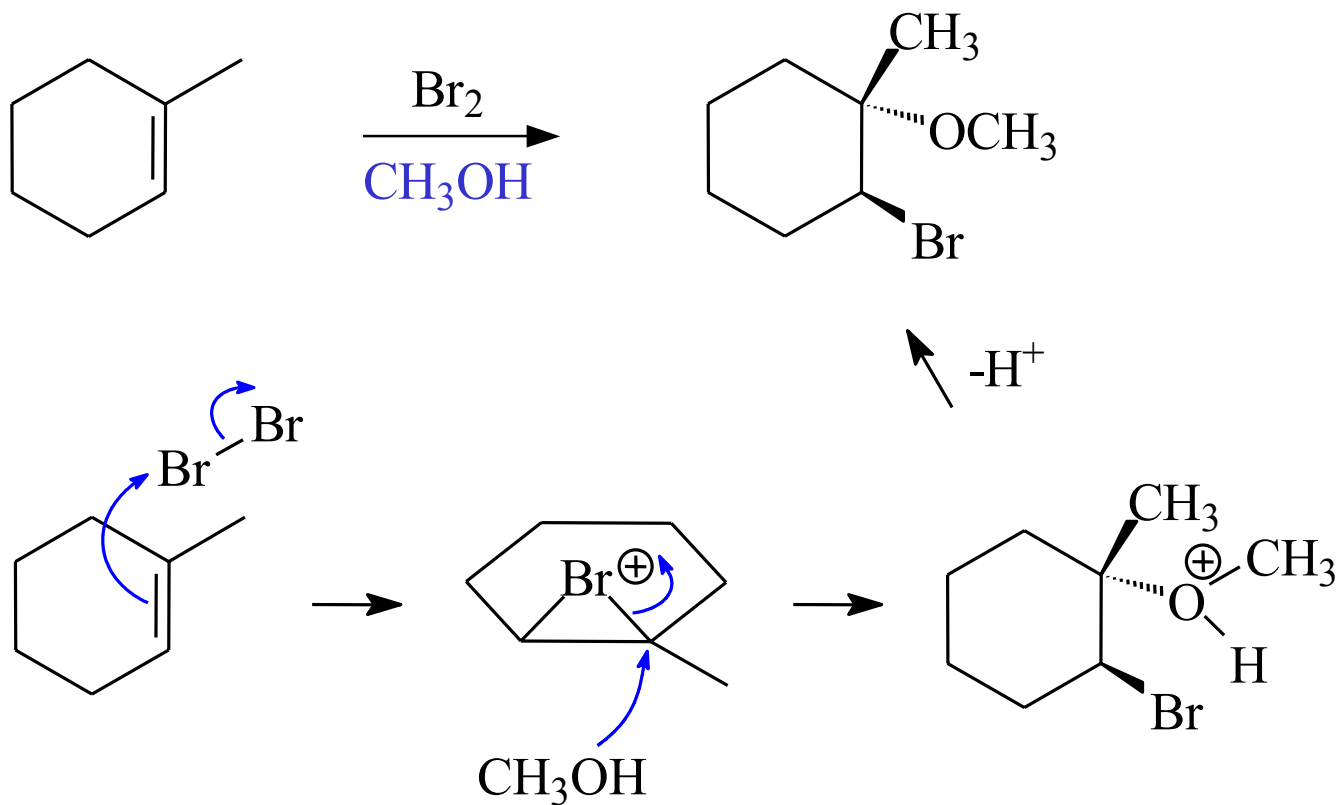
ibrido di risonanza:



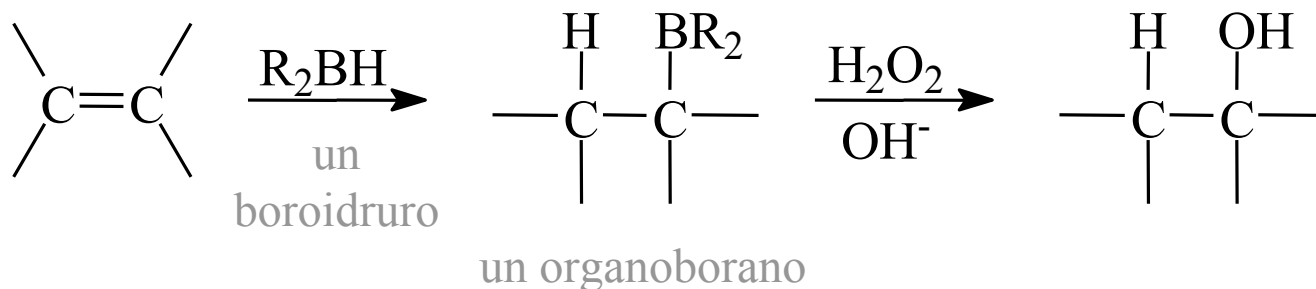
Il C più sostituito porta maggiore carica δ^+ ,
ha maggiore attrazione per il nucleofilo

5. Formazione di eteri

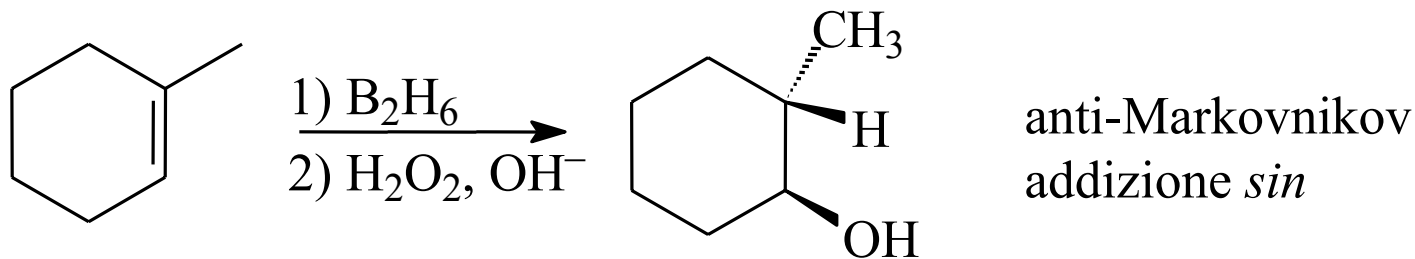
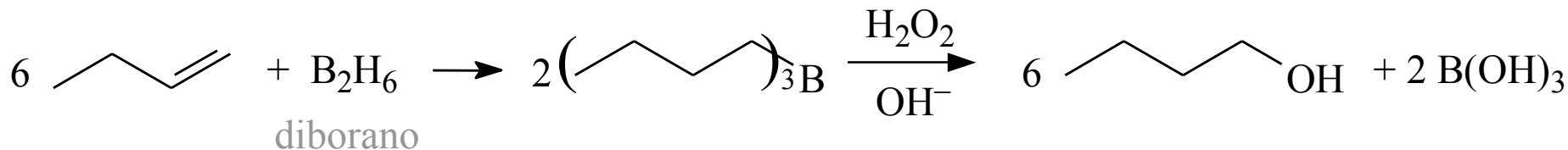
Altri nucleofili:



6. Idroborazione-ossidazione

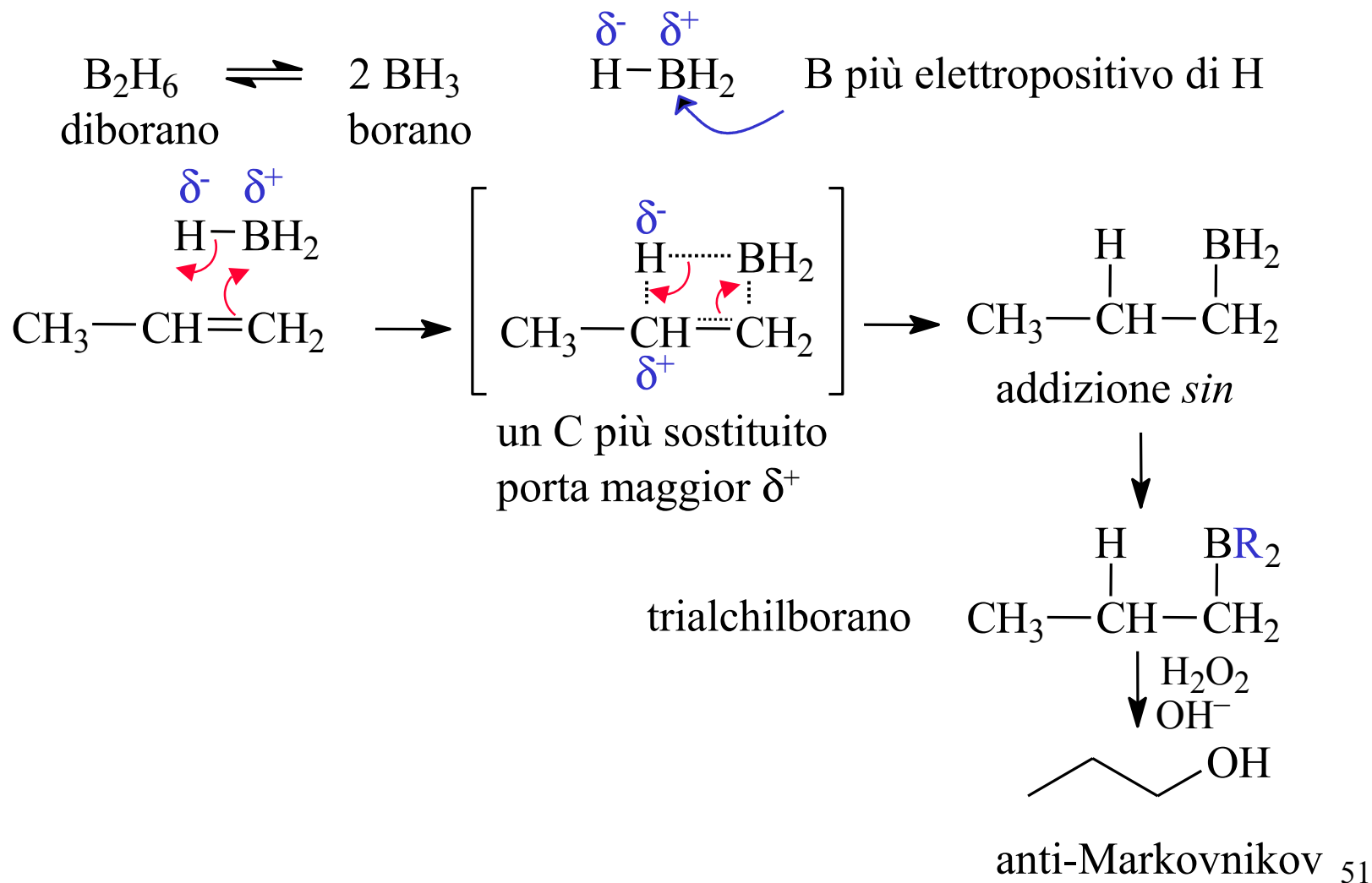


- orientamento anti-Markovnikov
- addizione stereoselettiva *sin*
- nessun riarrangiamento



6. Idroborazione-ossidazione

Meccanismo:

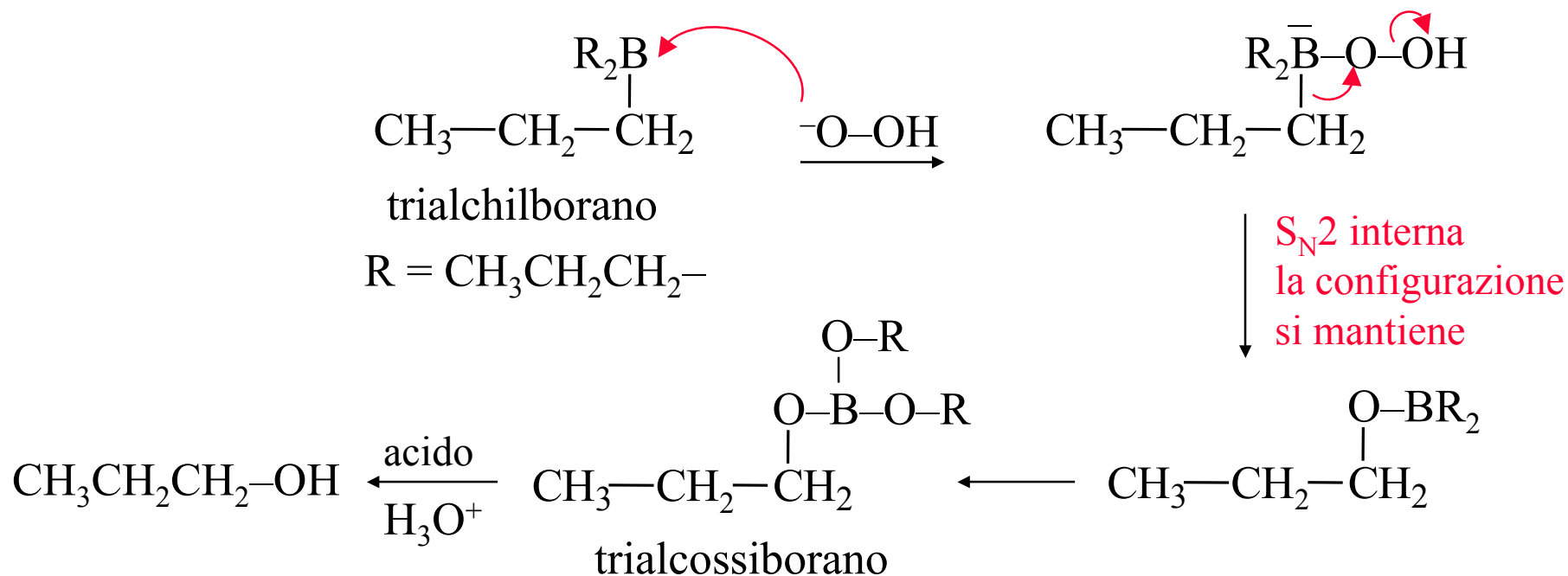


6. Idroborazione-ossidazione

Meccanismo:

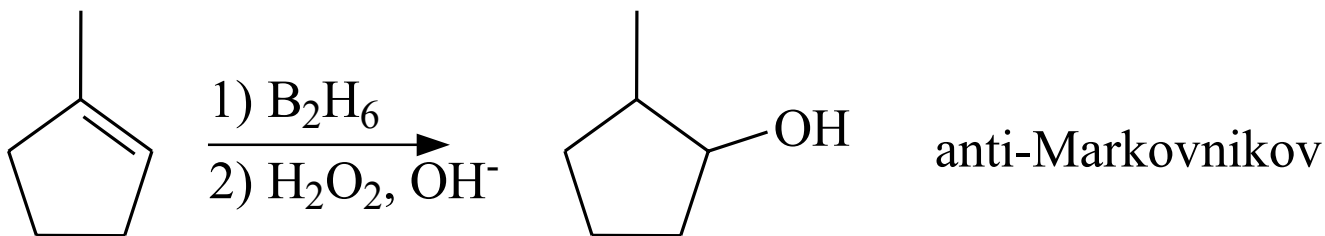
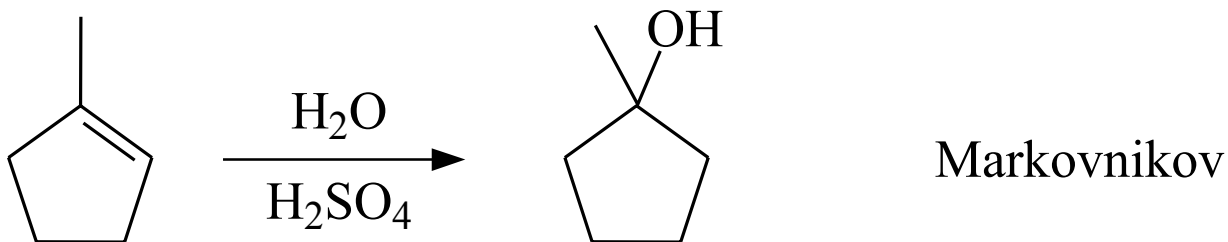


ione
idroperossido



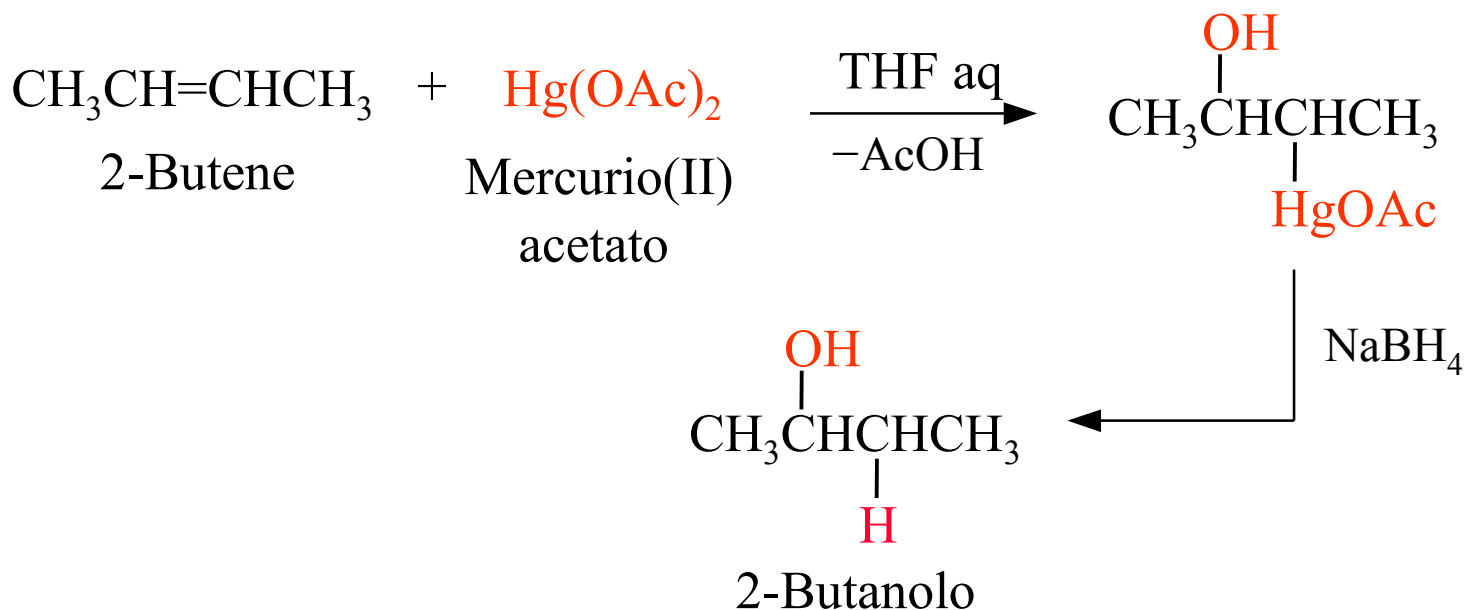
6. Idroborazione-ossidazione

Controllo regiochimico:



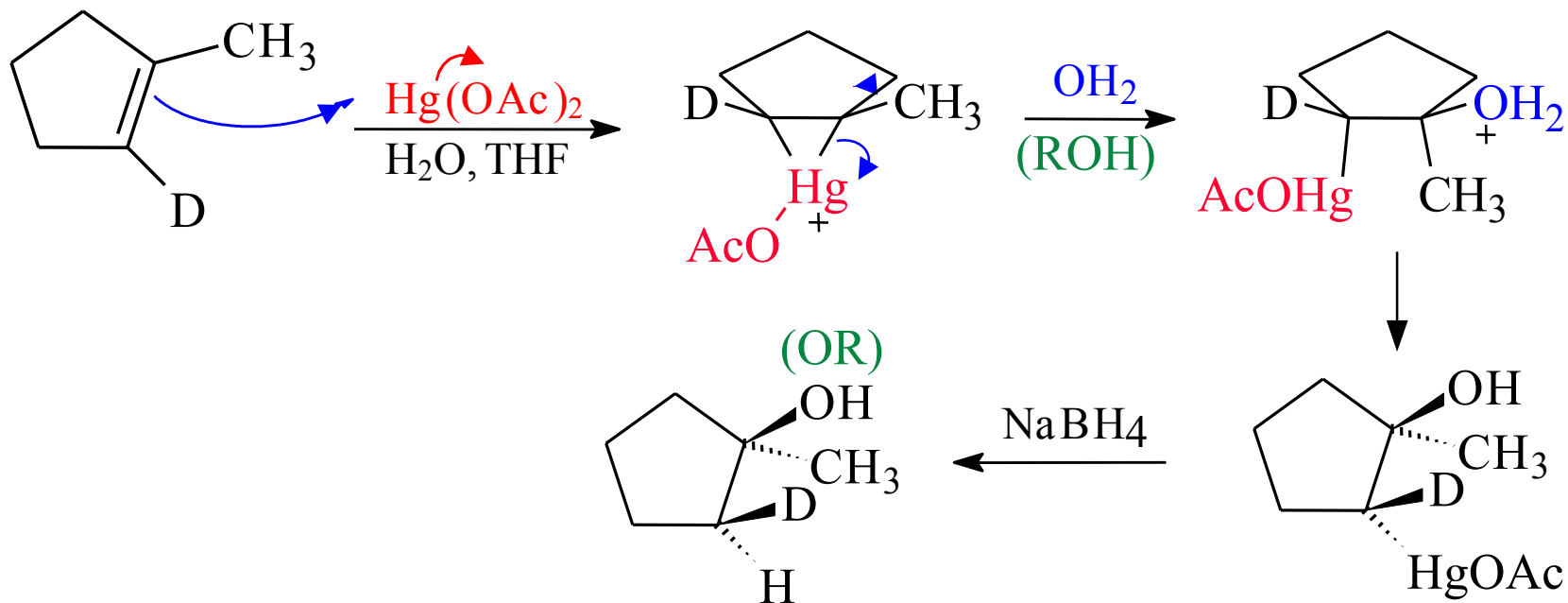
7. Ossimercuriazione/Riduzione

- L'alchene trattato con acetato di mercurio(II) in THF.
- Ha luogo una rapida addizione elettrofila con formazione di un intermedio organomercurio.
- Il trattamento con sodio boroidruro NaBH_4 dà l'alcool.



7. Ossimercuriazione/Riduzione

Meccanismo

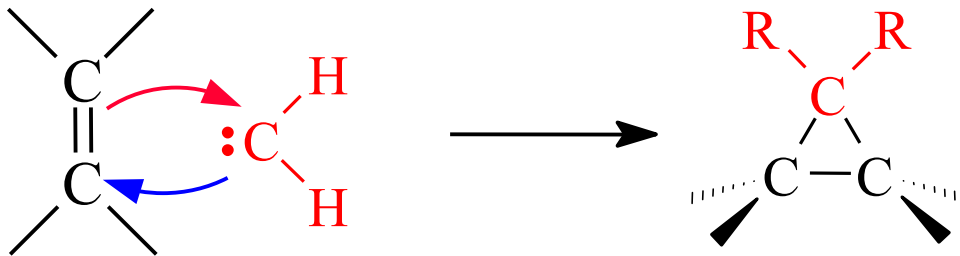
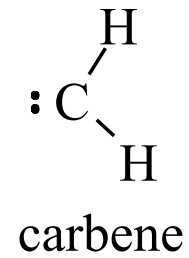
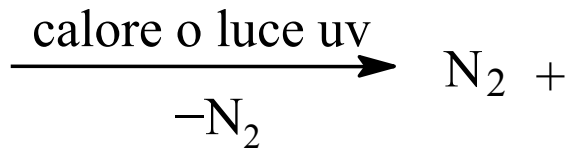
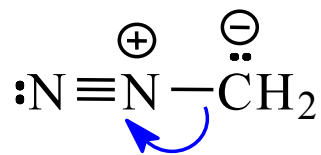
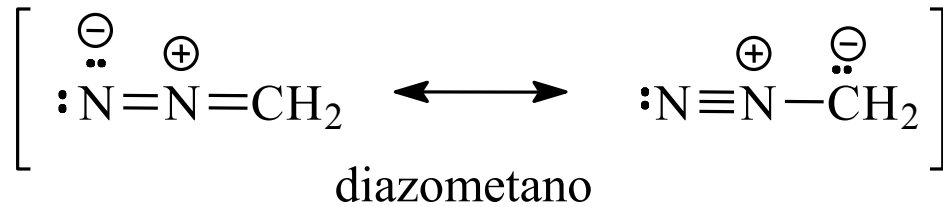


- L'acqua si avvicina allo ione mercurinico dal lato opposto (addizione **anti**).
- L'acqua si addiziona al carbonio più sostituito per dare il prodotto Markovnikov.

8. Addizione di Carbeni

- Inserzione di un gruppo $-\text{CH}_2-$ in un doppio legame per produrre un ciclopropano.
- Tre metodi:
 - Diazometano
 - Reazione di Simmons-Smith: metilene ioduro e $\text{Zn}(\text{Cu})$
 - α -Eliminazione

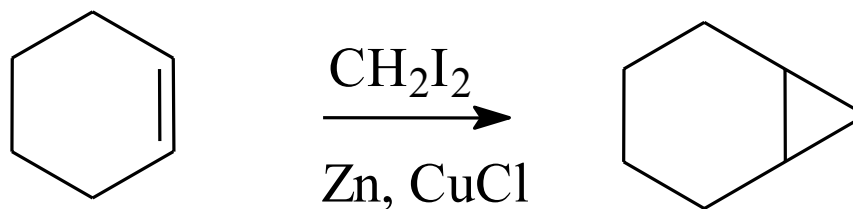
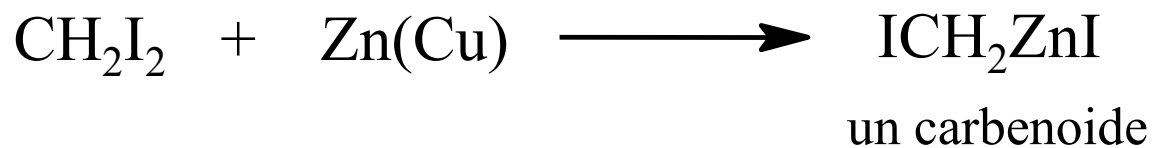
Diazometano



stereochimica|

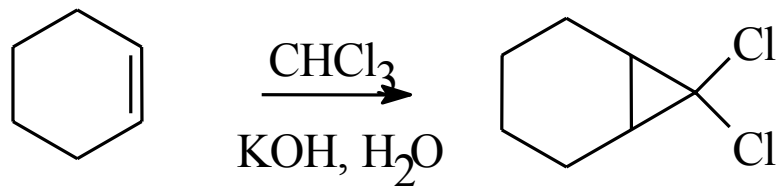
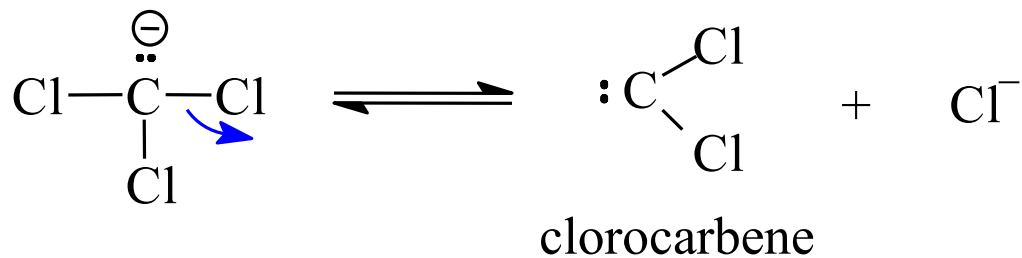
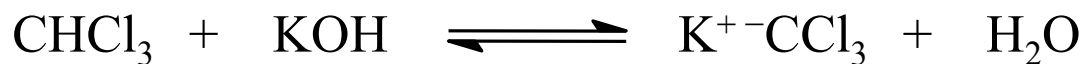
Reazione di Simmons-Smith

- Metodo migliore per preparare i ciclopropani



Clorocarbeni

- Un aloformio reagisce con una base.
- H e X eliminati dallo stesso carbonio: α -eliminazione.
- Si forma un clorocarbene.

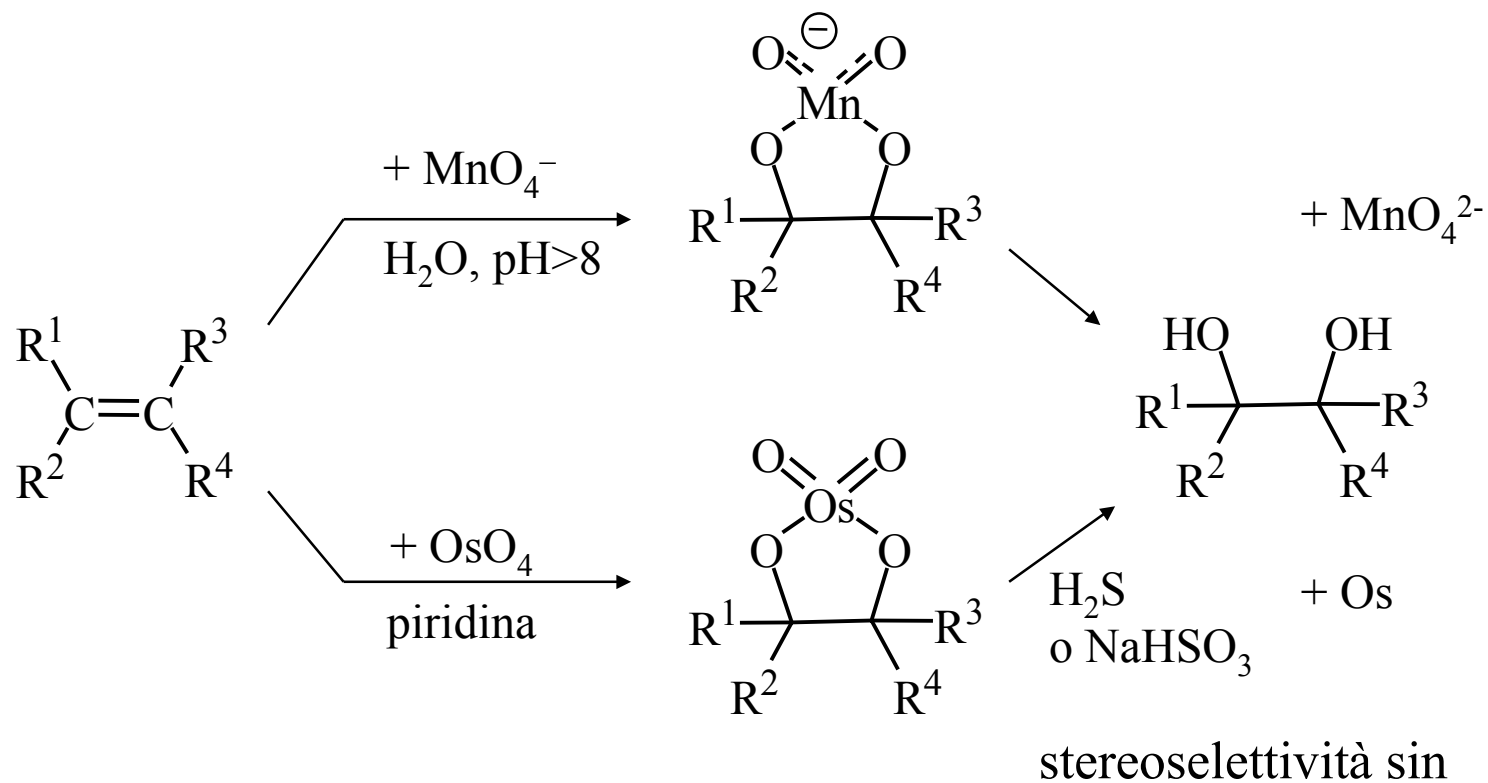


A. Ossidazioni

1. Idrossilazione

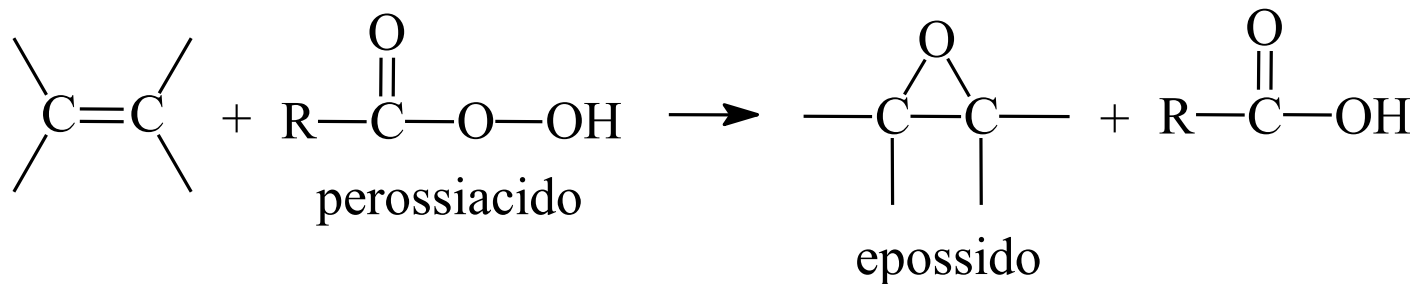
Si formano glicoli sin:

Con KMnO_4 in ambiente basico o con OsO_4 :

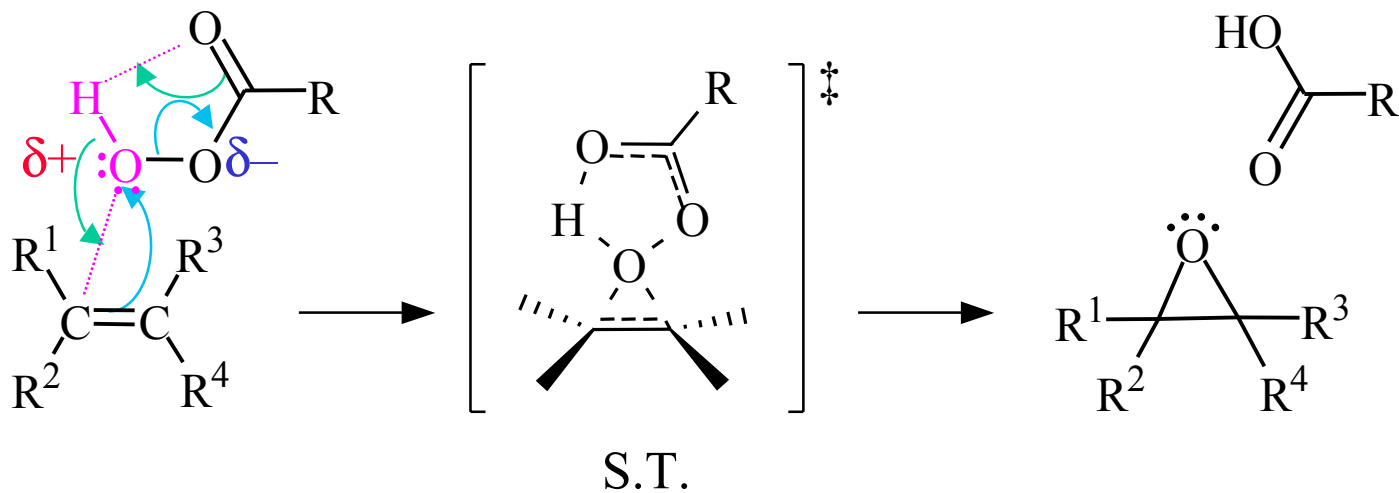


A. Ossidazioni

2. Epossidazione



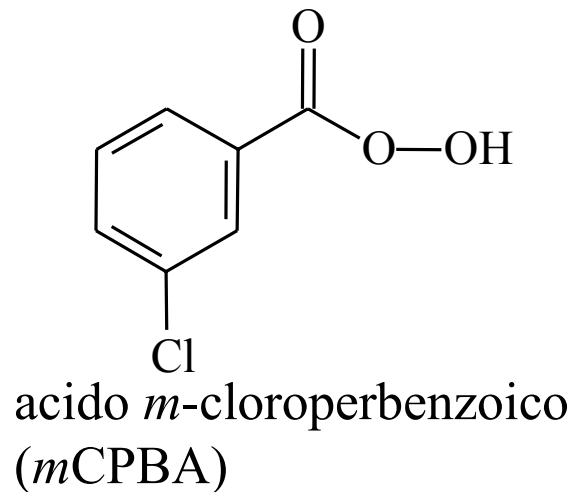
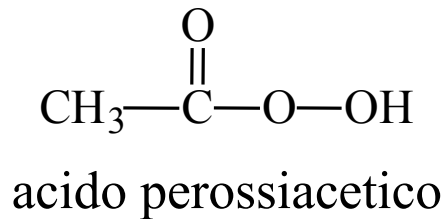
Meccanismo:



A. Ossidazioni

2. Epossidazione

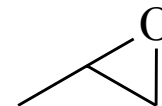
Perossidi



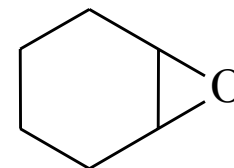
Nomenclatura:



epossietano (etilene ossido)



1,2-eossipropano (propilene ossido)

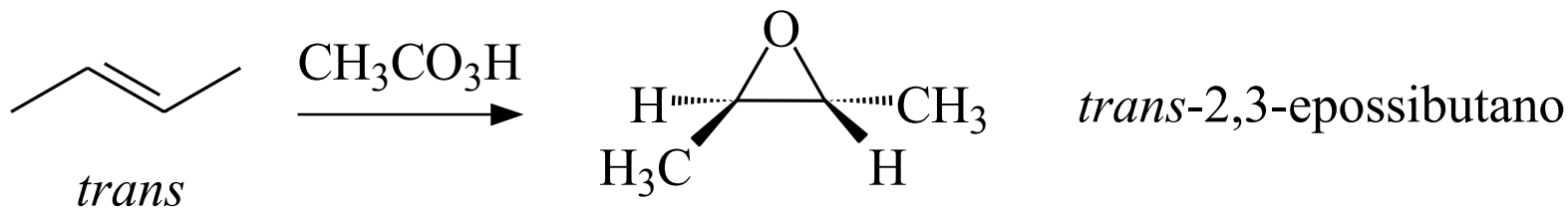
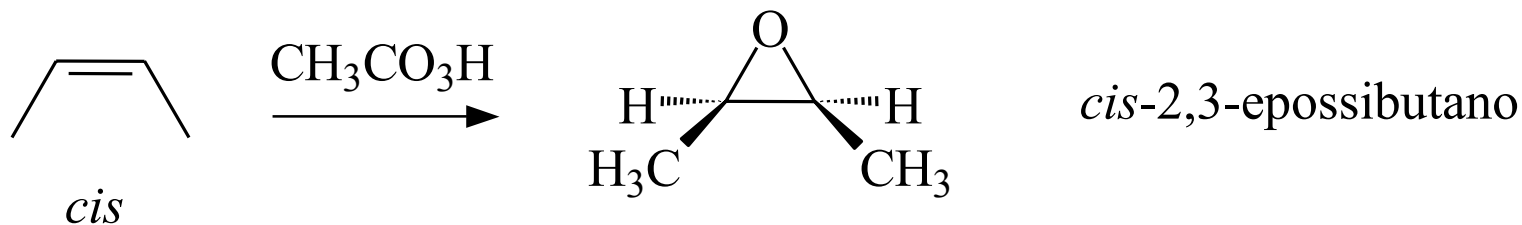


1,2-eossicicloesano (cicloesene ossido)

A. Ossidazioni

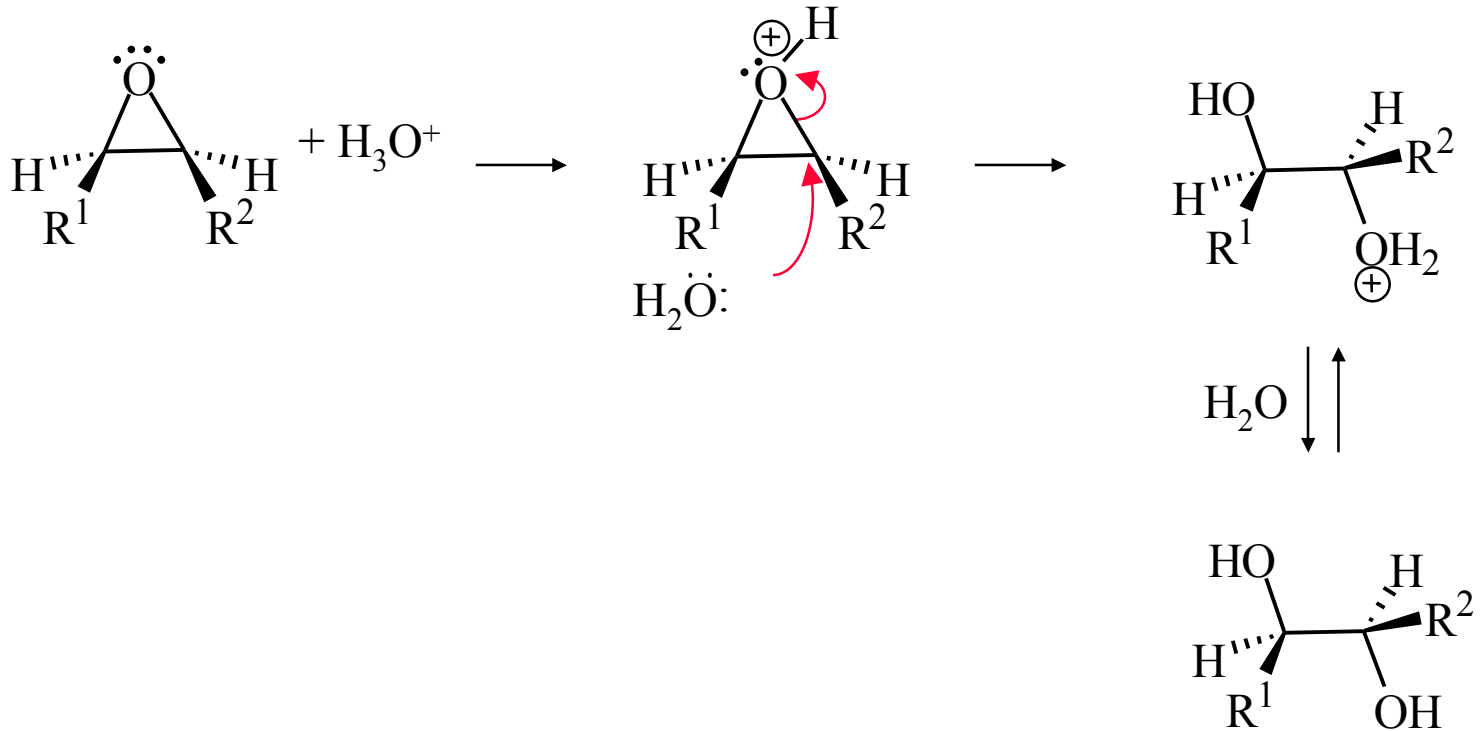
2. Epossidazione

Addizione stereospecifica *sin*:



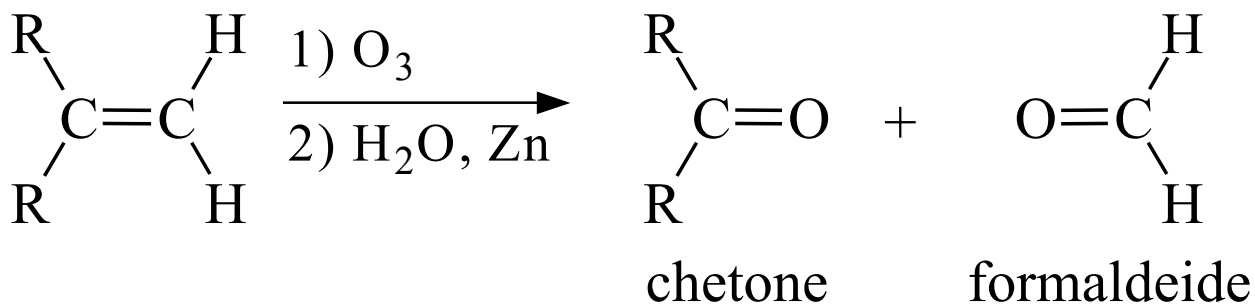
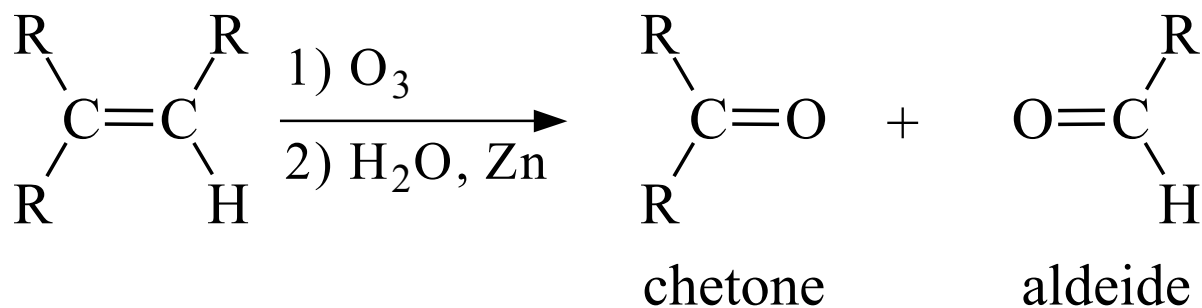
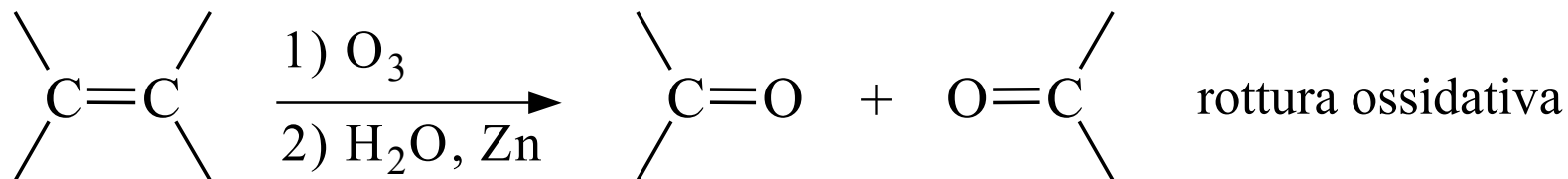
Sintesi glicoli anti

Apertura degli epossidi in ambiente acido acquoso



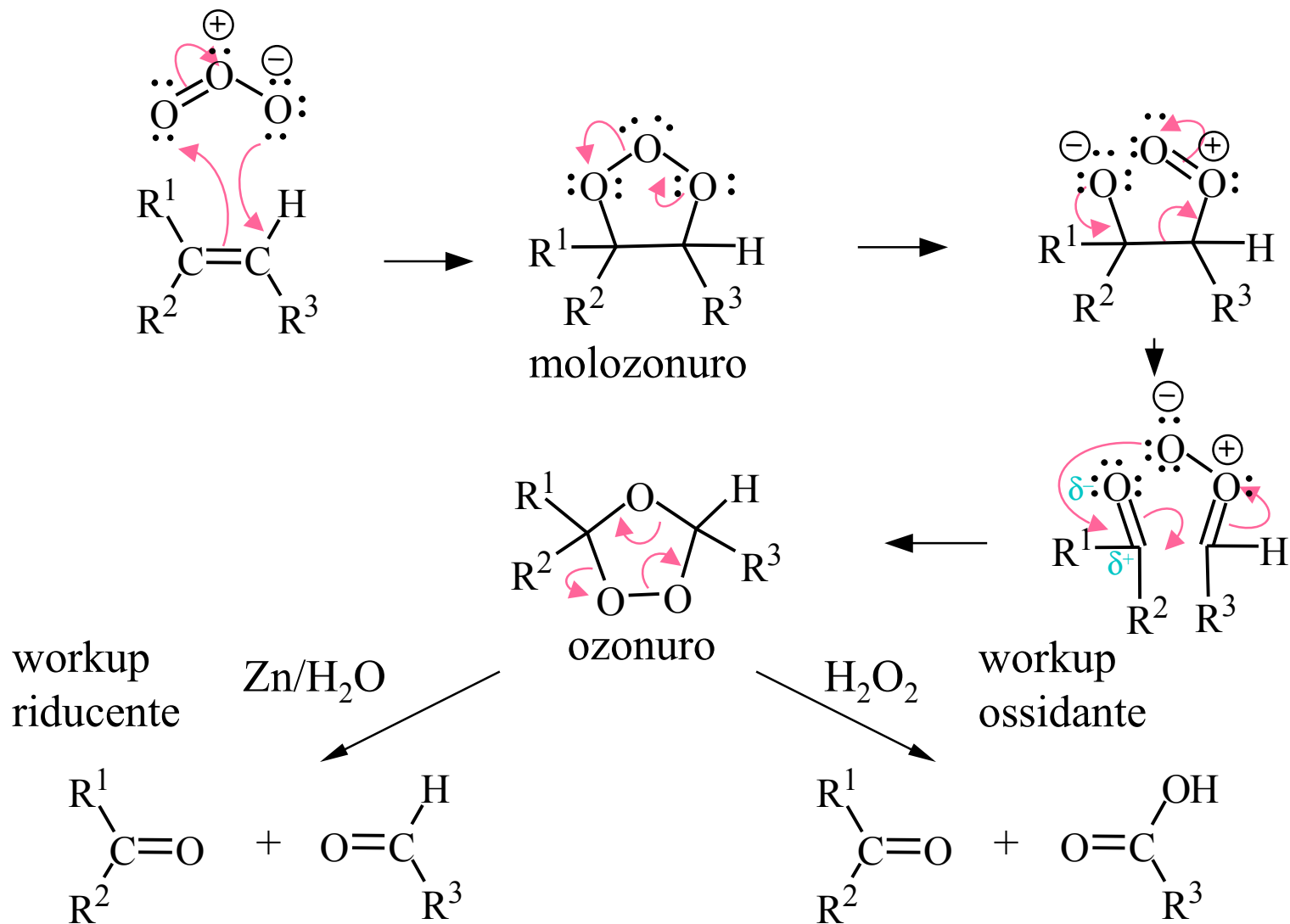
A. Ossidazioni

3. Ozonolisi



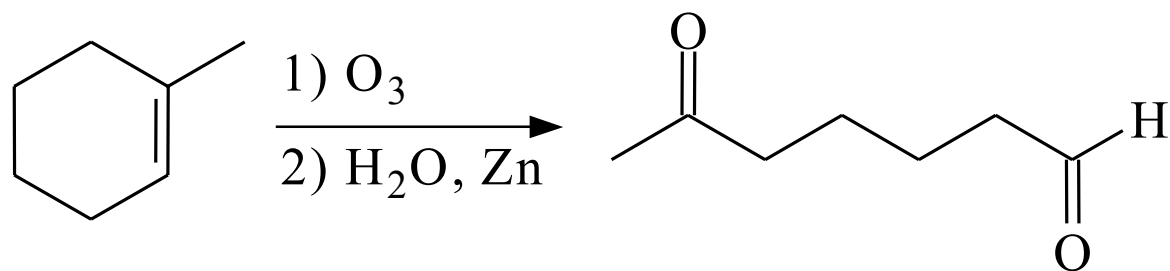
A. Ossidazioni

3. Ozonolisi: Meccanismo

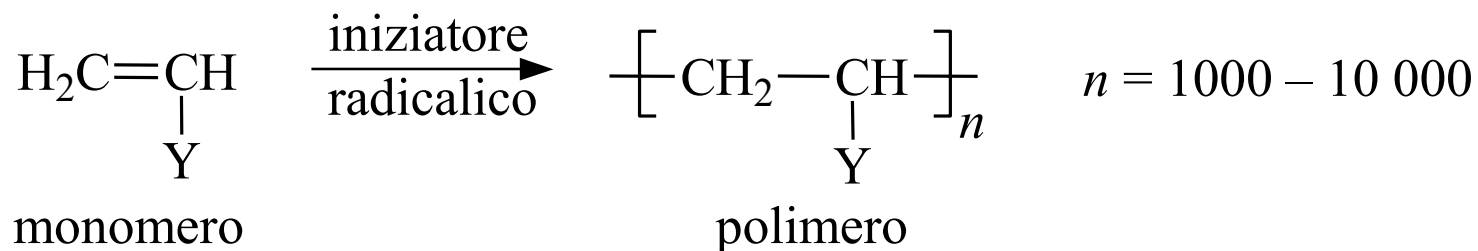


A. Ossidazioni

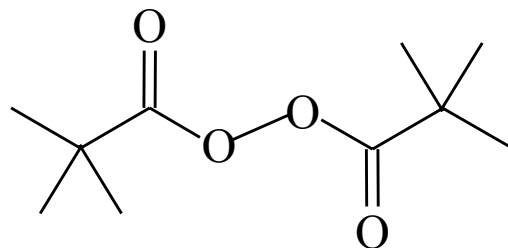
3. Ozonolisi: Sintesi



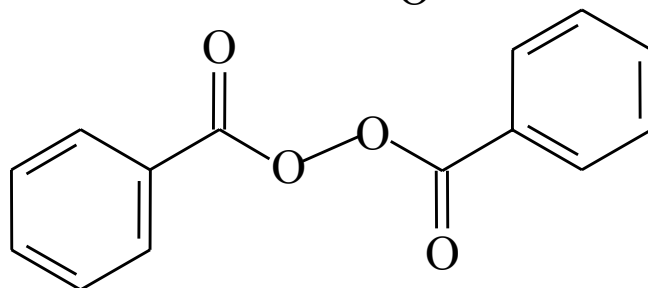
B. Polimerizzazione



iniziatori radicalici: O_2

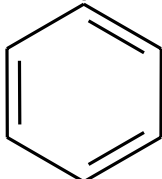


dipivaloil perossido



dibenzoil perossido

B. Polimerizzazione

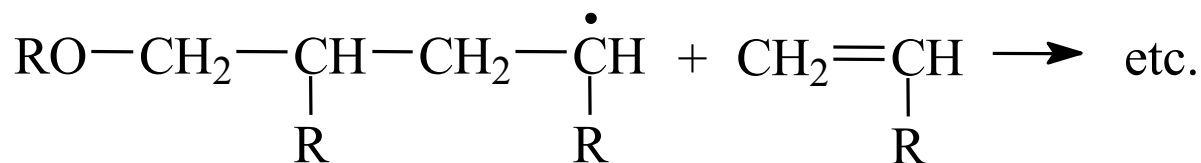
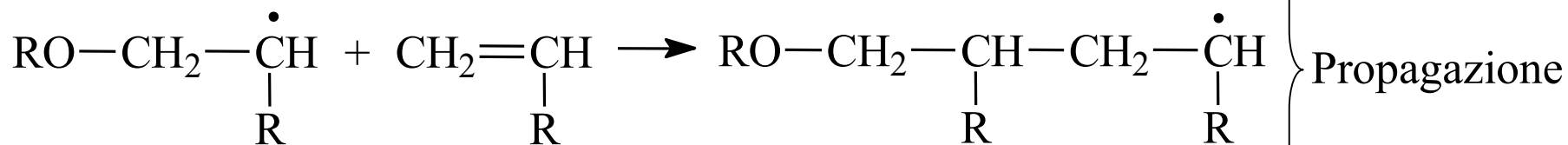
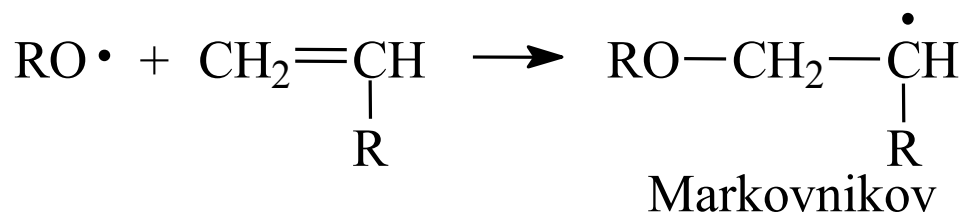
monomero	polimero	
$\text{H}_2\text{C}=\text{CH}_2$ etilene	$\left[\text{CH}_2 - \text{CH}_2 \right]_n$	polietilene
$\text{H}_2\text{C}=\text{CHCH}_3$ propilene	$\left[\text{CH}_2 - \underset{\text{CH}_3}{\text{CH}} \right]_n$	polipropilene
$\text{H}_2\text{C}=\text{CHCl}$ vinil cloruro	$\left[\text{CH}_2 - \underset{\text{Cl}}{\text{CH}} \right]_n$	poli(vinil cloruro) (PVC)
$\text{H}_2\text{C}=\text{CHPh}$ stirene	$\left[\text{CH}_2 - \underset{\text{C}_6\text{H}_5}{\text{CH}} \right]_n$ 	polistirene

B. Polimerizzazione

monomero	polimero	
$\text{H}_2\text{C}=\text{CCl}_2$ vinilidene cloruro	$\left[\text{CH}_2 - \underset{\text{Cl}}{\overset{\text{Cl}}{\text{C}}} \right]_n$	Poli(vinilidene cloruro) (“Saran A”)
$\text{H}_2\text{C}=\text{CHCN}$ acrilonitrile	$\left[\text{CH}_2 - \underset{\text{CN}}{\text{CH}} \right]_n$	Poliacrilonitrile (PAN, “Orlon”, Acrilan)
$\text{F}_2\text{C}=\text{CF}_2$ tetrafluoroetilene	$\left[\text{CF}_2 - \text{CF}_2 \right]_n$	Politetrafluoroetilene (PTFE, “Teflon”)

B. Polimerizzazione

Polimerizzazione radicalica a catena:



polimerizzazione “testa-coda”