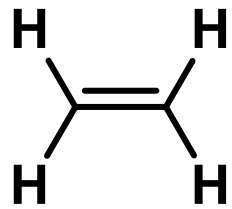
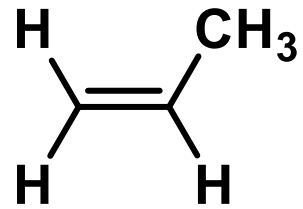


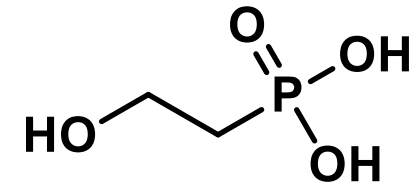
Alkeny



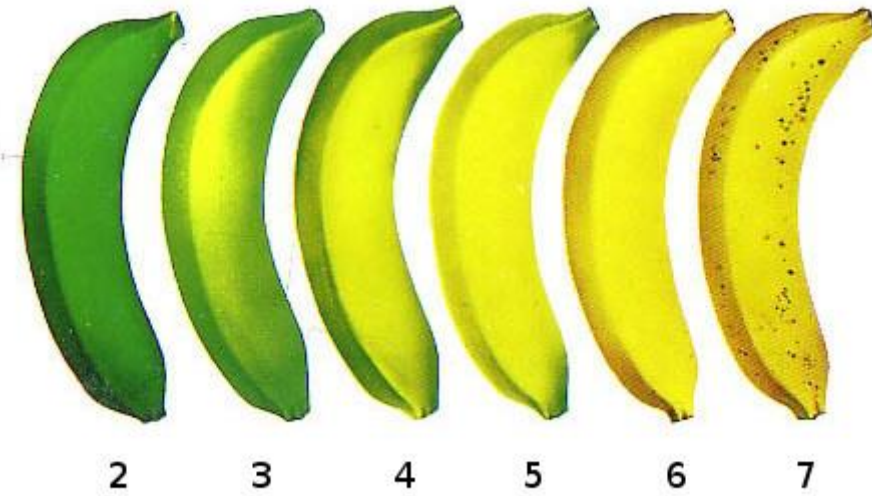
ethen



propen

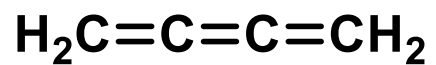
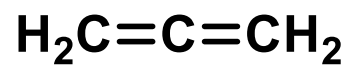


ethephon

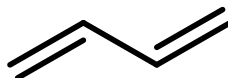


Alkeny C_nH_{2n}

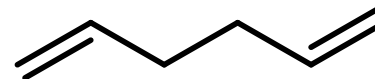
kumulované



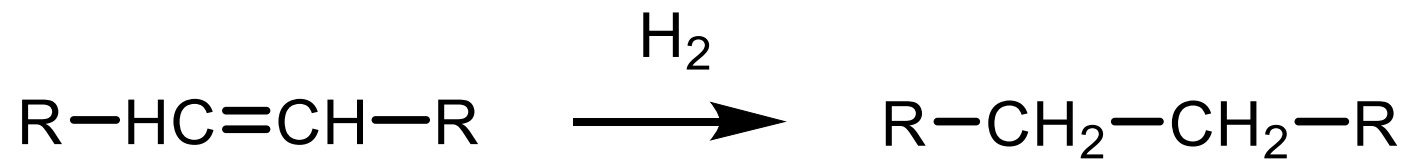
konjugované



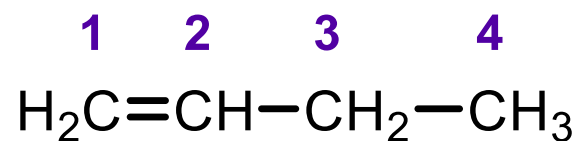
izolované



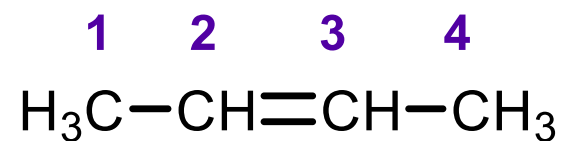
Hydrogenace alkenů



Názvosloví alkenů

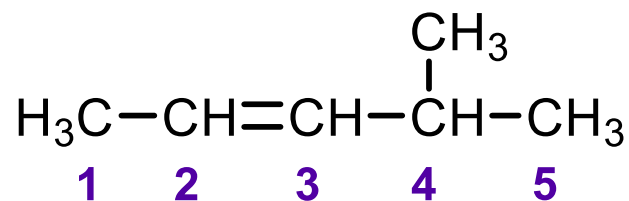


but-1-en



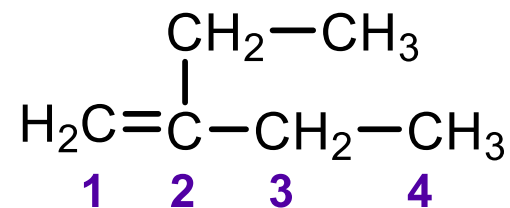
but-2-en

V případě rozvětvených uhlovodíků má násobná vazba při číslování prioritu.



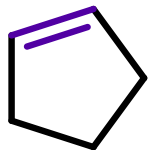
4-methylpent-2-en

~~(ne 2-methylpent-3-en)~~

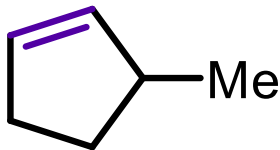


2-ethylbut-1-en

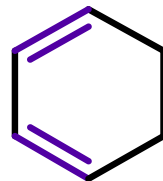
U cyklických uhlovodíků začíná číslování na dvojně vazbě.



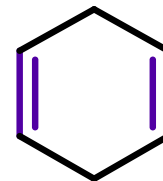
cyklopenten



3-methylcyklopenten

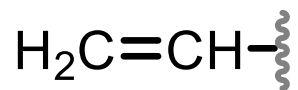


1,3-cyklohexadien

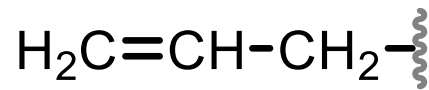


1,4-cyklohexadien

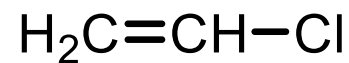
Substituenty obsahující dvojnou vazbu a vybrané deriváty



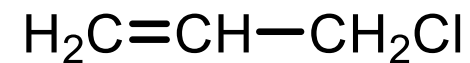
vinyl
(ethenyl)



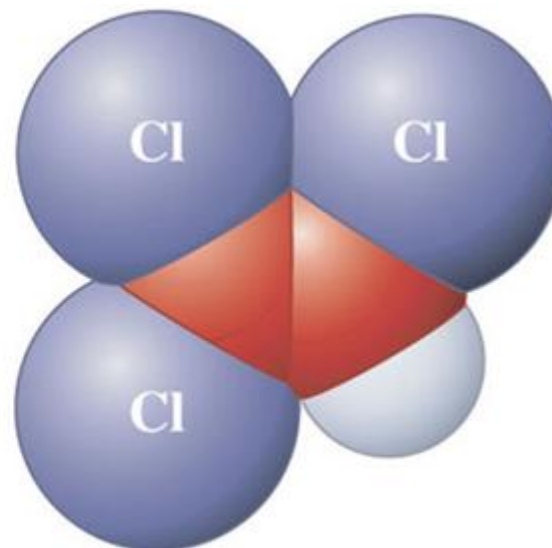
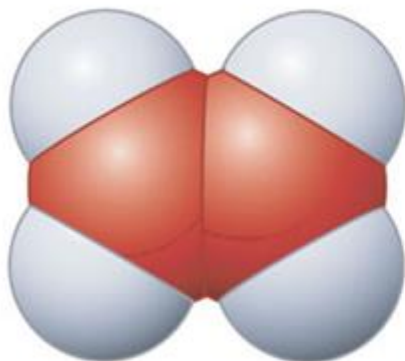
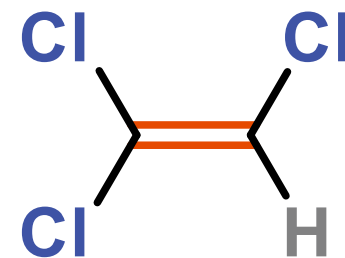
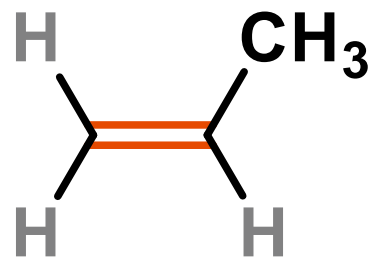
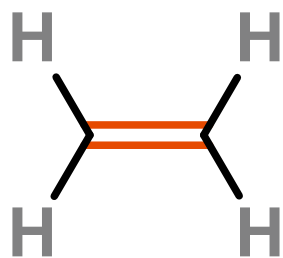
allyl
(3-propenyl)



vinylchlorid

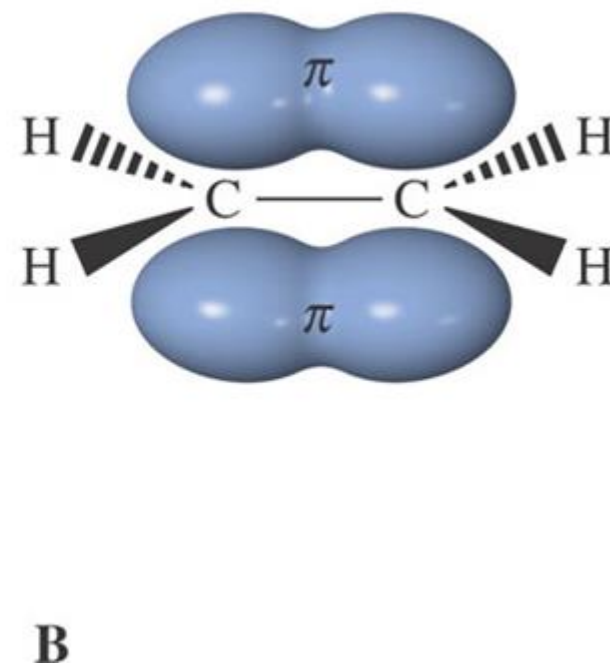
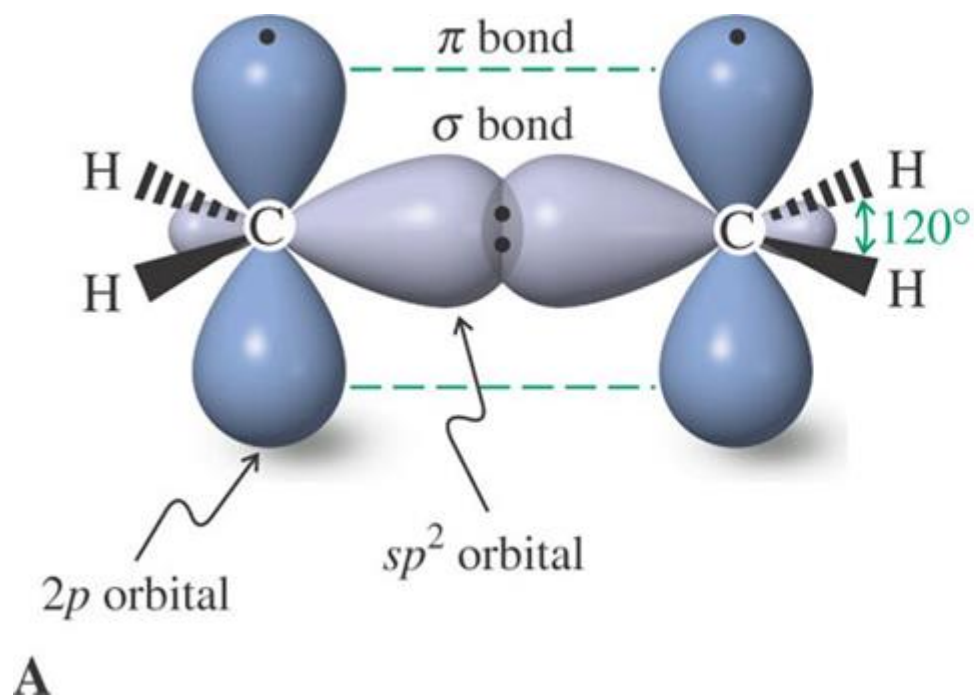


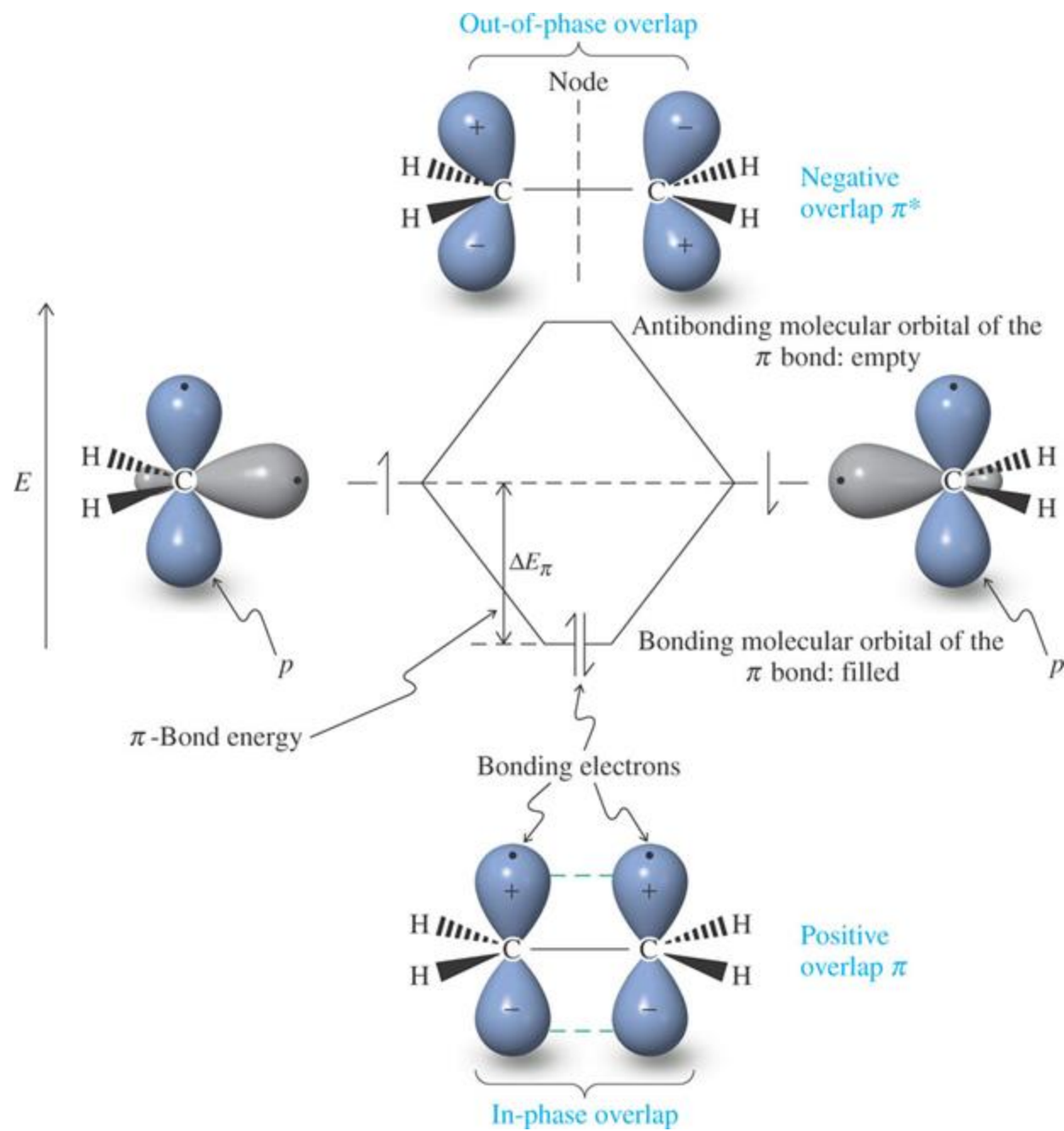
allylchlorid



Dvojná vazba: vlastnosti

Vlastnosti	C-C	C=C
1. Počet připojených atomů	4	3
2. Rotace	ano	ne
3. Geometrie vazby	mnoho konformací	planární
4. Úhel mezi vazbami	109.5°	120°
5. Délka vazby (Å)	1.54	1.34

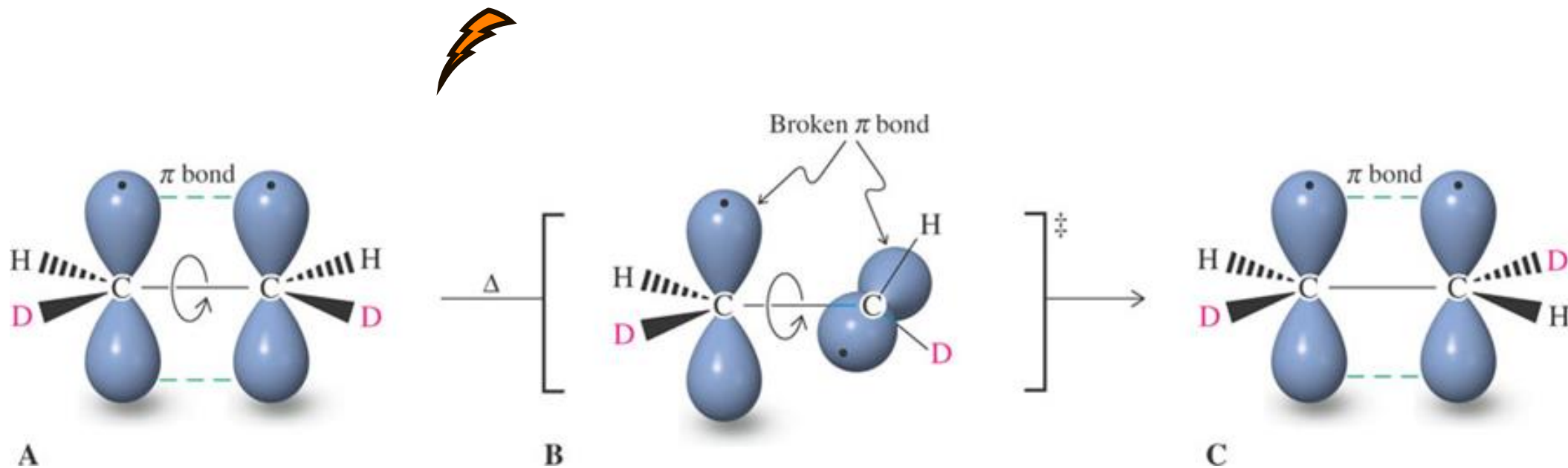
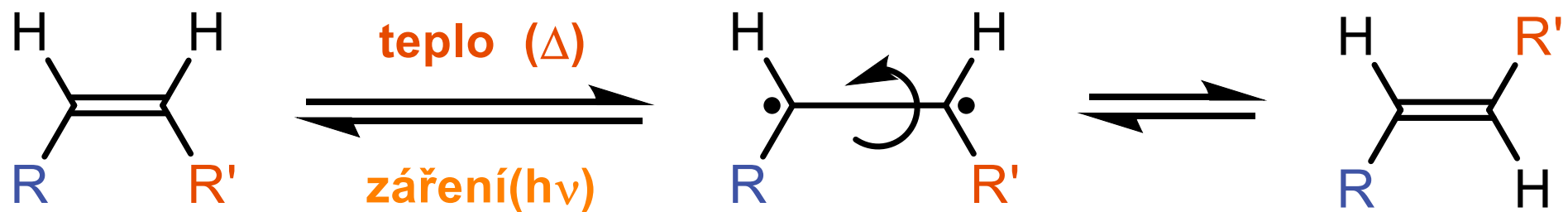


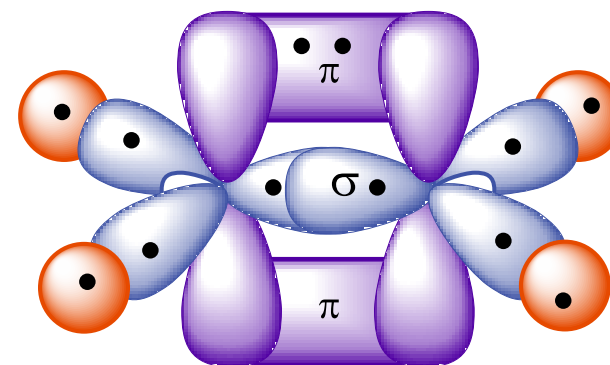
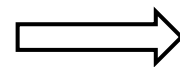
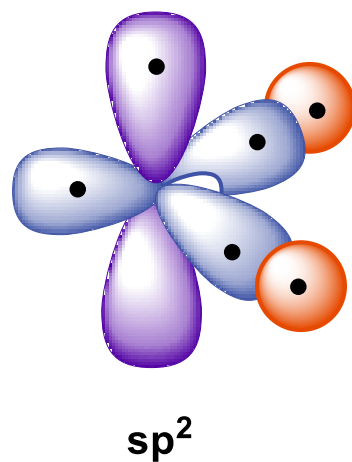
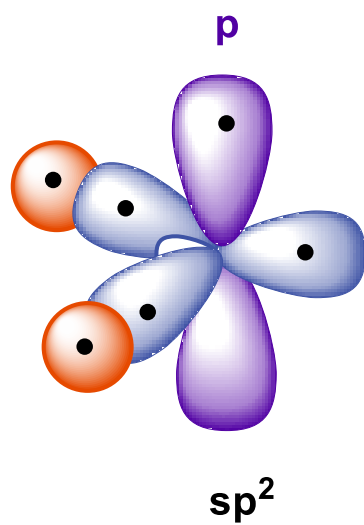
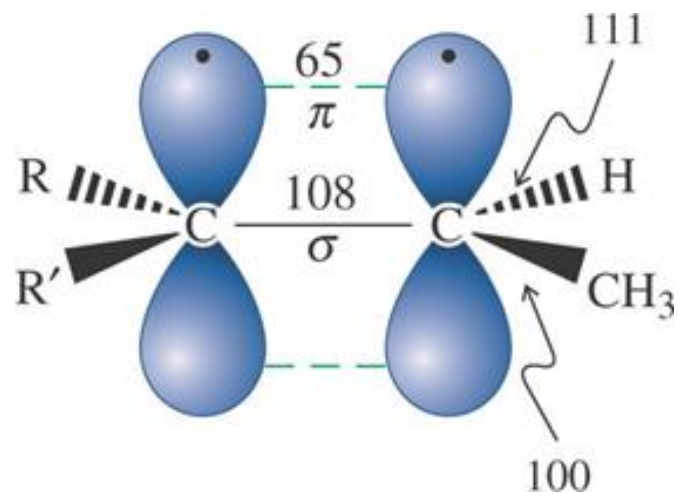


Cis a trans izomerie a izomerizace alkenů

Z- (zusammen)

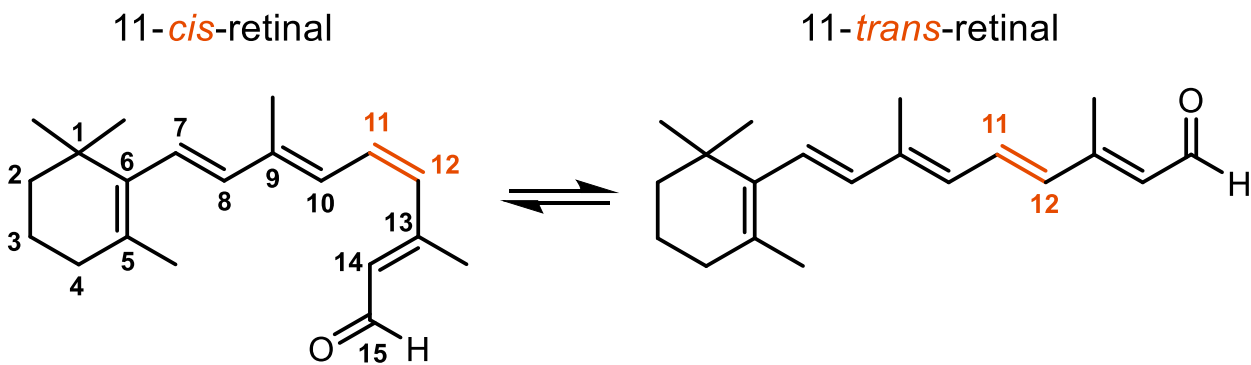
E- (entgegen)



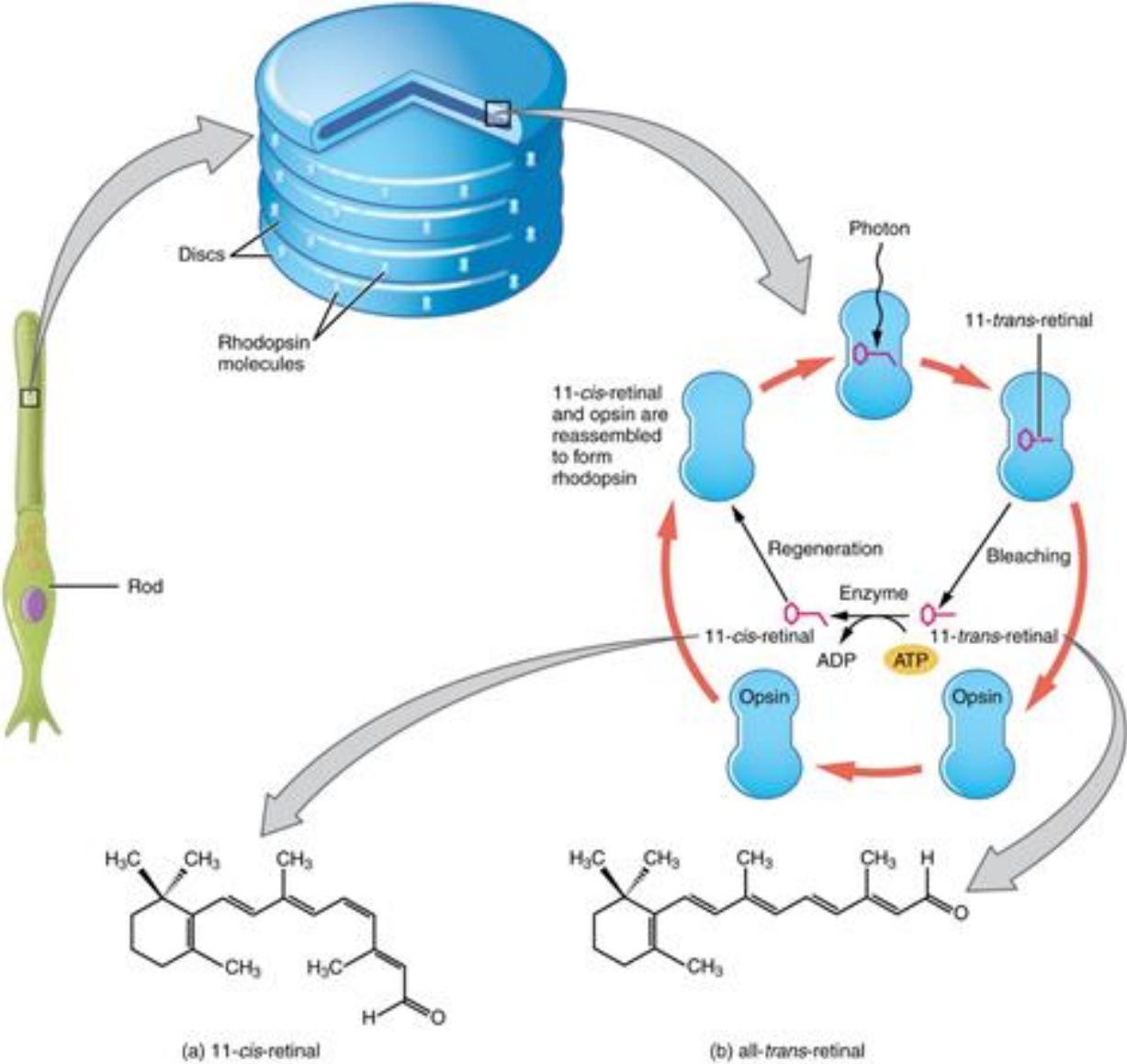
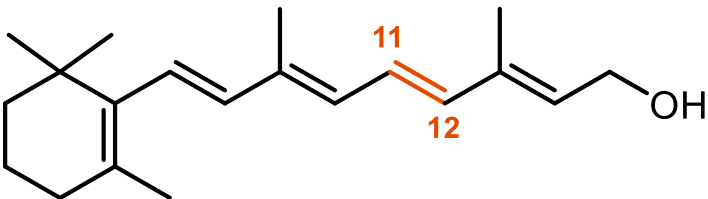


Chemie zraku

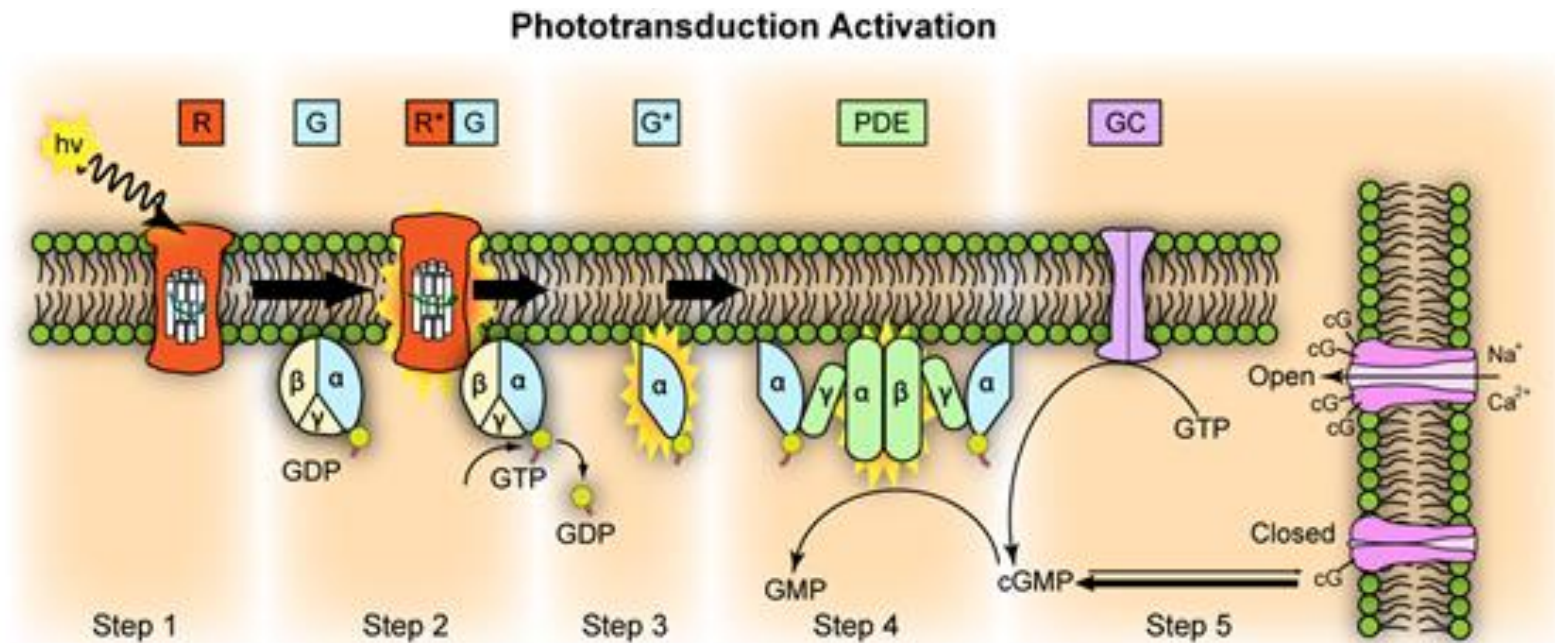
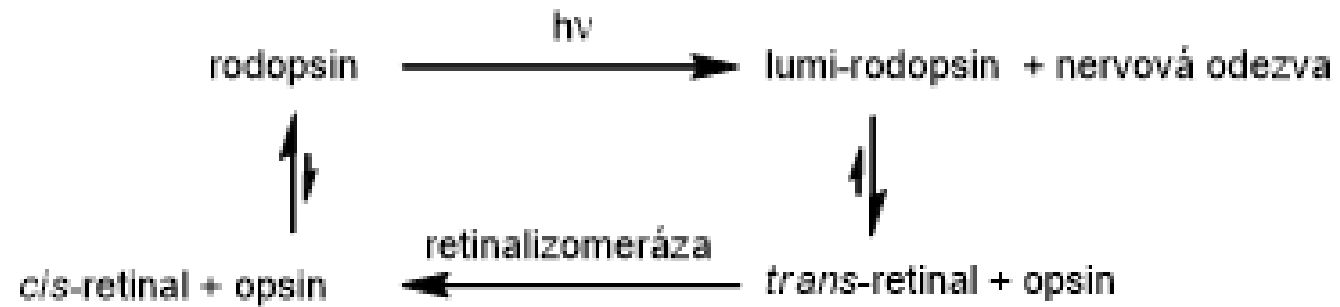
cis/trans isomerie retinalu



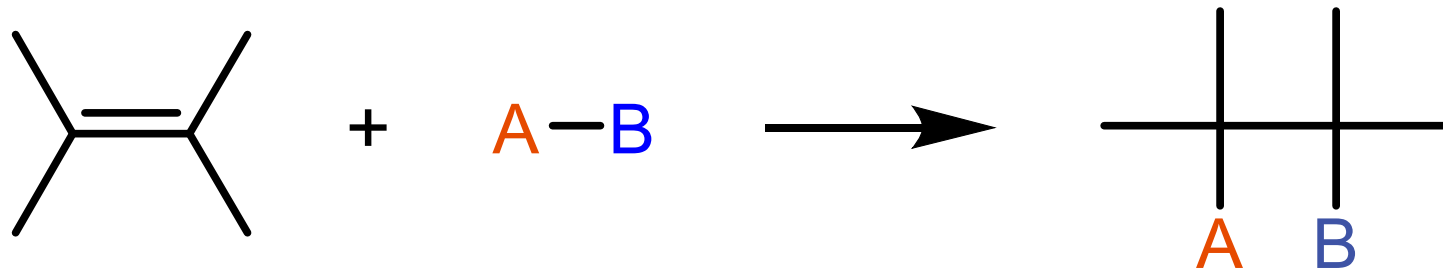
Vitamin A (retinol)



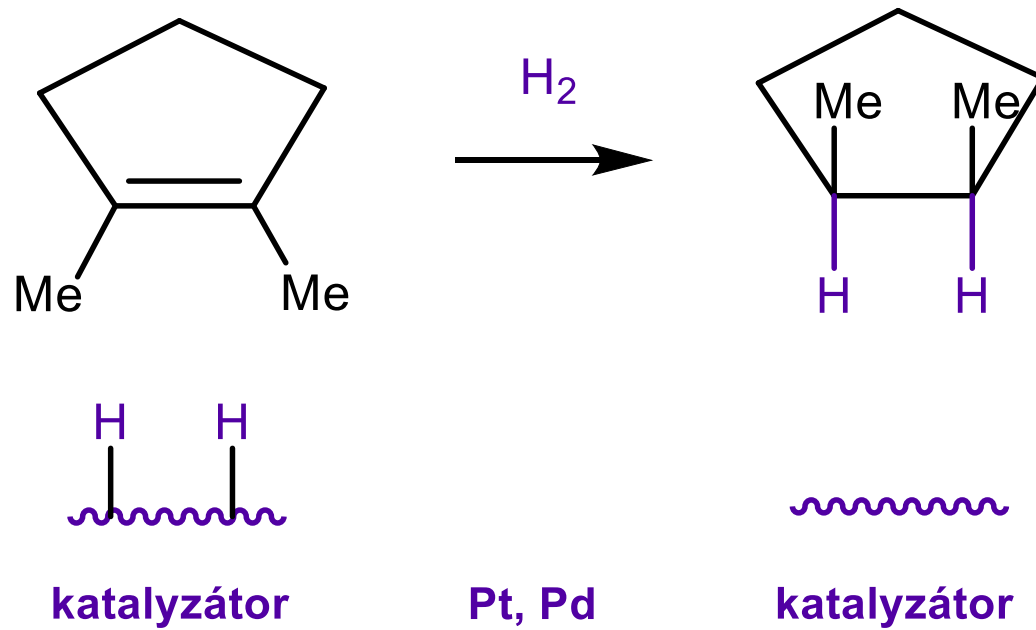
Chemie zraku (přenos signálu)

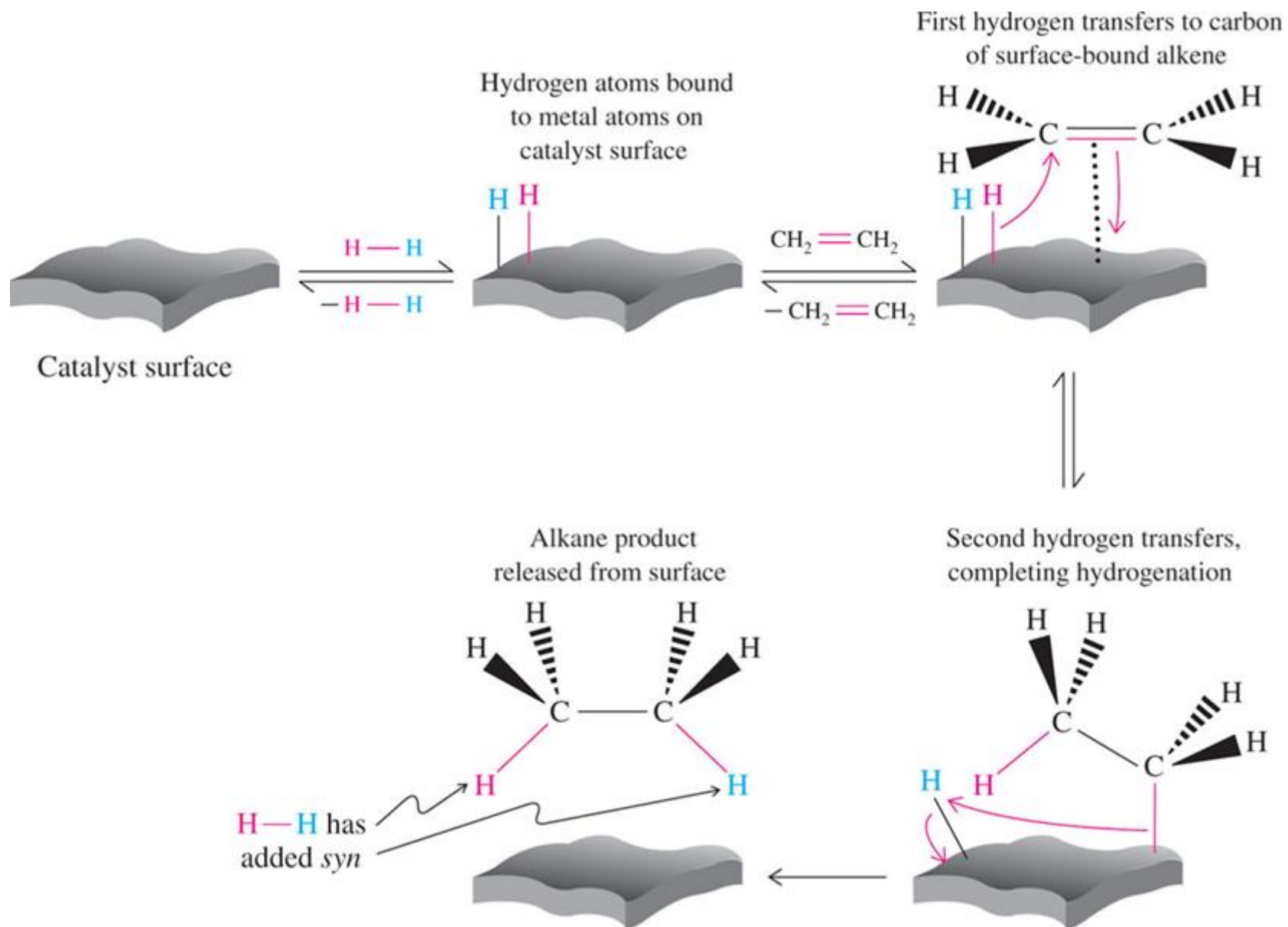


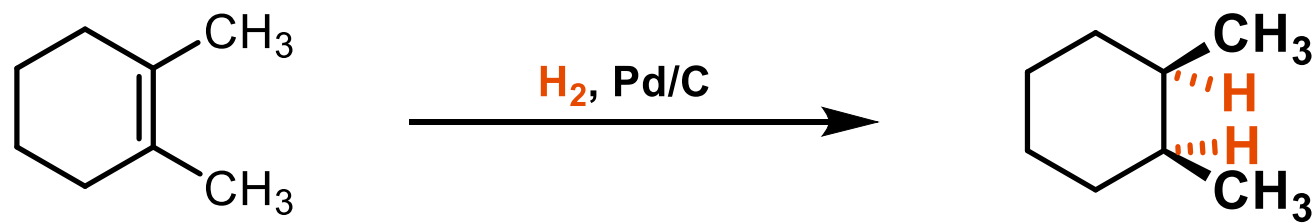
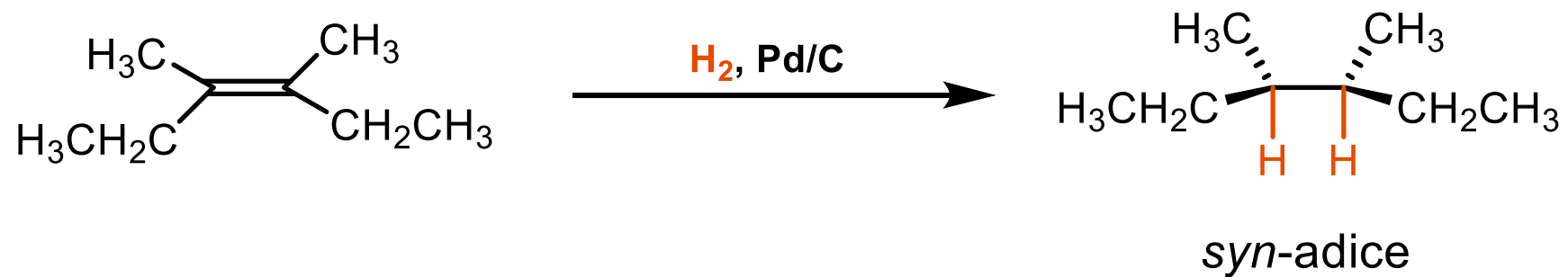
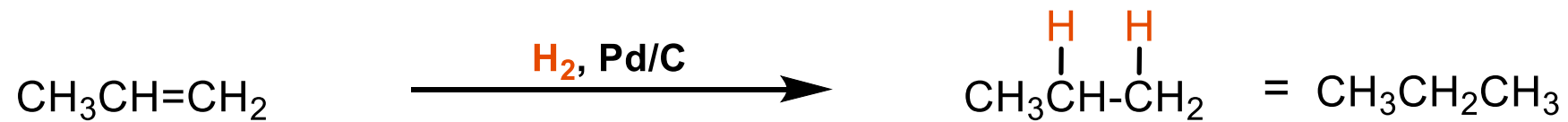
Adiční reakce alkenů: Adice na dvojnou vazbu



Adice vodíku

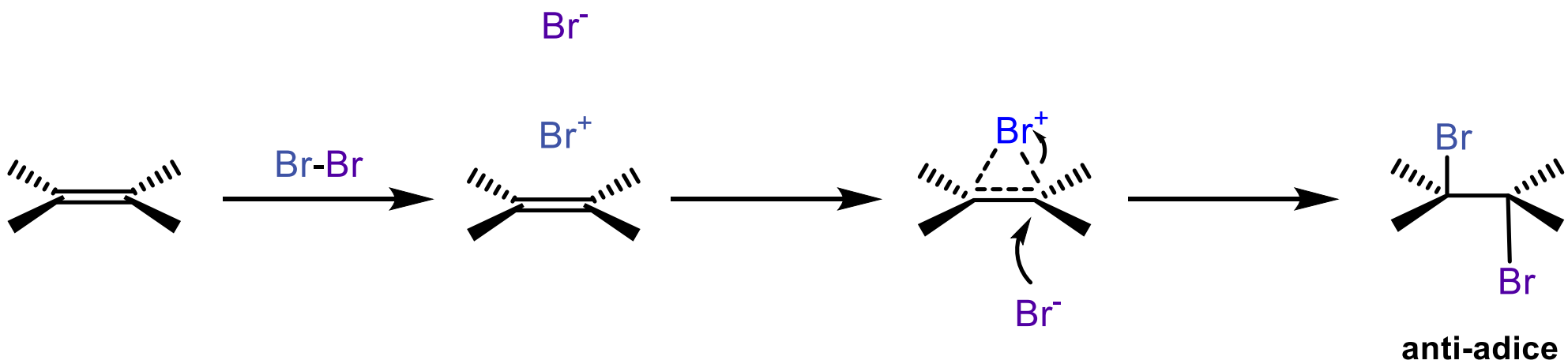
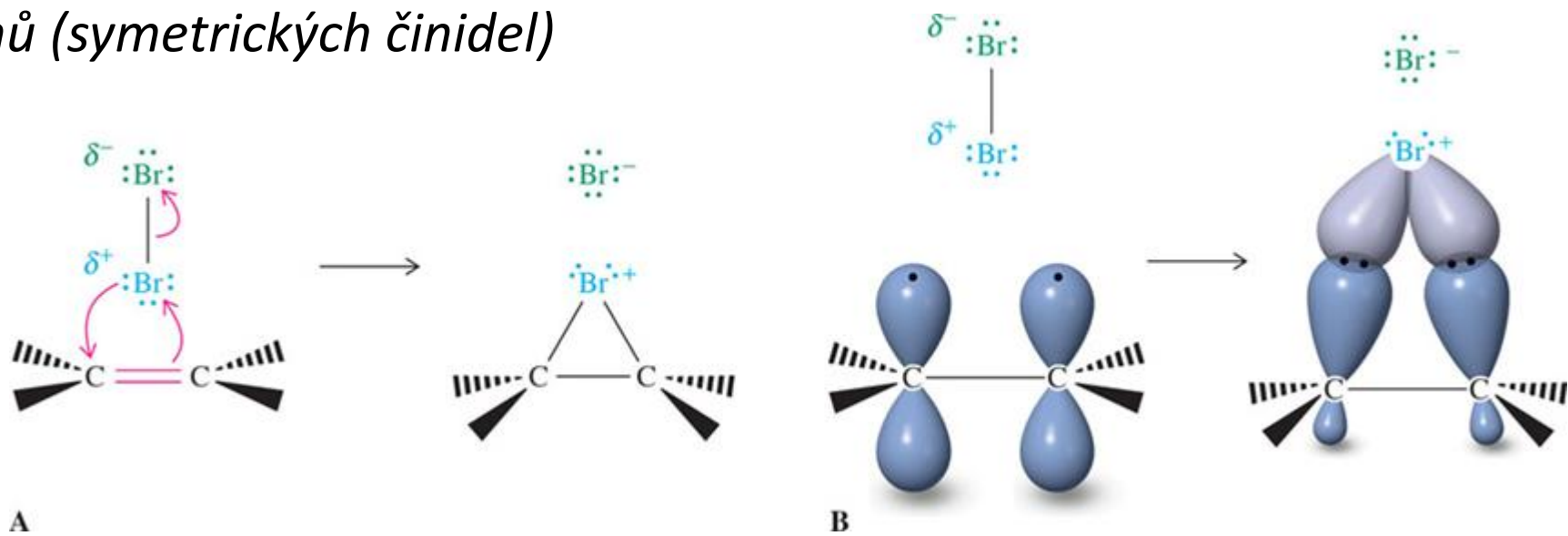


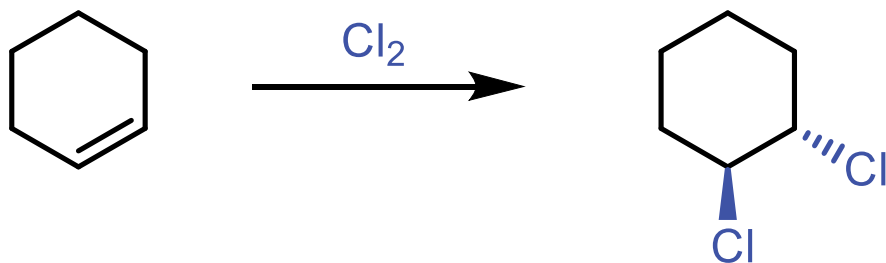
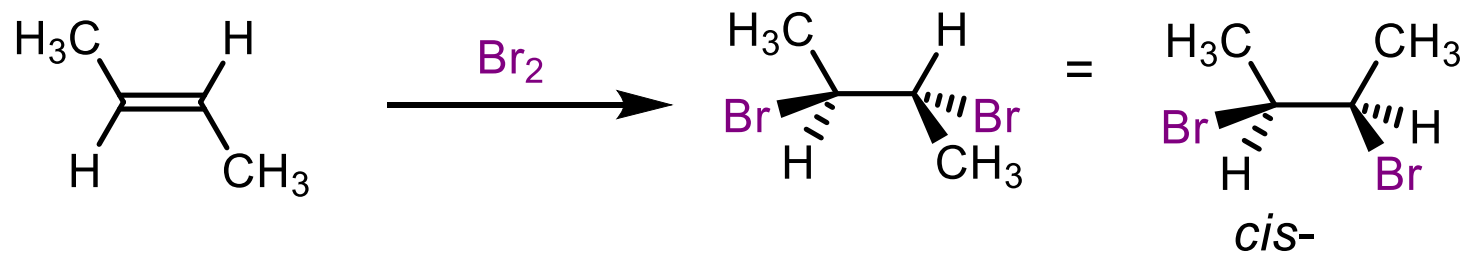
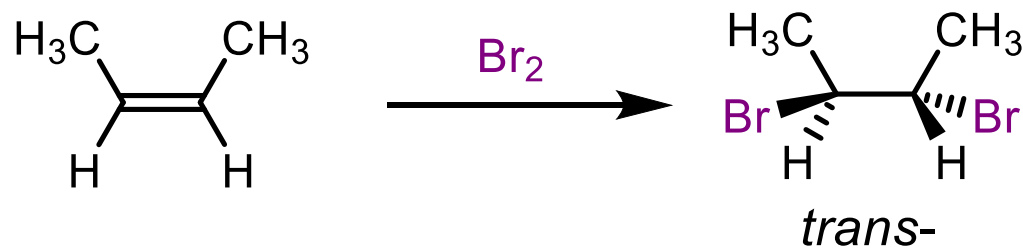
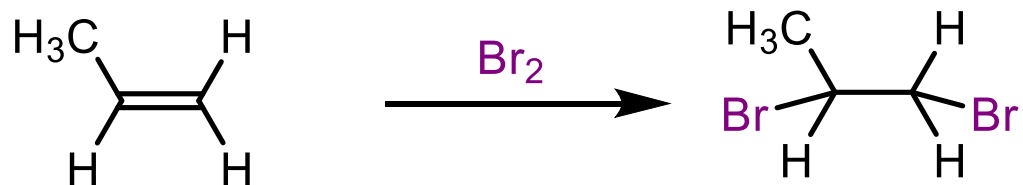
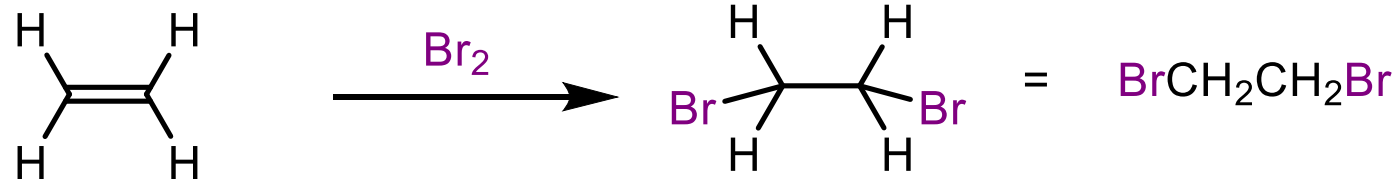




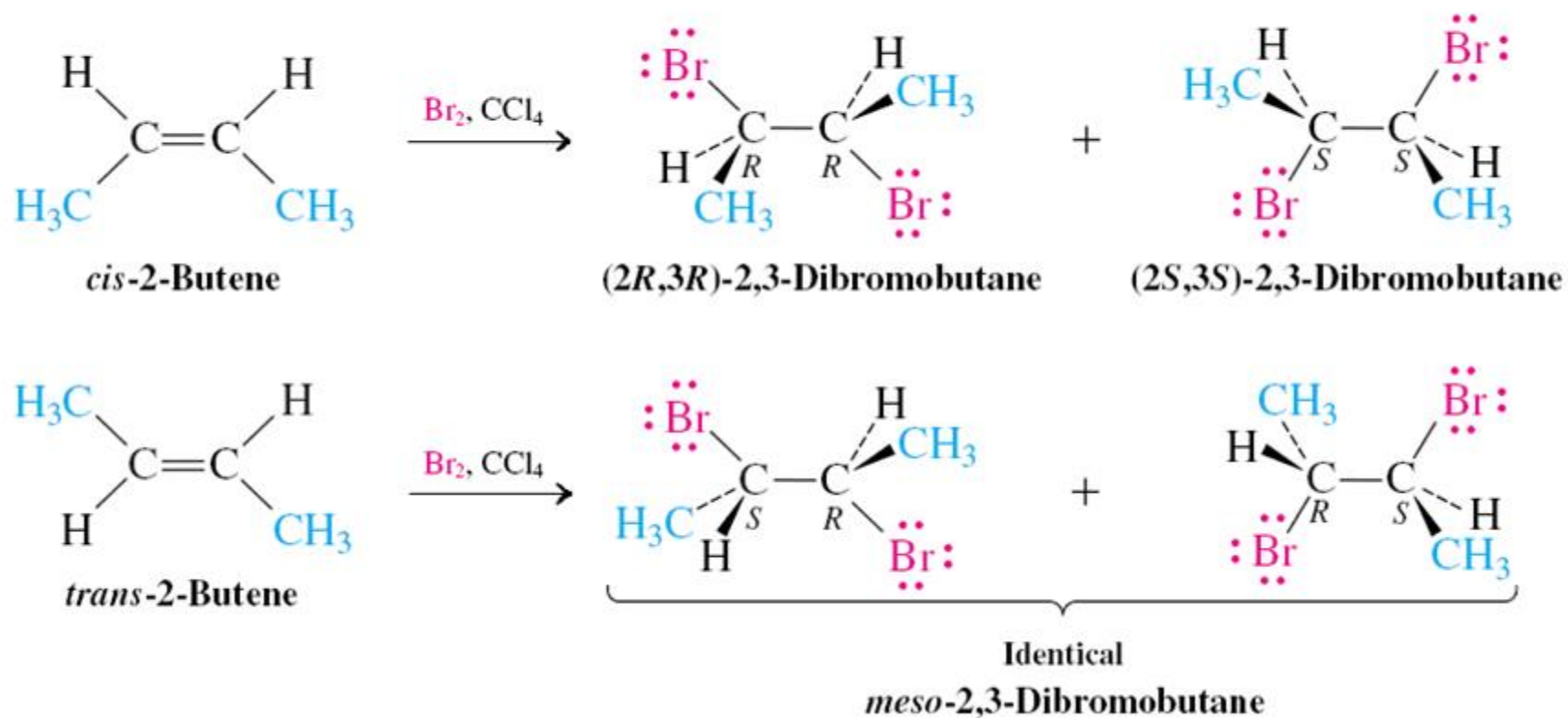
Elektrofilní adice

Adice halogenů (symetrických činidel)



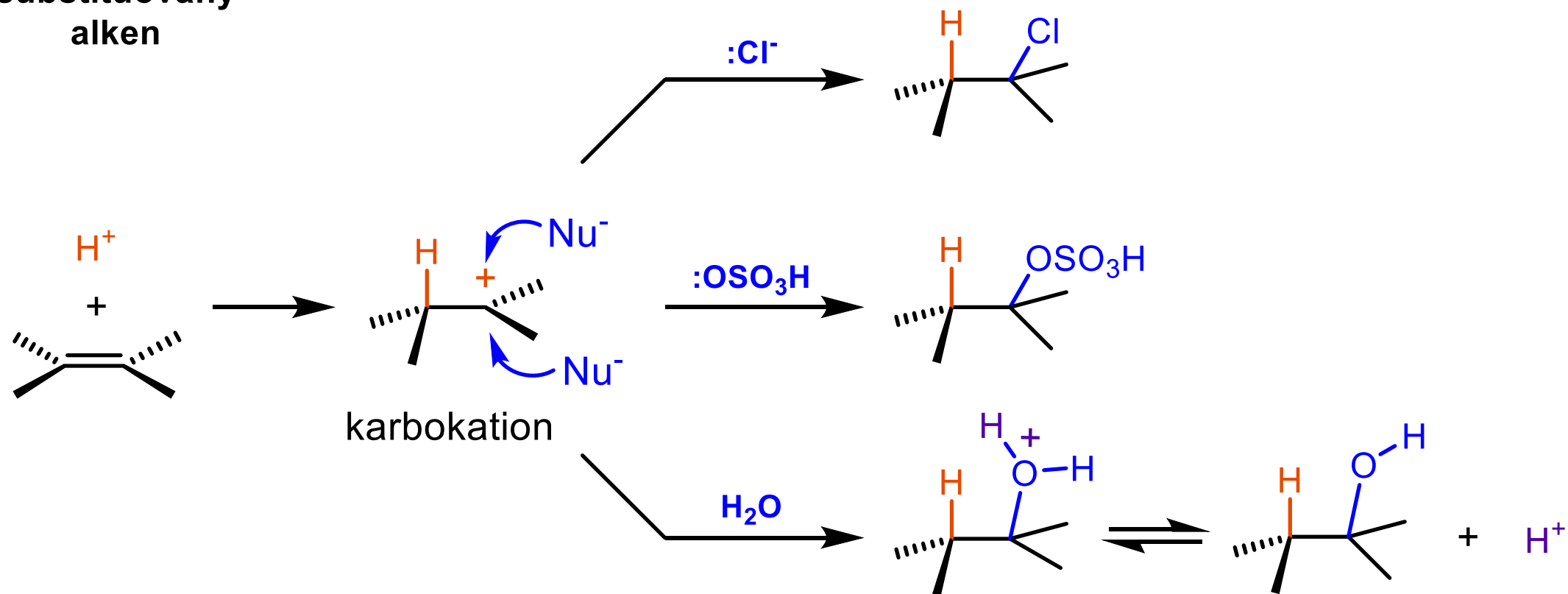
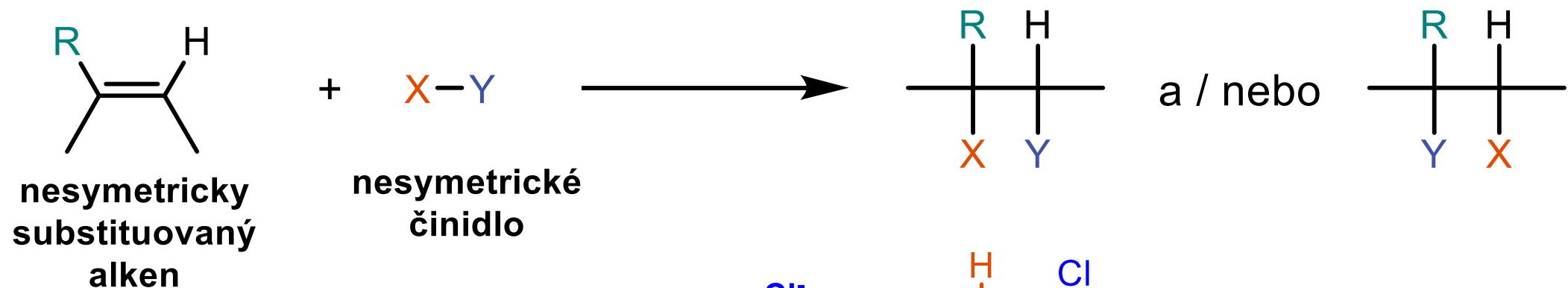


Stereospecific 2-Butene Bromination

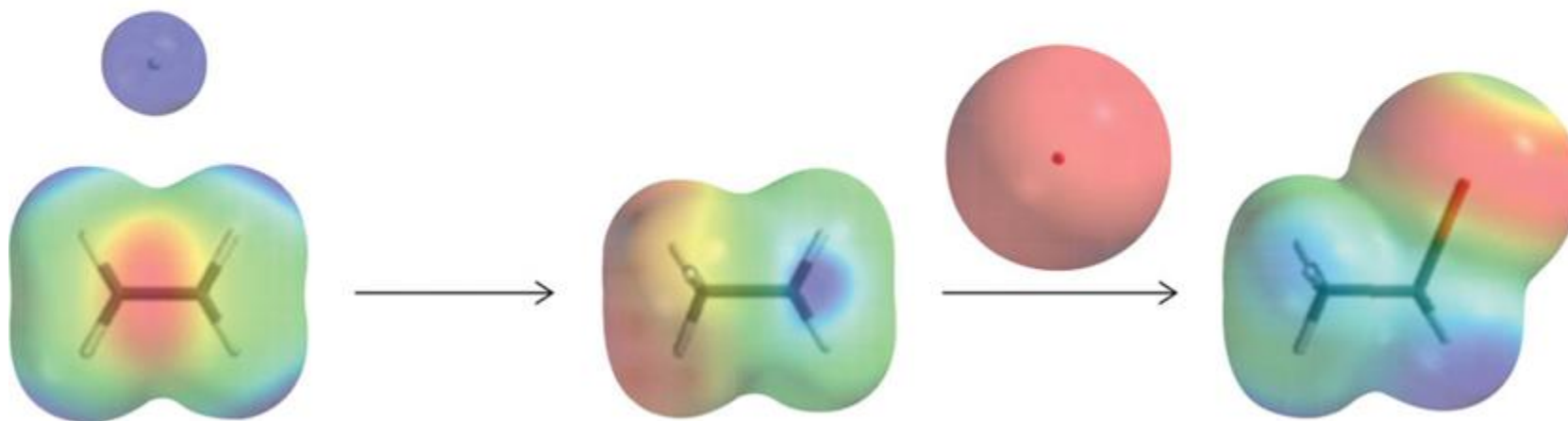
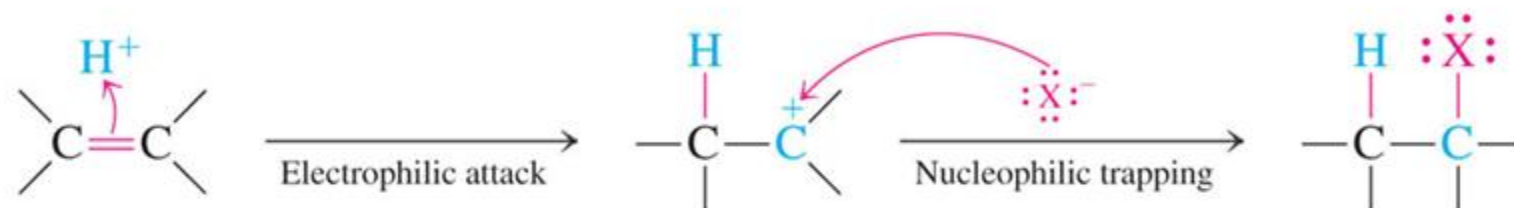


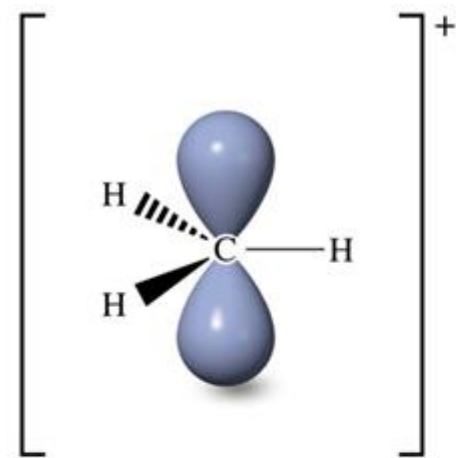
Elektrofilní adice

Adice nesymetrických činidel



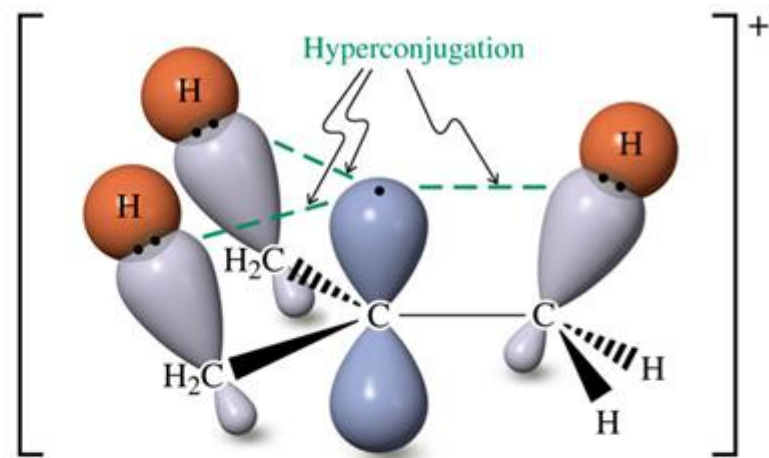
Mechanism of Electrophilic Addition of HX to Alkenes





Methyl cation

A

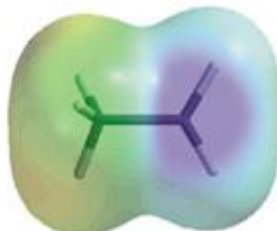


1, 1-Dimethylethyl cation
(*tert*-Butyl cation)

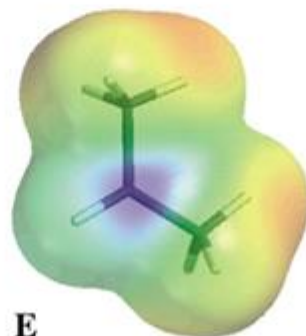
B



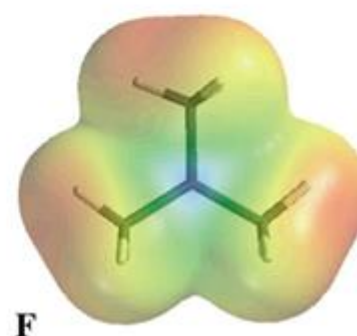
C



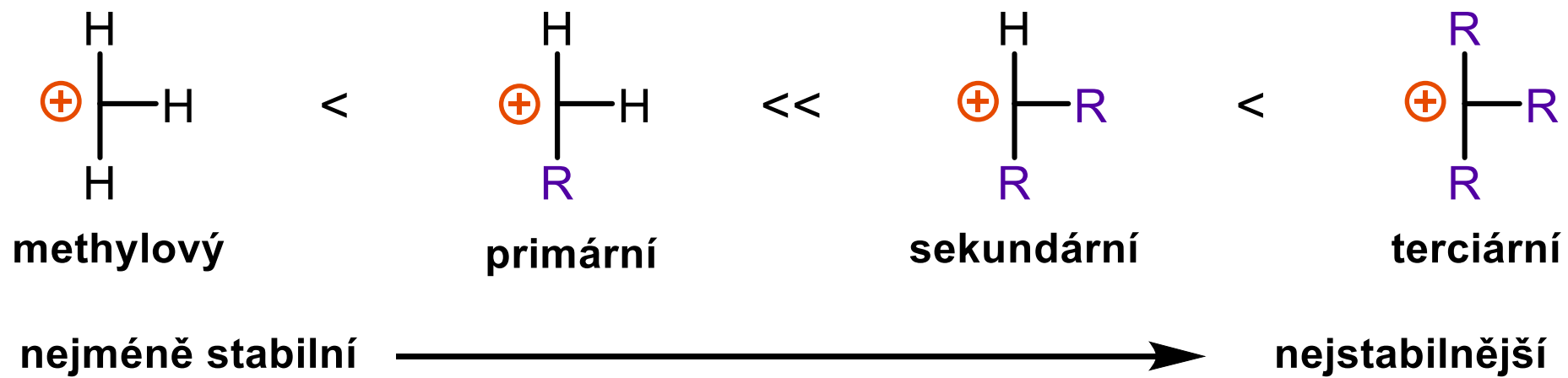
D



E

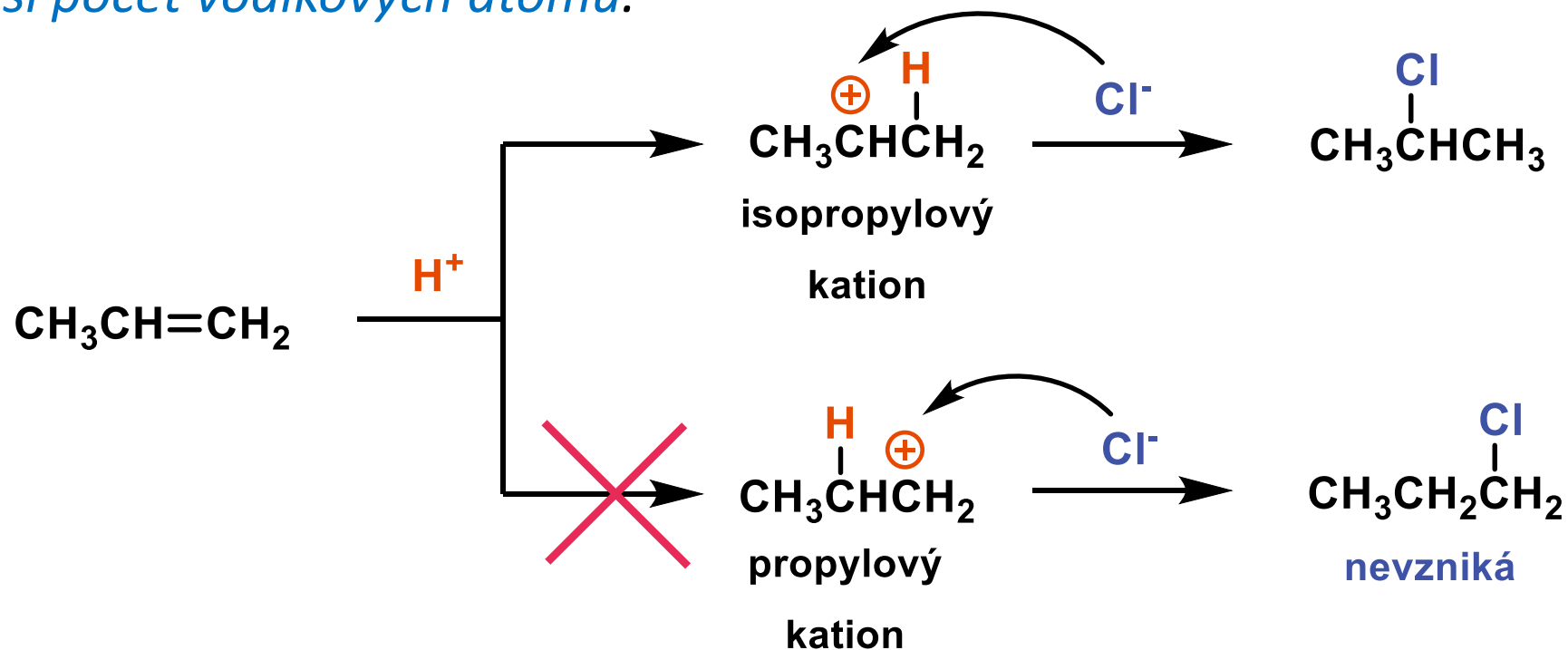


F



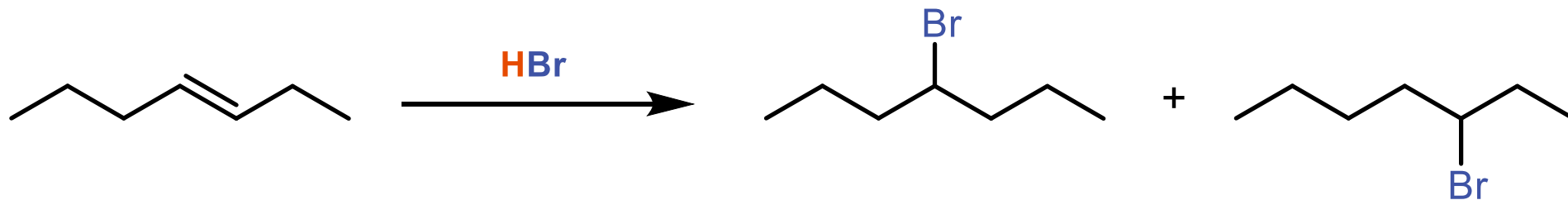
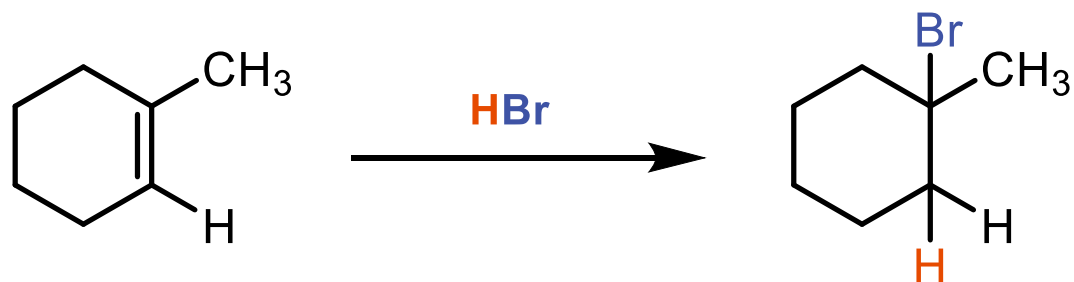
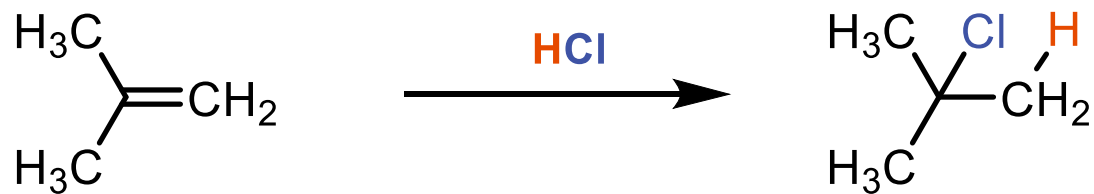
Markovnikovo pravidlo

Markovnikovo pravidlo: Adice nesymetrického činidla na nesymetrický alken probíhá tak, že *elektropozitivní částice* činidla se *aduje* na uhlíkový atom dvojné vazby, na který je navázán *větší počet vodíkových atomů*.



Markovnikovo pravidlo: adice nesymetrických činidel na nesymetrickou dvojnou vazbu probíhá tak, aby vzniknul co *nejstabilnější karbokation* jako meziprodukt

Adice halogenvodíků



Adice vody

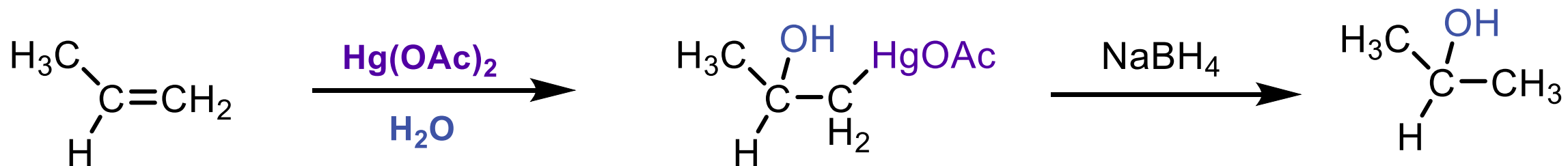
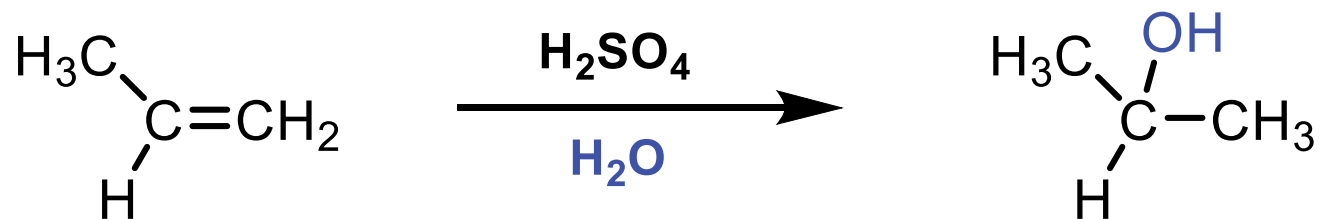
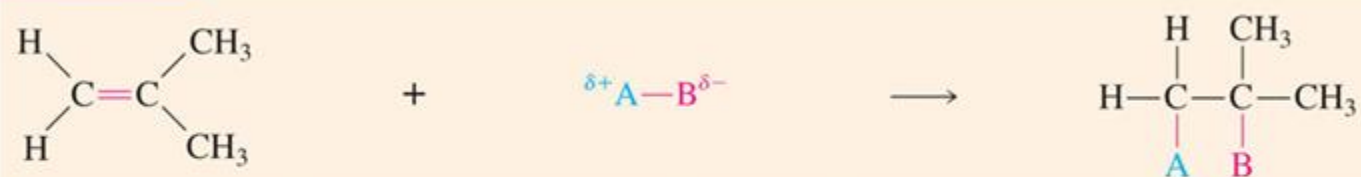


Table 12-2 Reagents A–B That Add to Alkenes by Electrophilic Attack

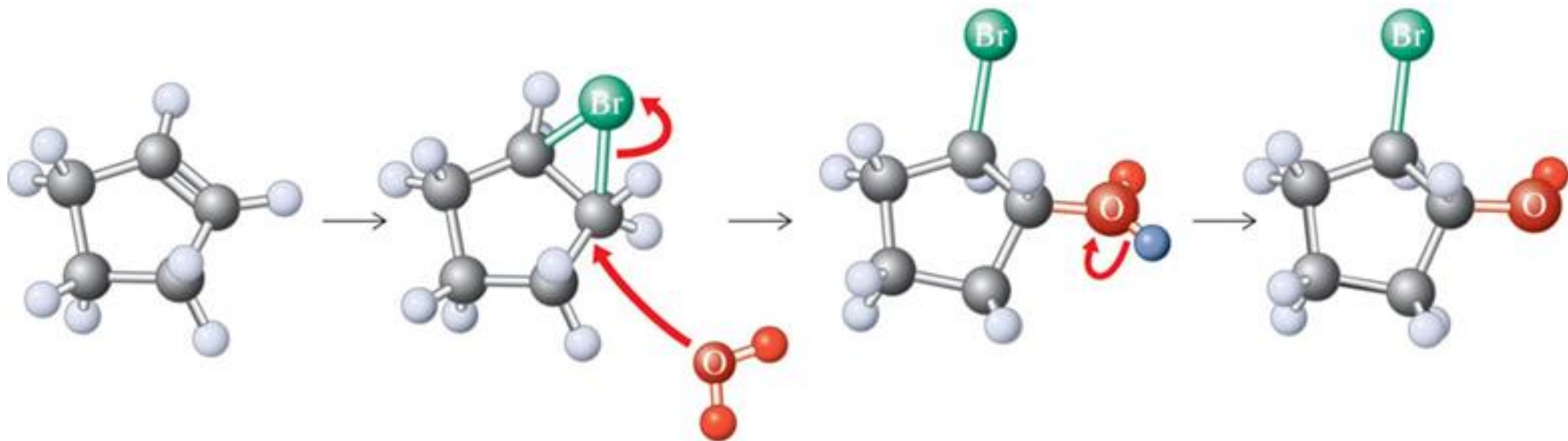
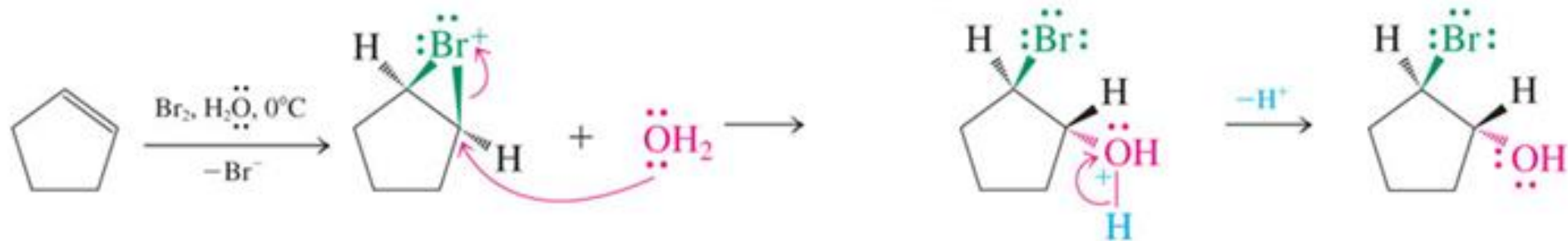


Name	Structure	Addition product to 2-methylpropene
Bromine chloride	$\text{:}\ddot{\text{Br}}-\ddot{\text{Cl}}\text{:}$	$\text{:}\ddot{\text{Br}}\text{CH}_2\text{C}(\text{CH}_3)_2$ $\quad \quad \quad \text{:}\ddot{\text{Cl}}\text{:}$
Cyanogen bromide	$\text{:}\ddot{\text{Br}}-\text{CN}\text{:}$	$\text{:}\ddot{\text{Br}}\text{CH}_2\text{C}(\text{CH}_3)_2$ $\quad \quad \quad \text{CN}\text{:}$
Iodine chloride	$\text{:}\ddot{\text{I}}-\ddot{\text{Cl}}\text{:}$	$\text{:}\ddot{\text{I}}\text{CH}_2\text{C}(\text{CH}_3)_2$ $\quad \quad \quad \text{:}\ddot{\text{Cl}}\text{:}$
Sulfenyl chlorides	$\text{R}\ddot{\text{S}}-\ddot{\text{Cl}}\text{:}$	$\text{R}\ddot{\text{S}}\text{CH}_2\text{C}(\text{CH}_3)_2$ $\quad \quad \quad \text{:}\ddot{\text{Cl}}\text{:}$
Mercuric salts	$\text{XHg}-\text{X}^a, \text{H}\ddot{\text{O}}\text{H}$	$\text{XHgCH}_2\text{C}(\text{CH}_3)_2$ $\quad \quad \quad \text{:}\ddot{\text{O}}\text{H}$

^aX here denotes acetate.

Adice halogenů ve vodě: vznik halogenhydrinů

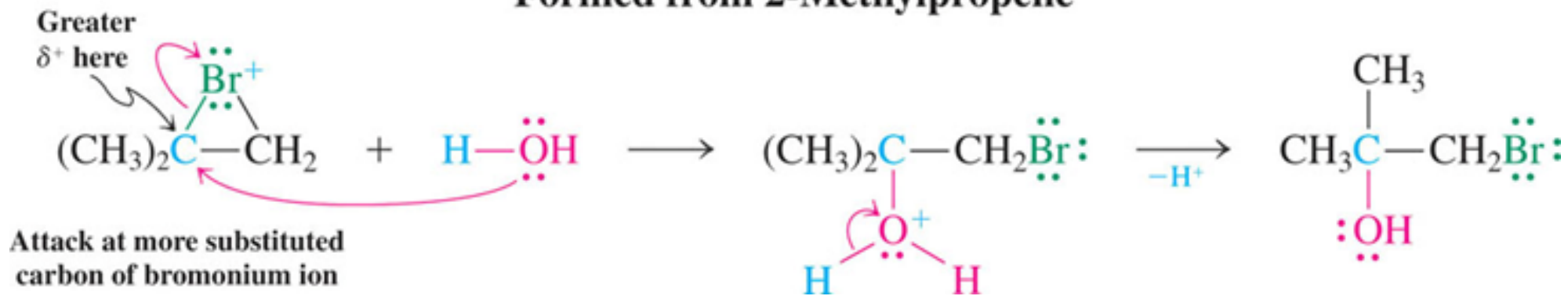
Bromoalcohol (Bromohydrin) Synthesis



Cyclopentene

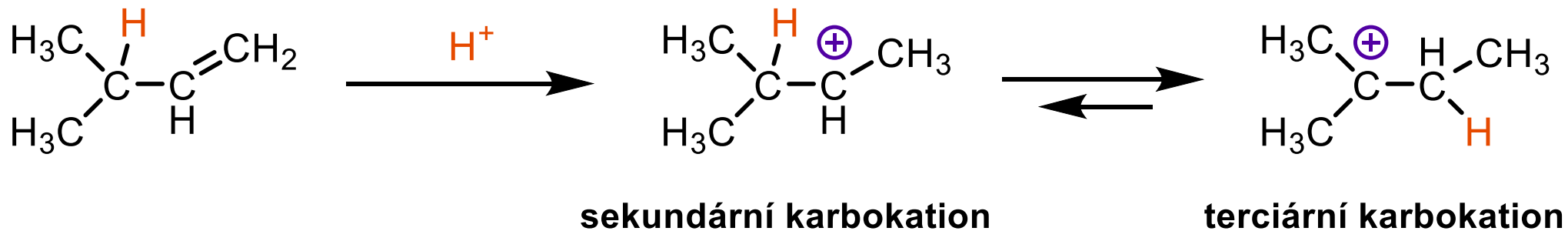
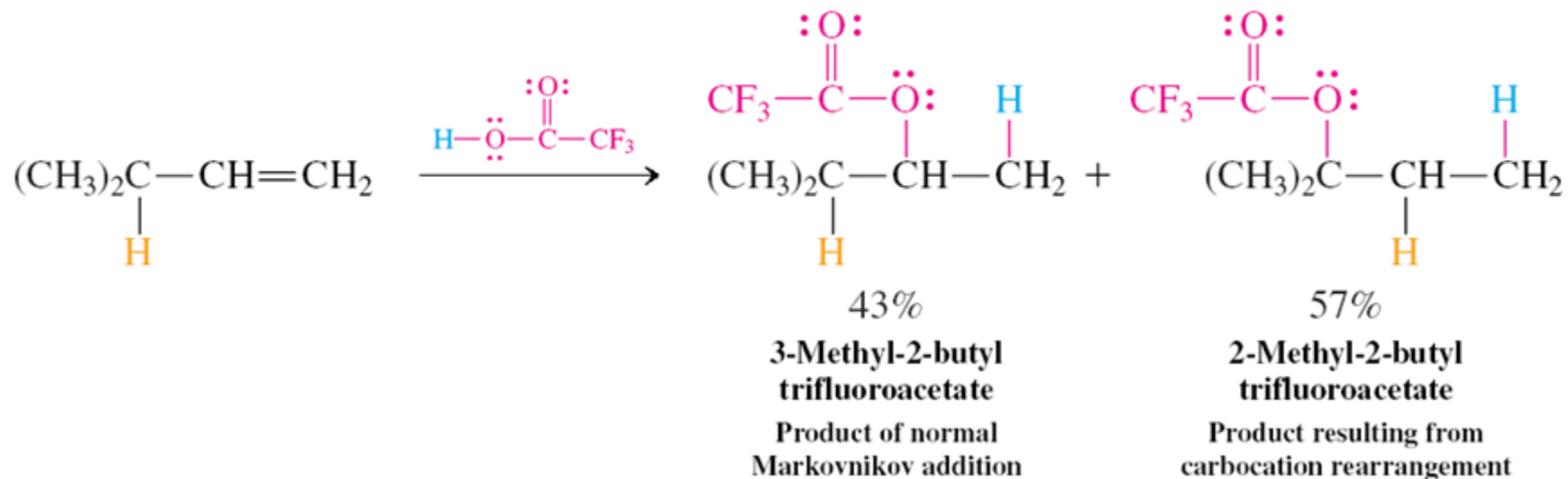
trans-2-Bromocyclopentanol

Regioselective Opening of the Bromonium Ion Formed from 2-Methylpropene

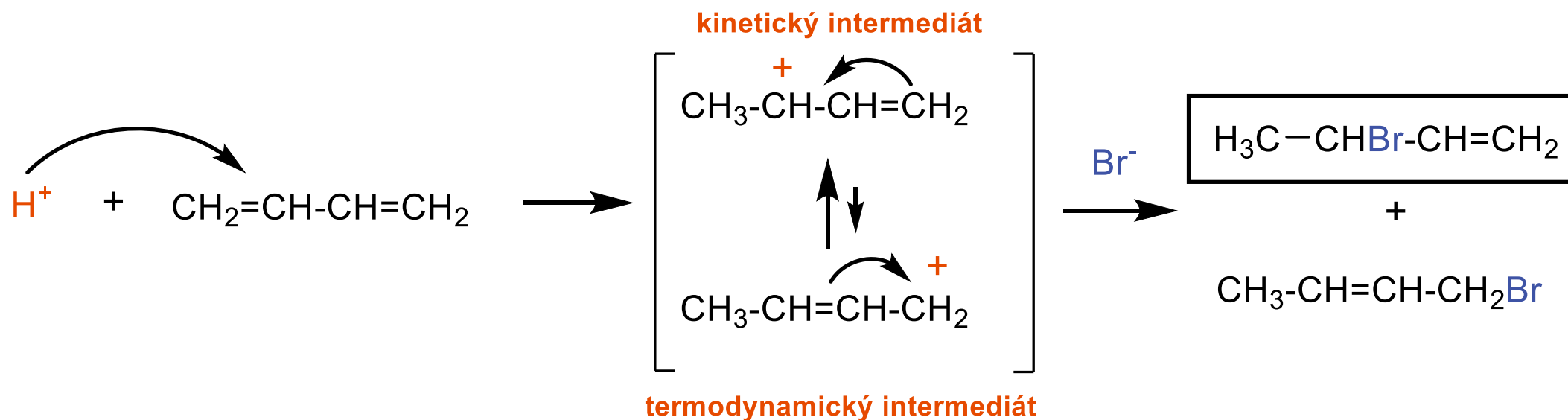
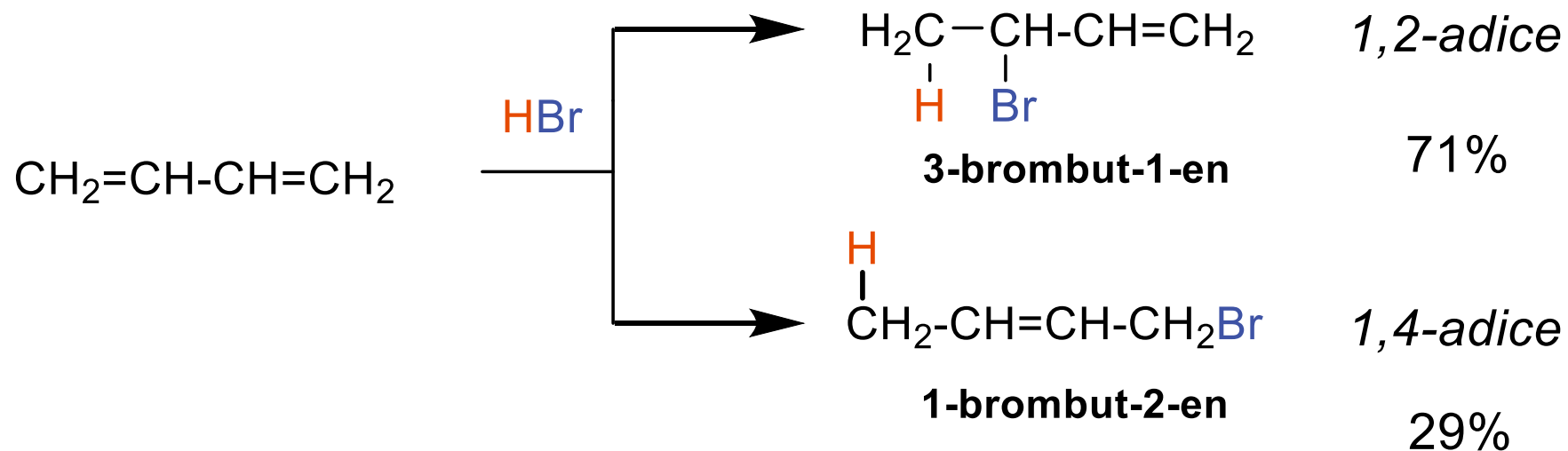


Přesmyky karbokationtů

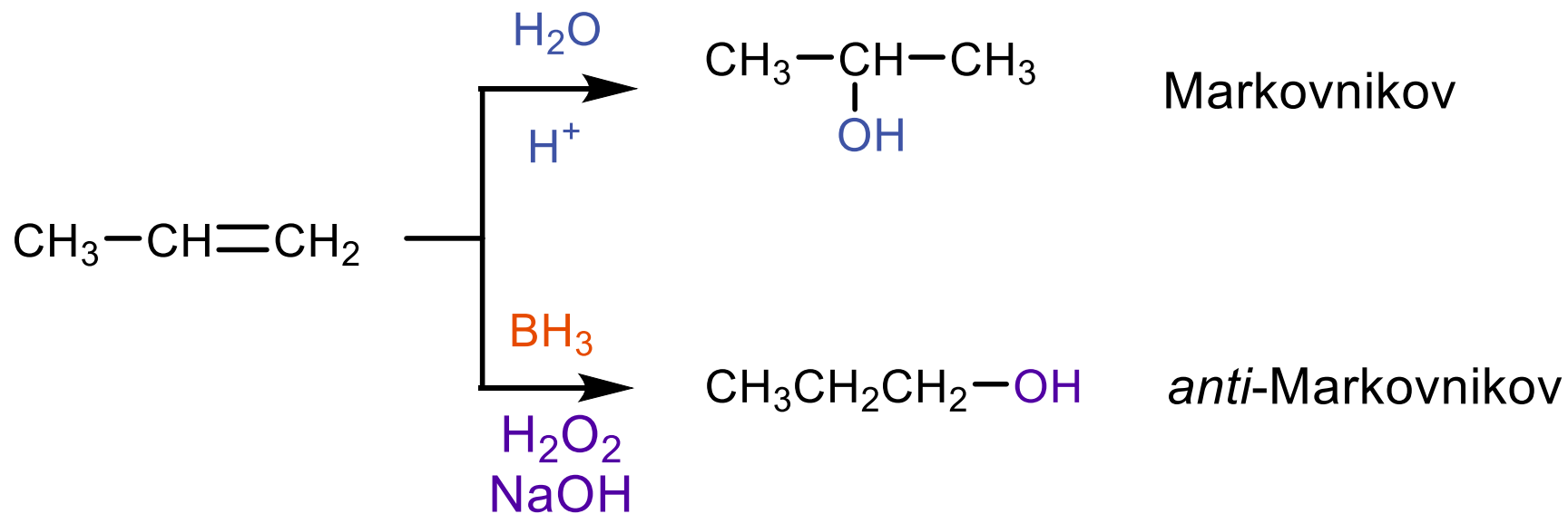
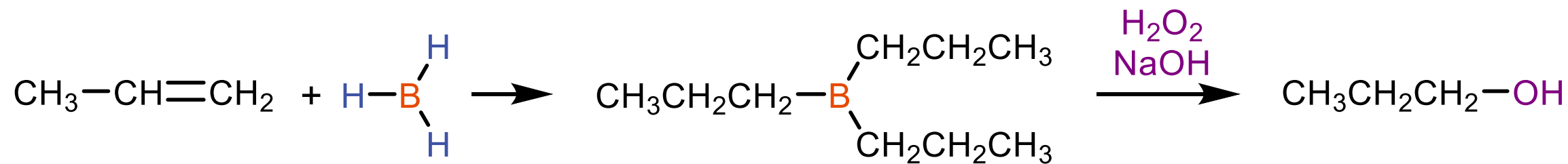
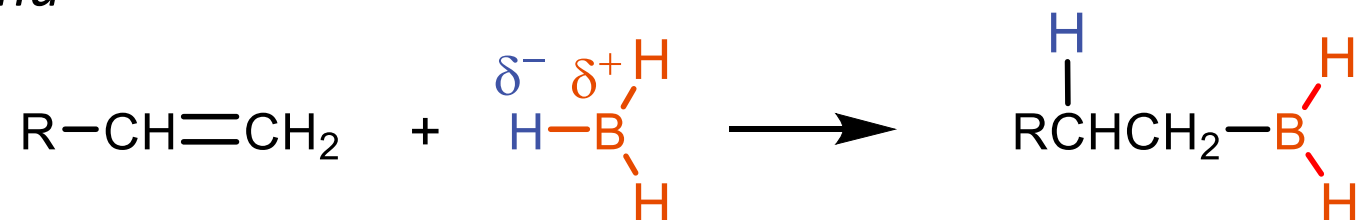
Addition of Trifluoroacetic Acid to 3-Methyl-1-butene

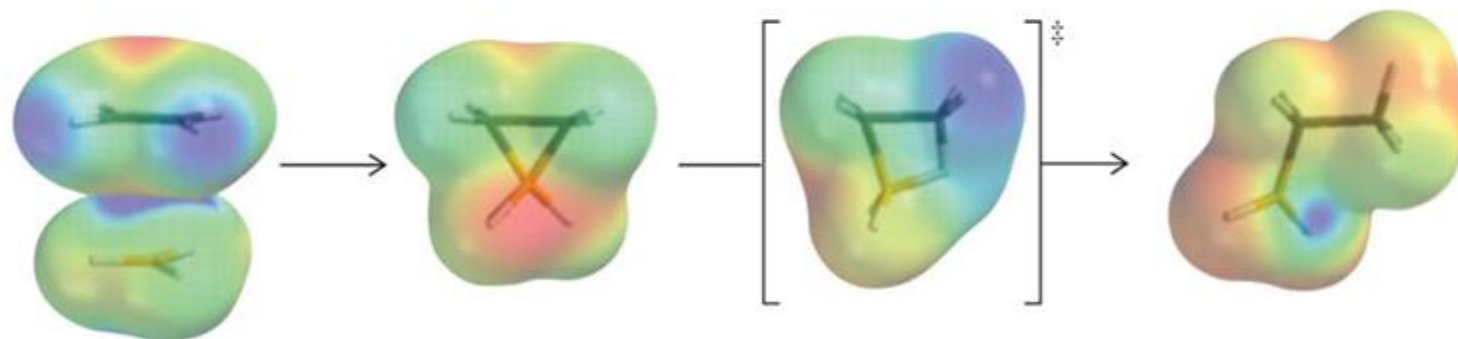
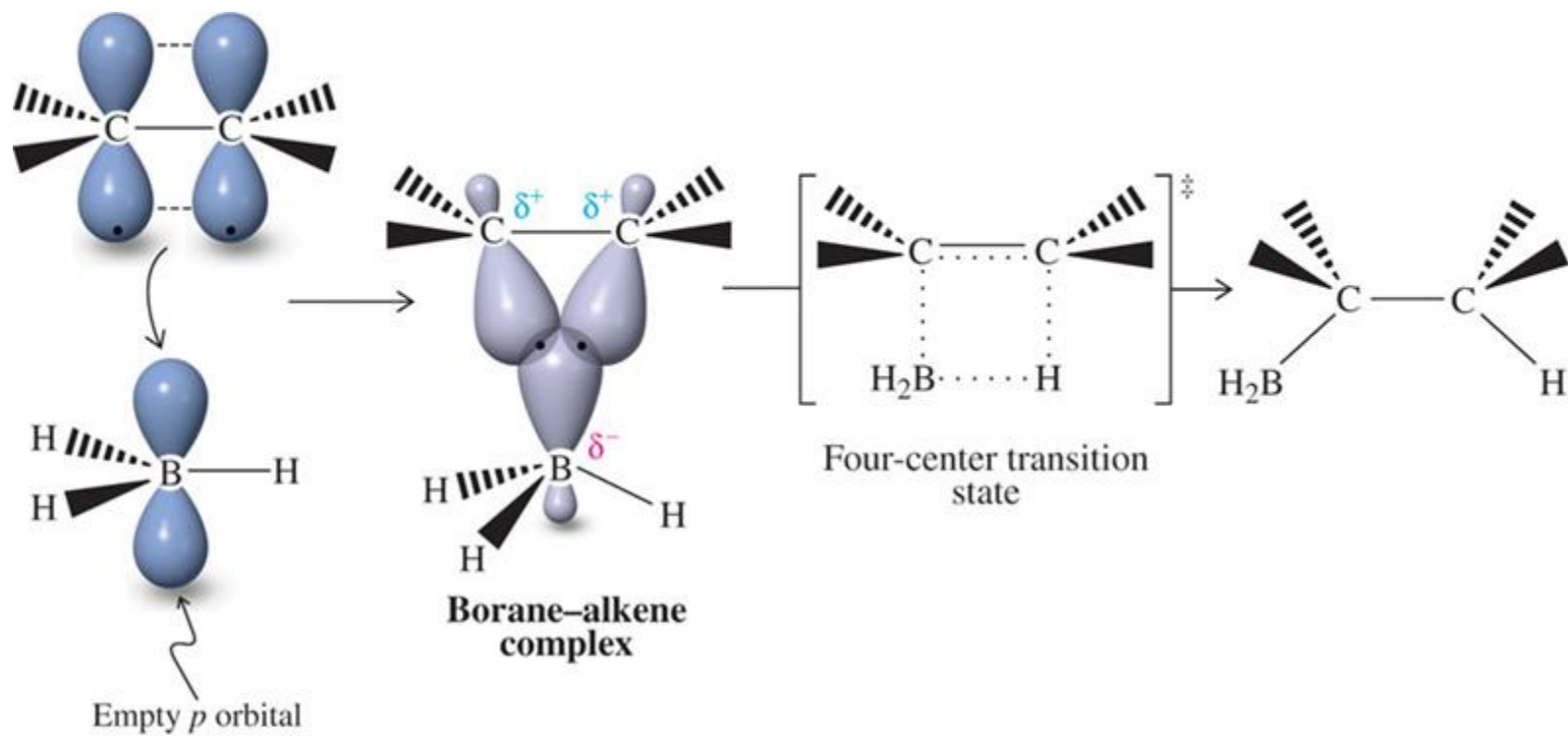


Adice na konjugované dieny



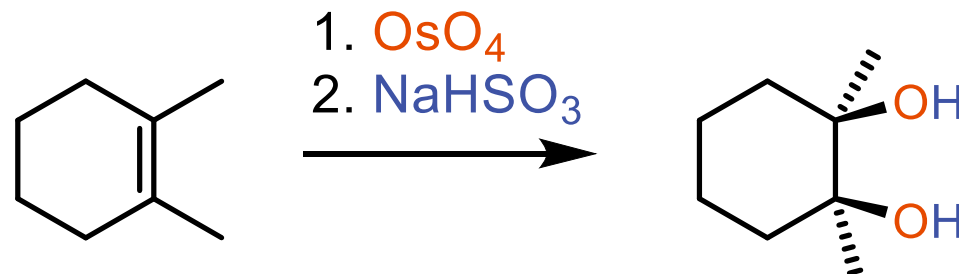
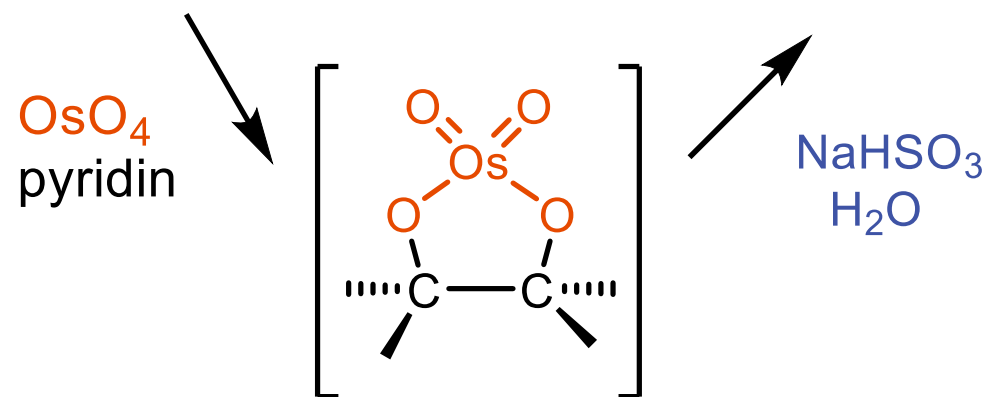
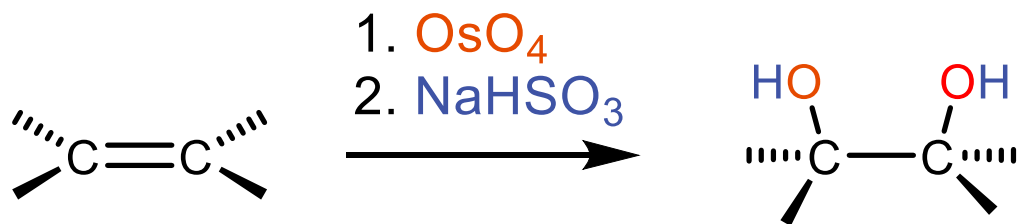
Hydroborace alkenů



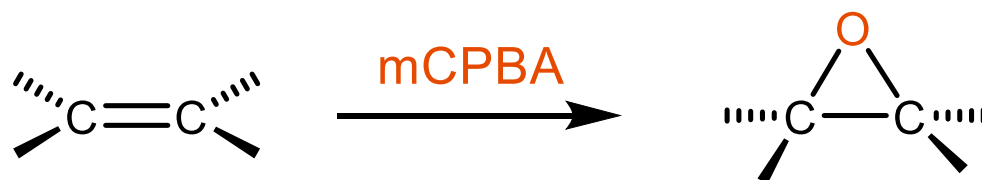


Oxidační transformace alkenů

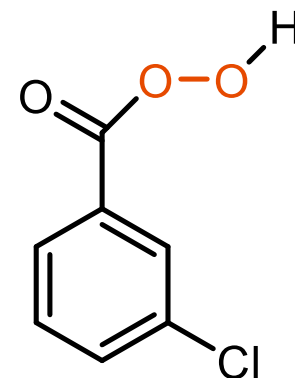
Dihydroxylace



Epoxidace

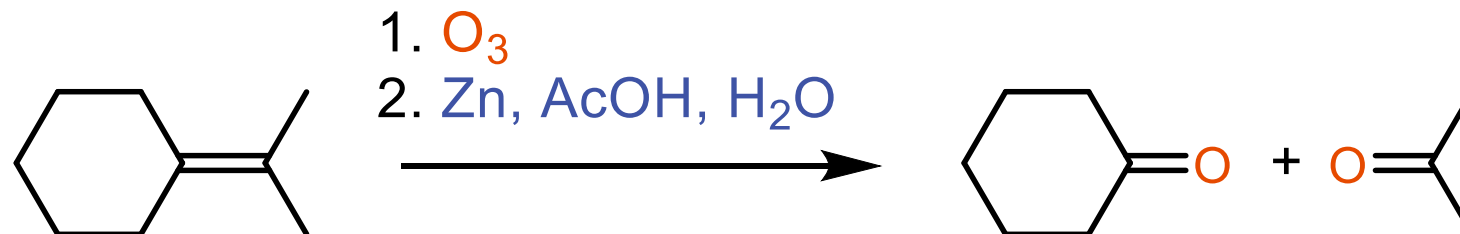
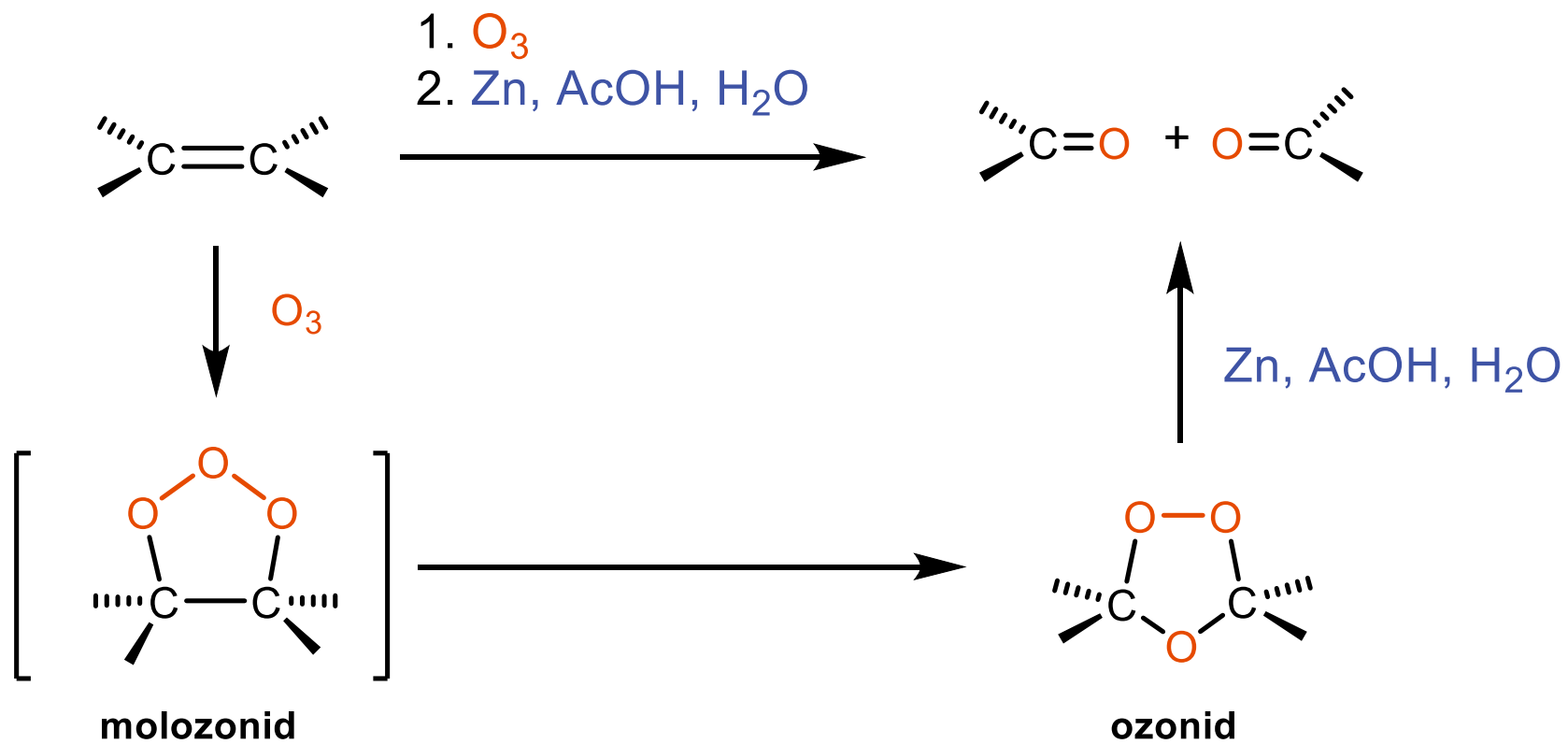


Peroxokyselina

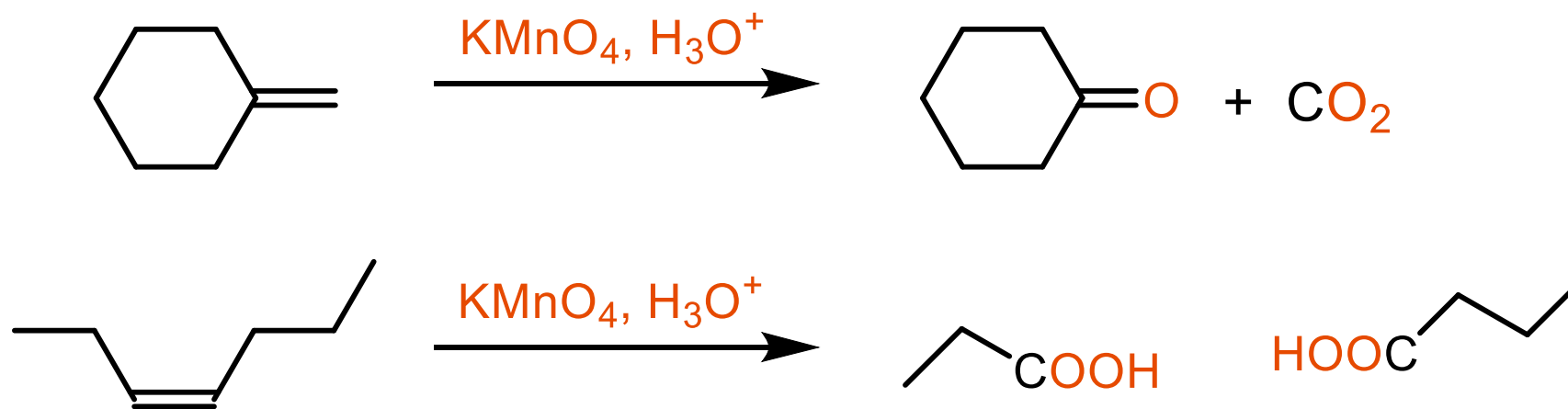


mCPBA

Ozonizace

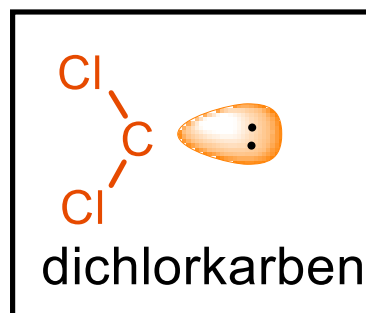
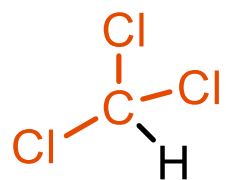
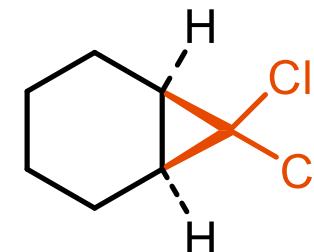
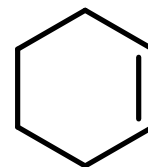
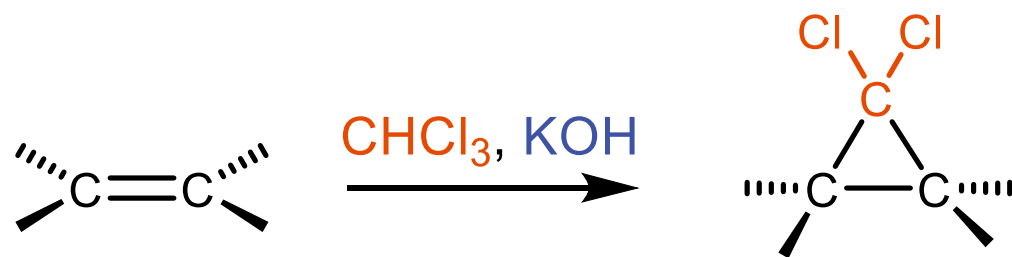


Oxidativní štěpení

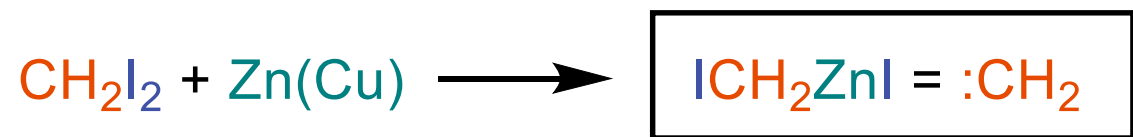
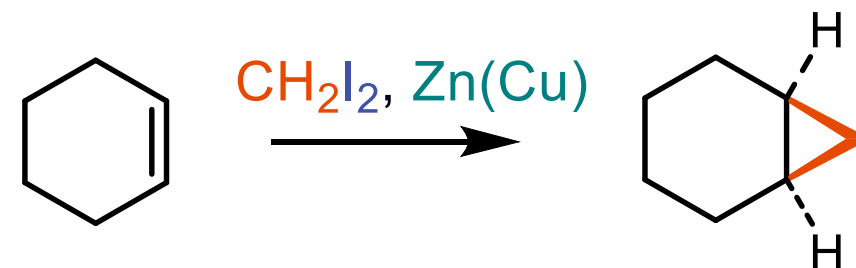
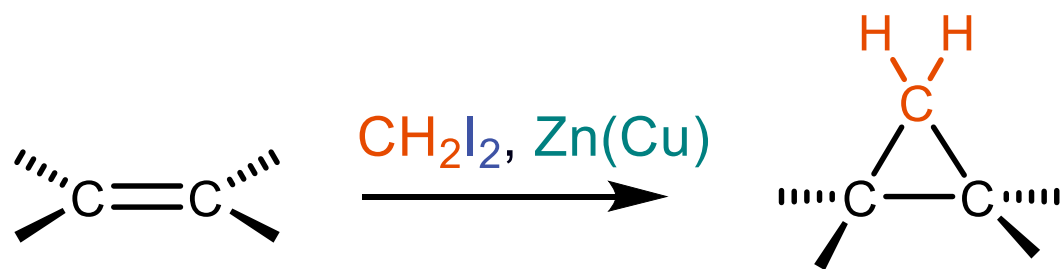


Cyklopropanace

Adice karbenu



Simmons-Smithova reakce



Příprava alkenů - eliminace

