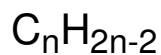


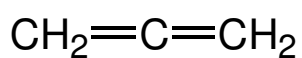
DIÉNEK

Homológ sor

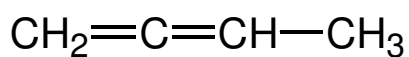


Elnevezés

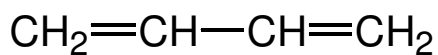
"alkadién"



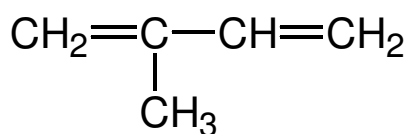
propadién (allén)



buta-1,2-dién



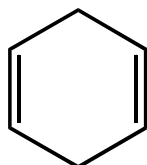
buta-1,3-dién (butadién)



2-metilbuta-1,3-dién (izoprén)

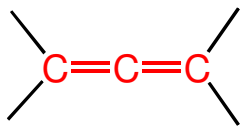


ciklopenta-1,3-dién

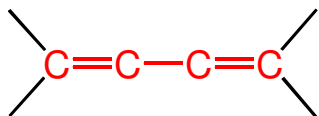


ciklohexa-1,4-dién

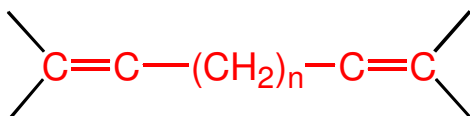
Csoportosítás



kumulált

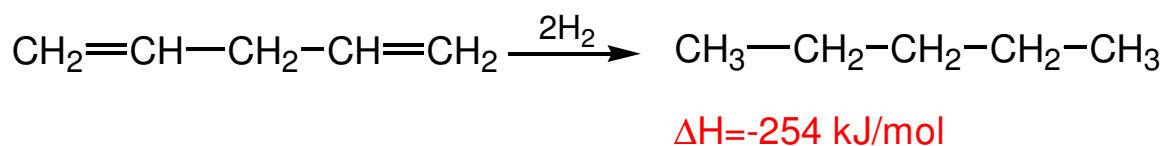
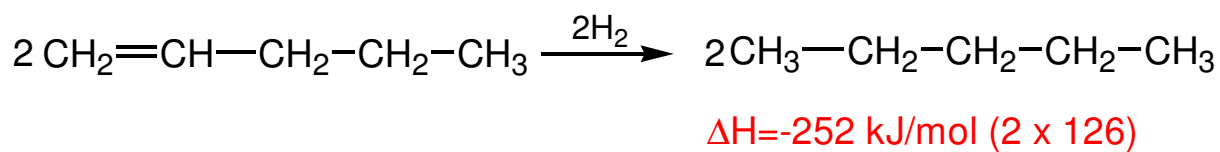


konjugált

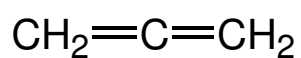


izolált

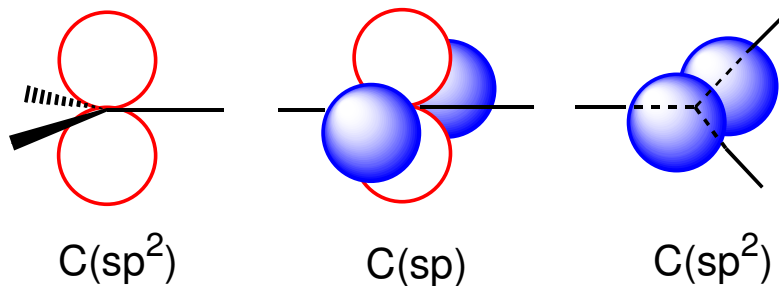
Izolált diének



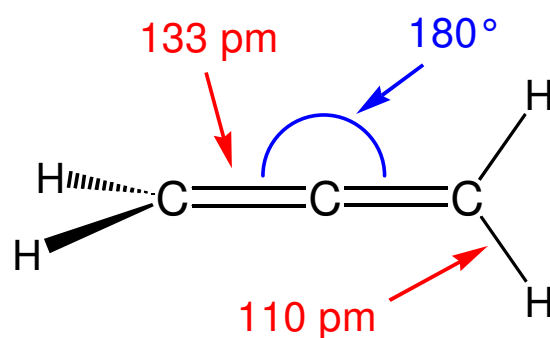
Kumulált diének



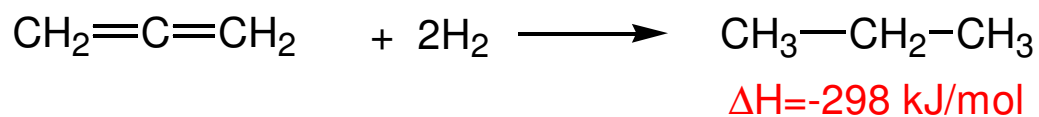
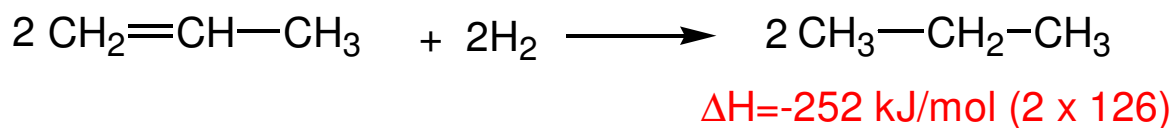
allén



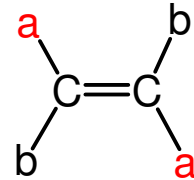
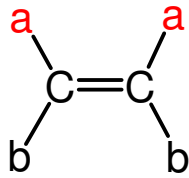
Térszerkezet



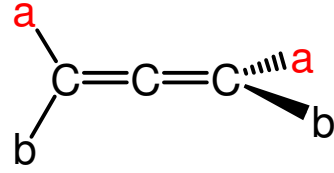
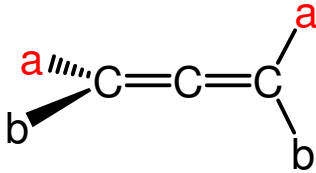
Hidrogénezési hő



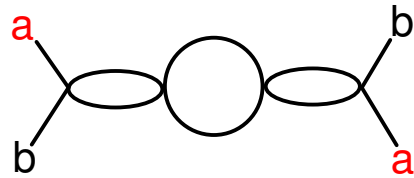
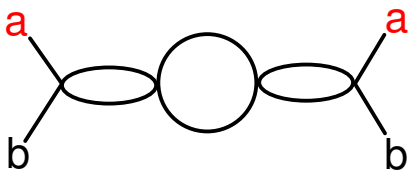
A kumulált szénvegyületek izomériája



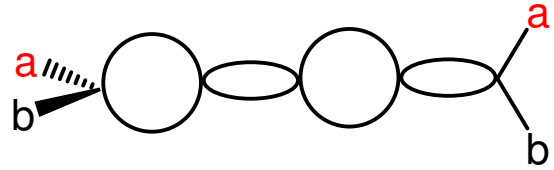
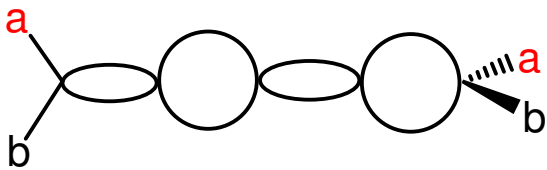
etén: cisz-transz izoméria; akirális molekulák



allén: optikai izoméria



C₄: cisz-transz izoméria; akirális molekulák

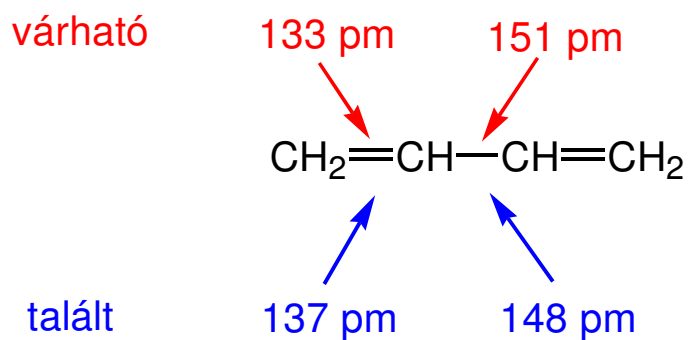


C₅: optikai izoméria

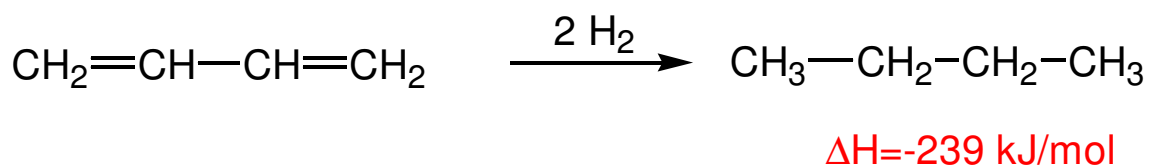
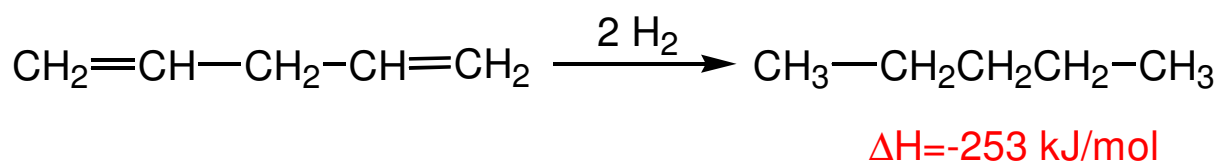
Konjugált diének

A butadién szerkezete

Kötéshossz értékek



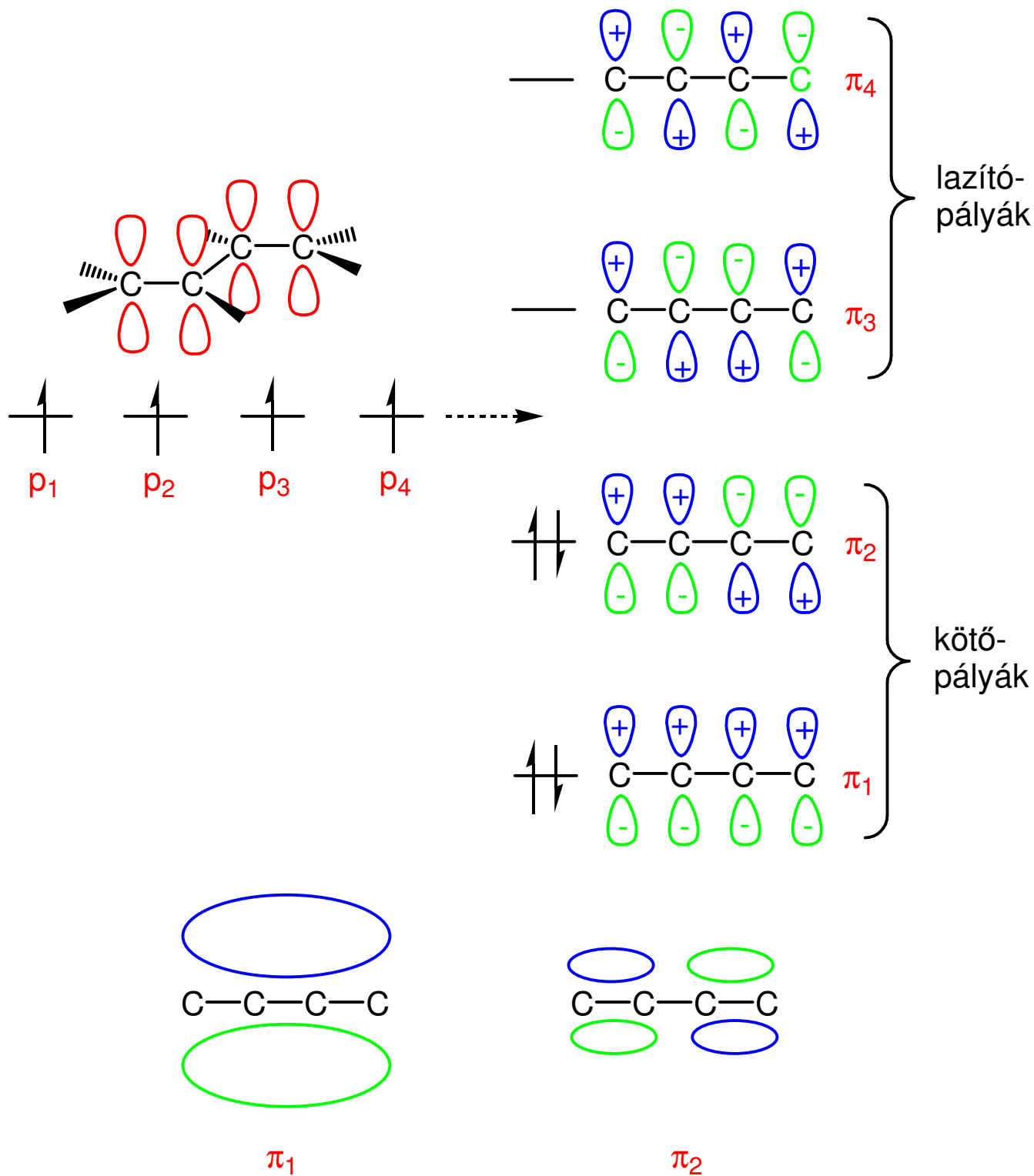
Hidrogénezési hő



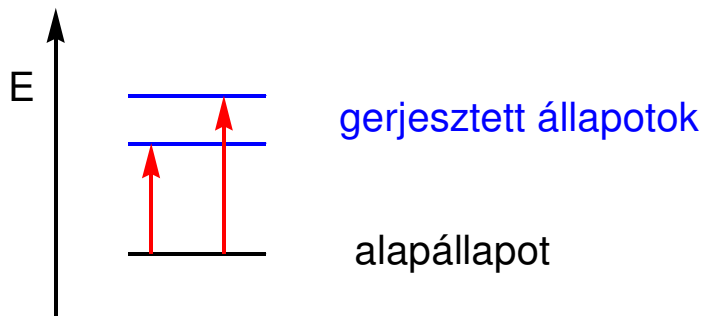
UV spektrum

	λ_{max} (nm)
$\text{CH}_2=\text{CH}_2$	162
$\text{CH}_2=\text{CH}-\text{CH}_2-\text{CH}=\text{CH}_2$	185
$\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$	217

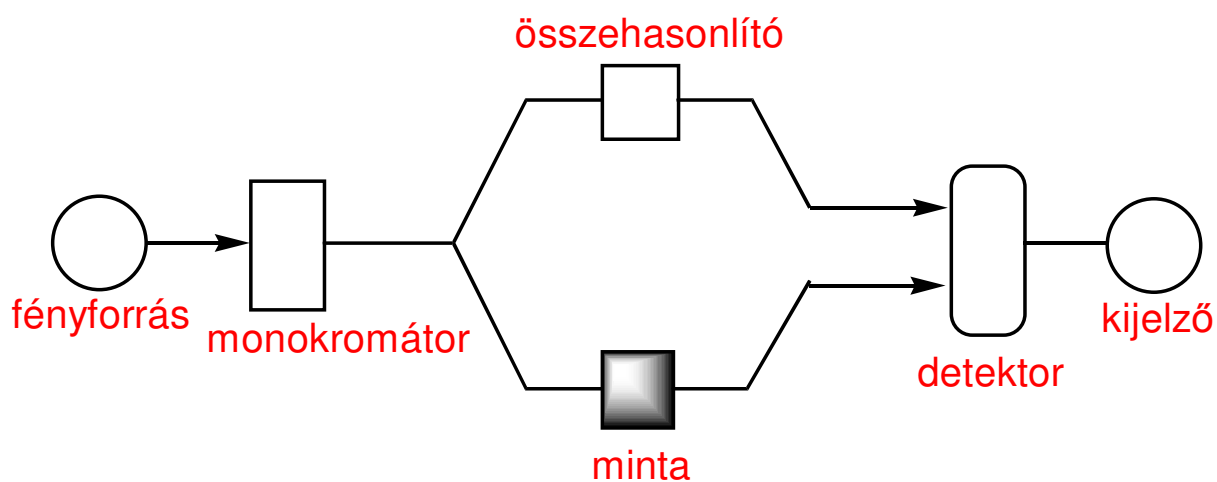
A butadién elektronszerkezete (MO módszer)



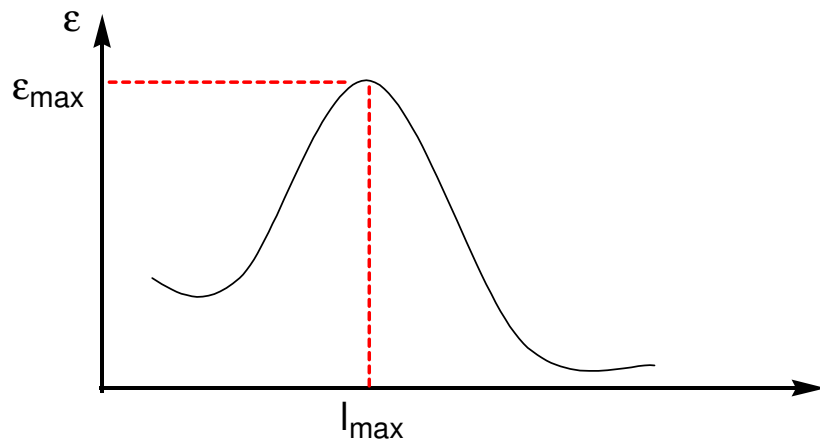
ULTRAIBOLYA SPEKTROSKÓPIA



$$\Delta E = h\nu = hc/\lambda$$

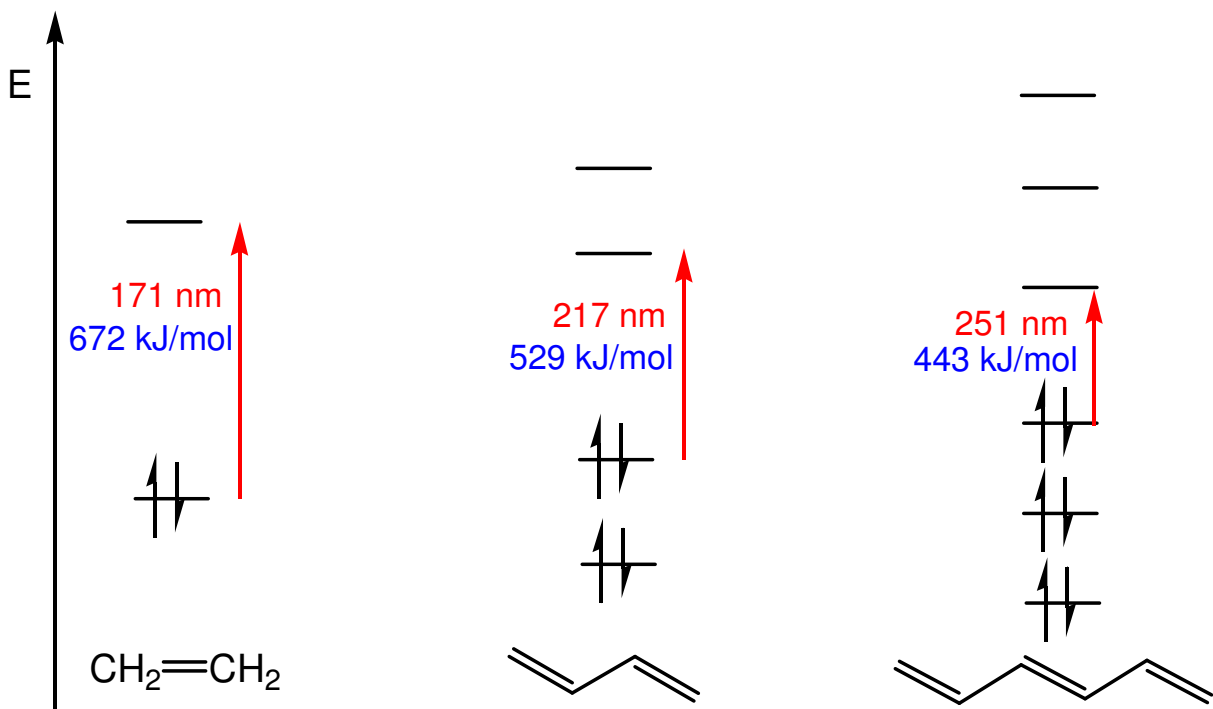


Színképtartomány	λ (nm)	E (kJ/mol)
Ultraibolya	200-400	600-300
Látható	400-800	300-150

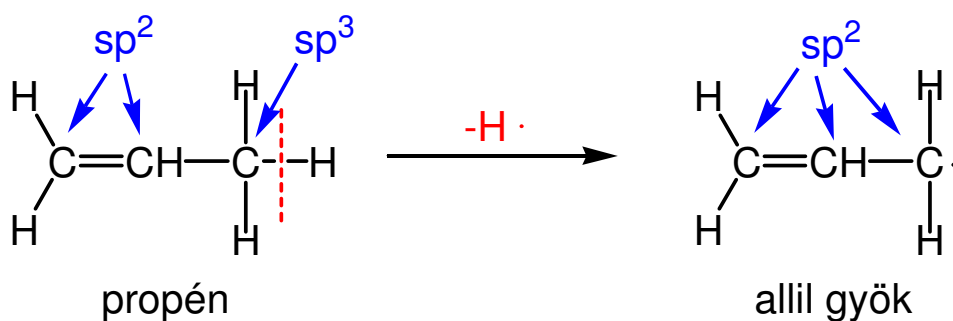


$$A = \log_{10} I_0/I = \epsilon c l$$

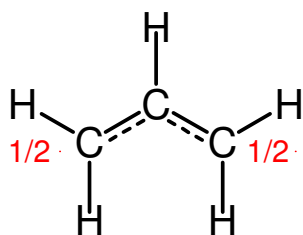
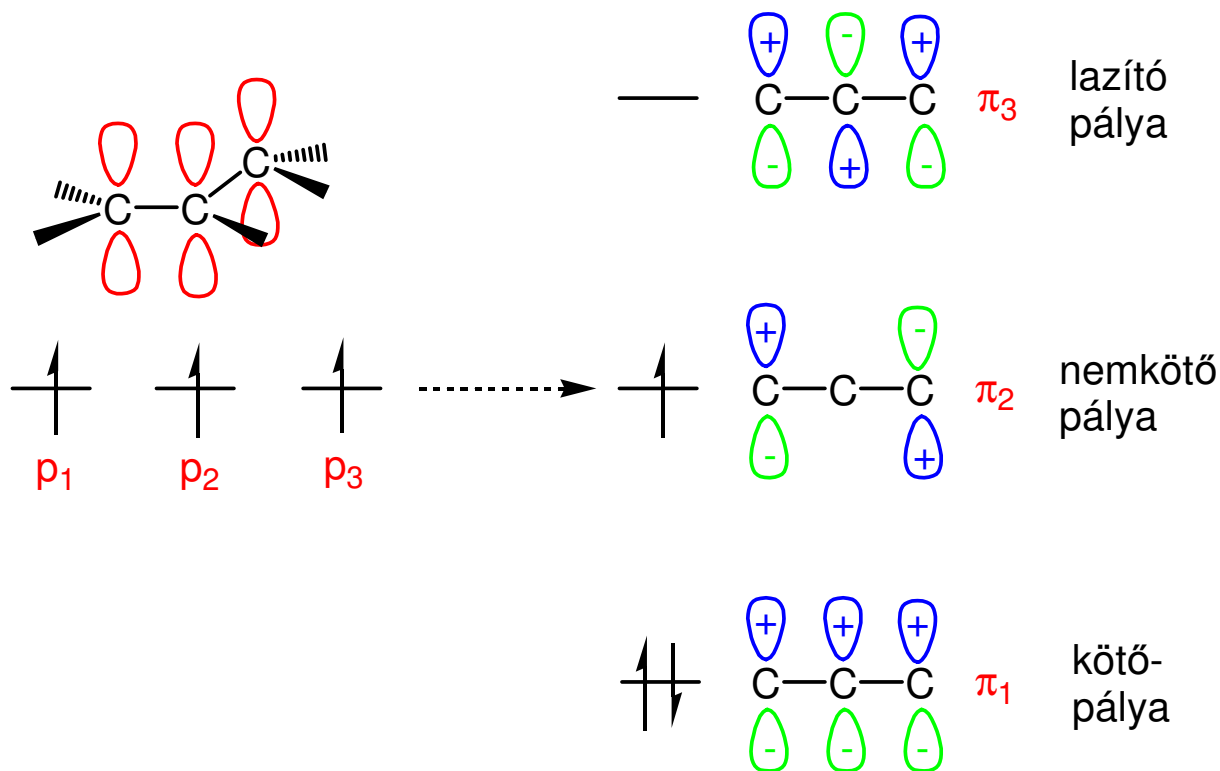
A konjugált szénhidrogének UV spektruma

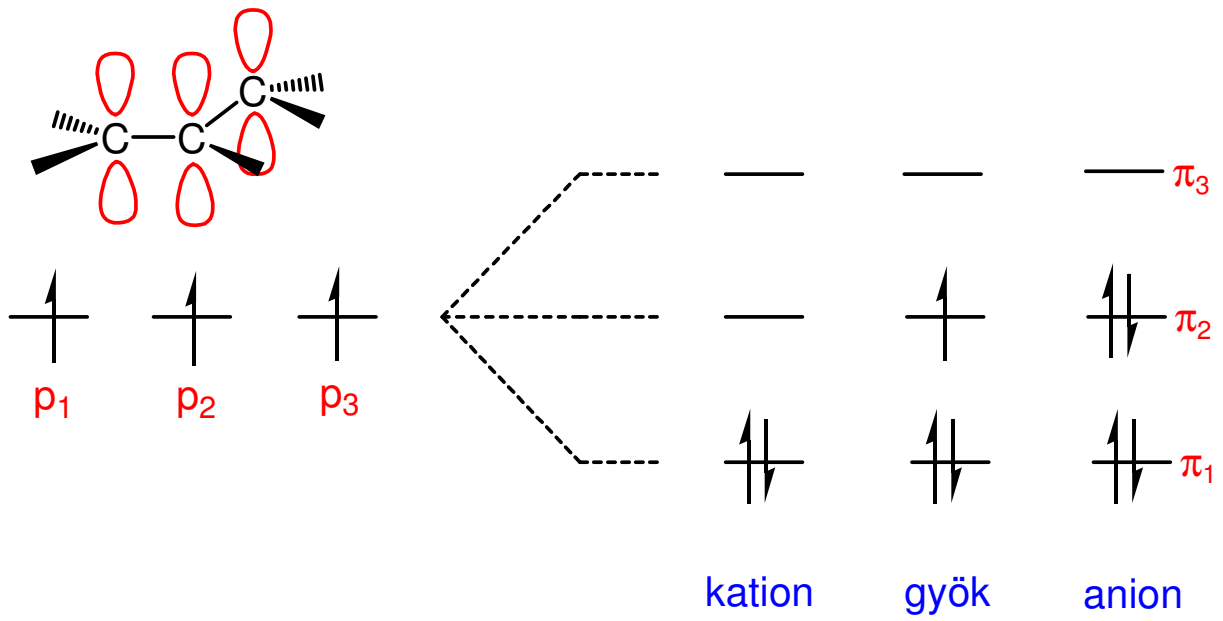
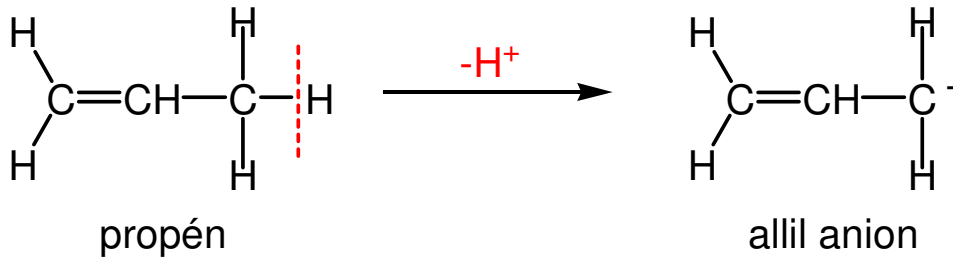
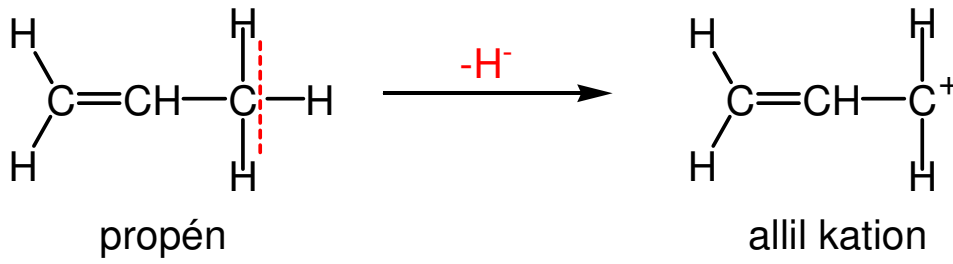


Páratlan szénatomszámú konjugált rendszerek

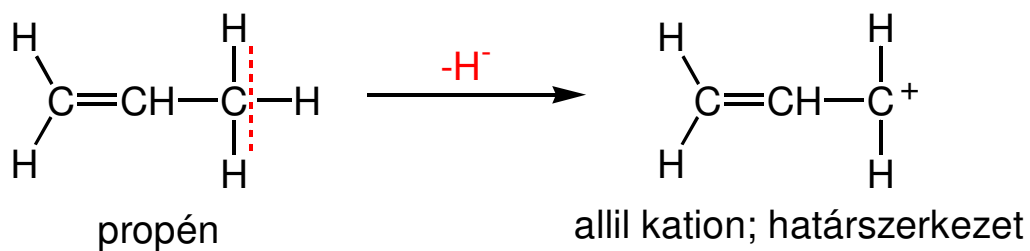


Az allil gyök szerkezete

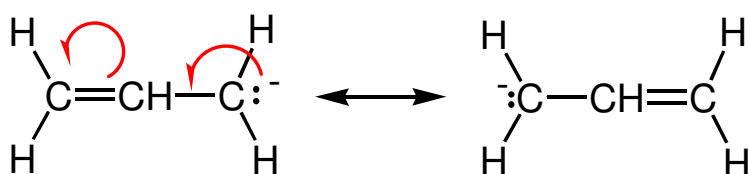
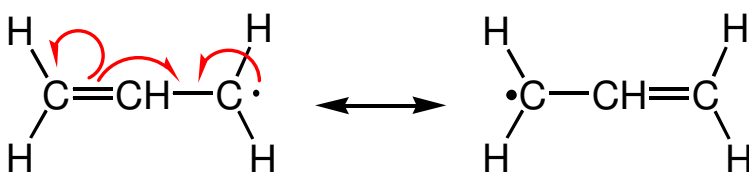
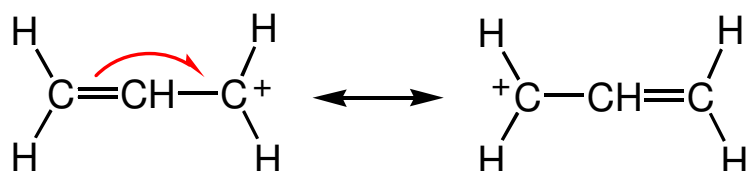




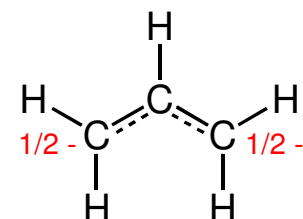
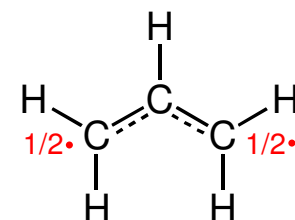
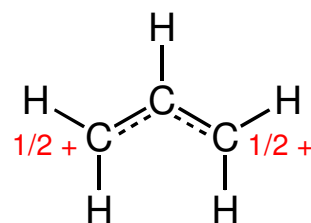
Vegyértékkötés (VB) módszer; rezonancia módszer





határszerkezetek
(részigazságot fejeznek ki)



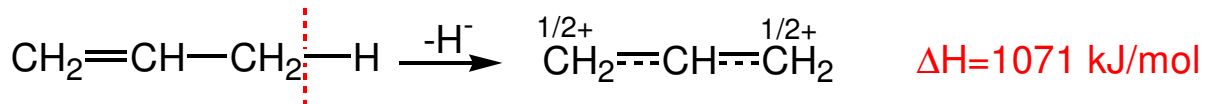
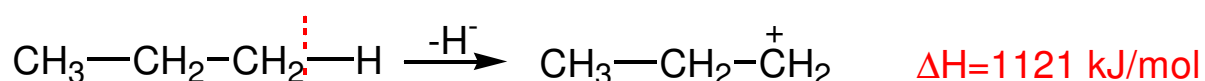
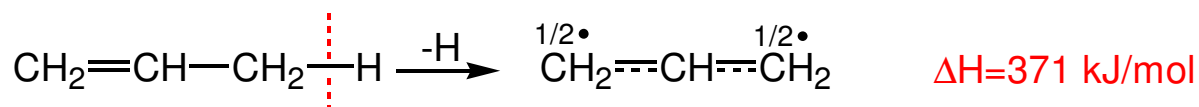
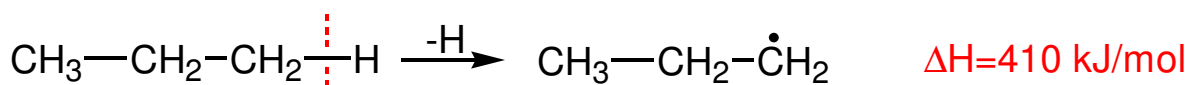
valóságos szerkezet



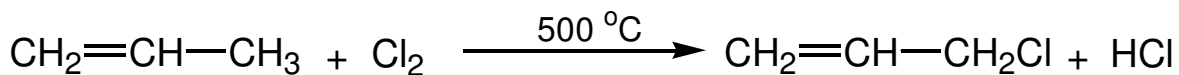
Rezonancia szabályok határszerkezetek írásához

1. A rezonancia szerkezetek a valóságban nem léteznek!
Nem egyensúlyt fejeznek ki!
 jel nem keverendő  jellel!
2. A határszerkezeteken a planáris σ -vázon csak a π -elektronok mozgása engedélyezett (az atomok helyzete változatlan).
3. A határszerkezeteknek azonos számú π -elektront kell tartalmazniuk.
4. Az elvileg lehetséges határszerkezetek közül a magas energiájúak elhanyagolhatók.
5. A valóságos szerkezet a legkisebb energiájú határszerkezethez hasonlít.

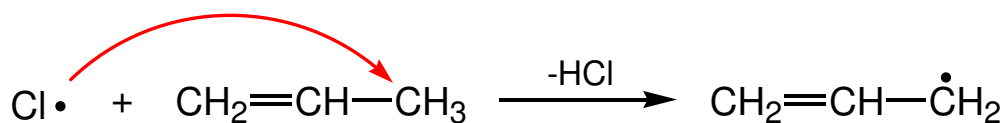
A konjugáció stabilizáló hatása



A konjugáció szerepe a reakciókban

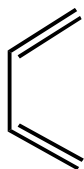


Mechanizmus

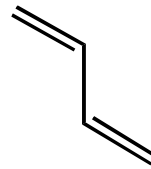


A konjugált diének térszerkezete

Konformáció

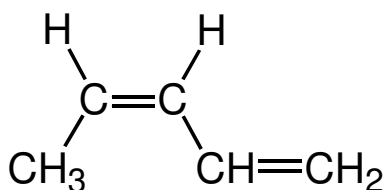


s-cisz

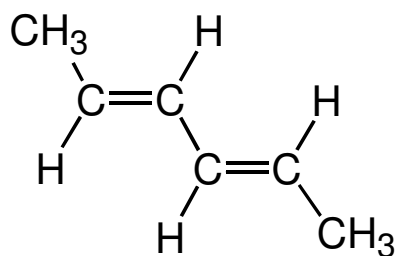


s-transz

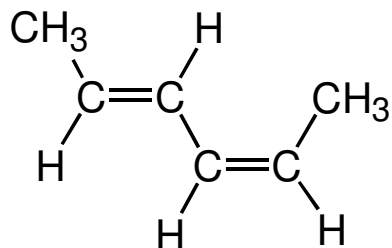
Cisz-transz izoméria



(3Z)-penta-1,3-dién
(cisz-penta-1,3-dién)

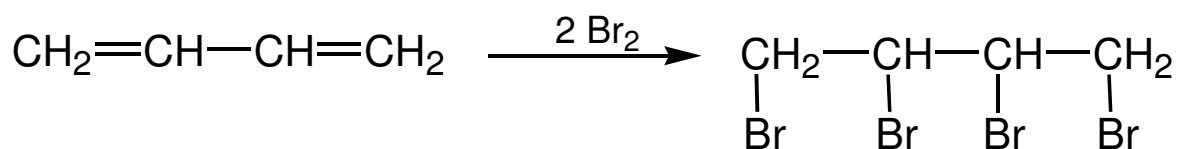
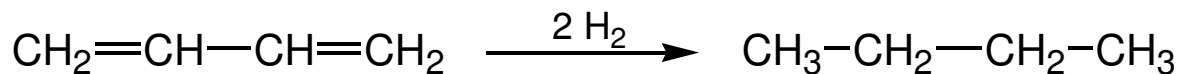


(2E,4E)-hexa-2,4-dién
transz,transz-hexa-2,4-dién

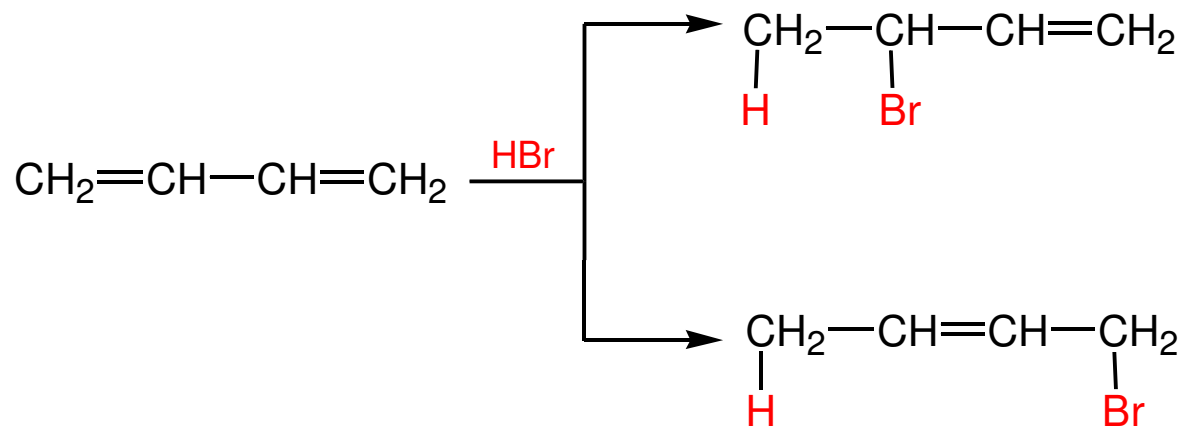
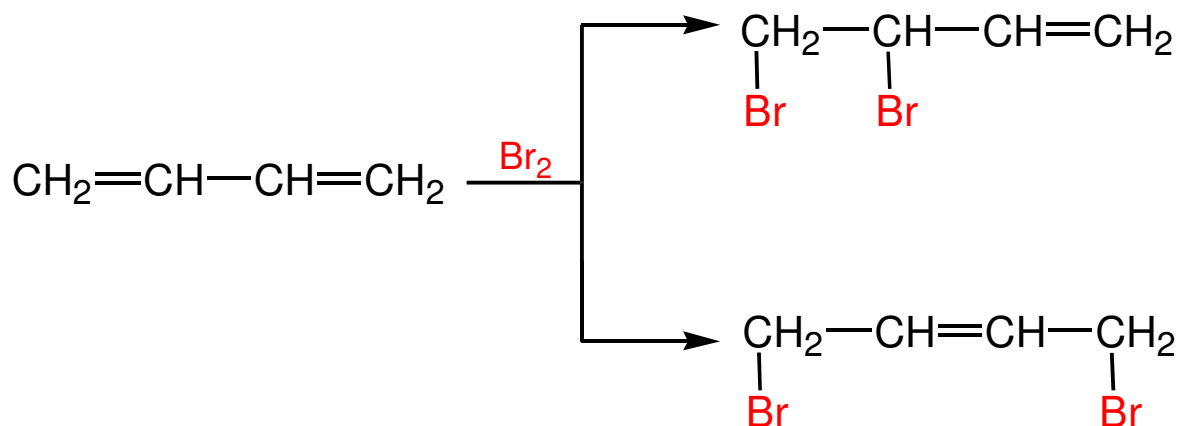


(2Z,4E)-hexa-2,4-dién
cisz,transz-hexa-2,4-dién

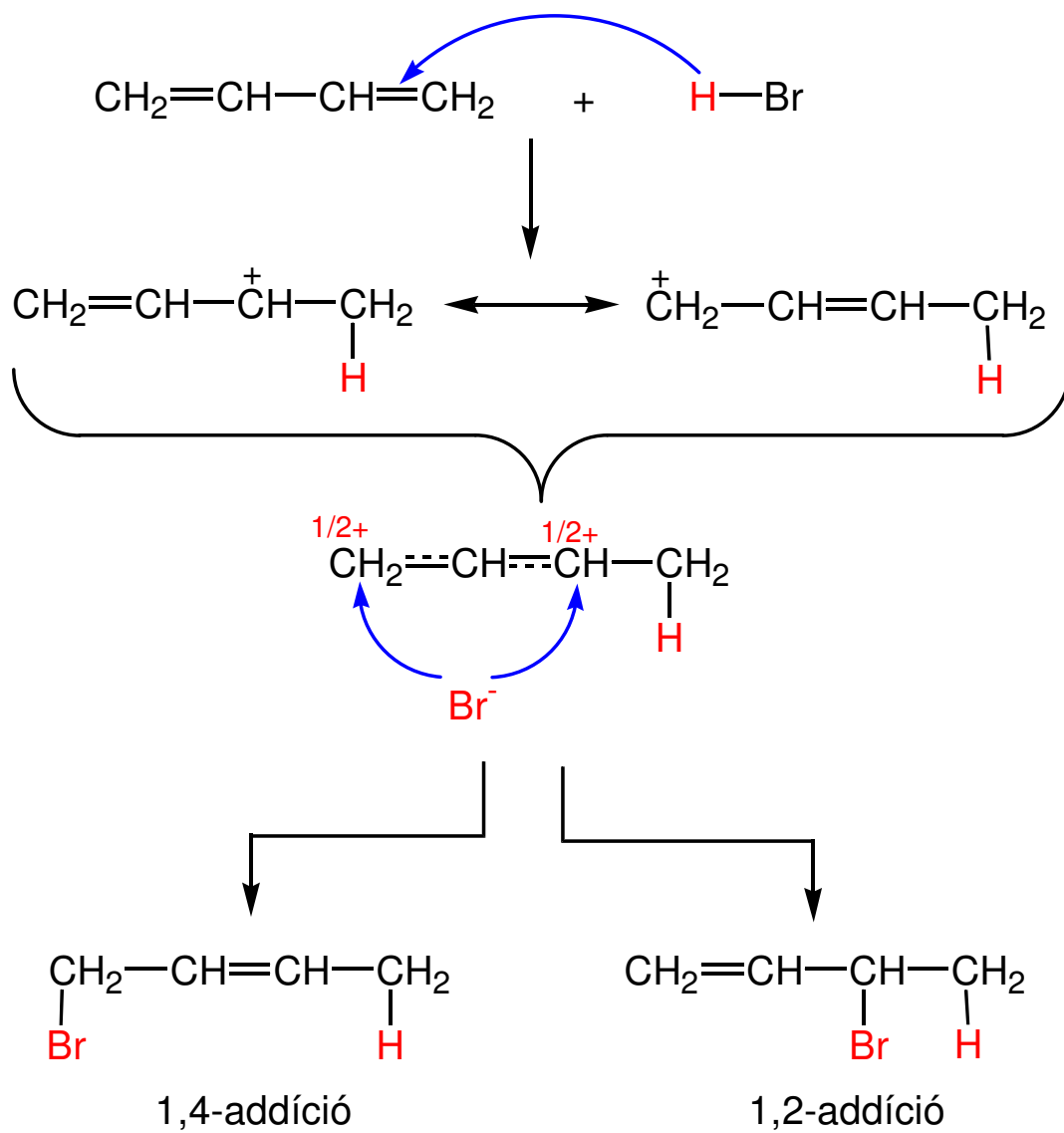
A konjugált diének addíciós reakciói



Részleges addíciók



Mechanizmus



40 °C

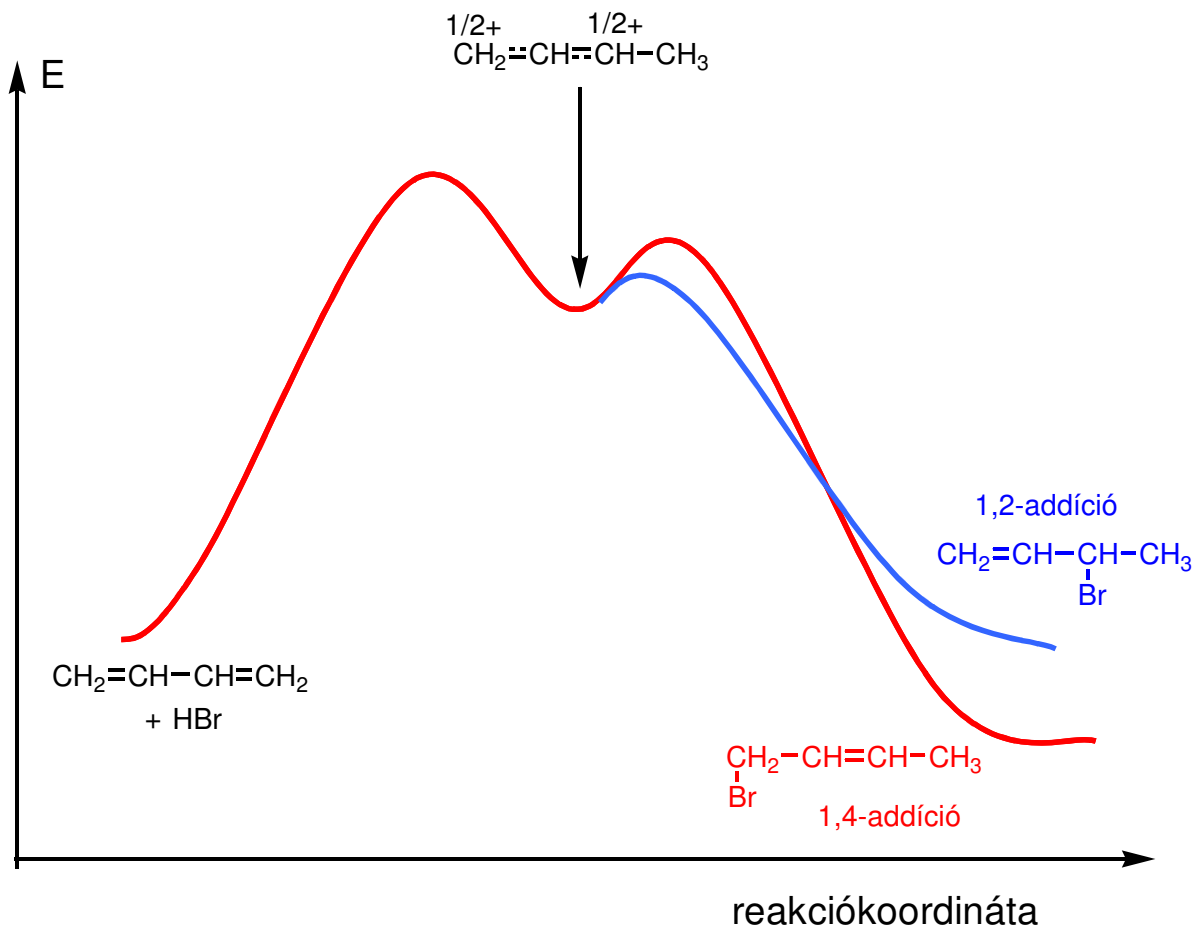
80%

20%

-80 °C

20%

80%



Kinetikai szabályozás \longrightarrow 1,2-addíció

Termodinamikai szabályozás \longrightarrow 1,4-addíció