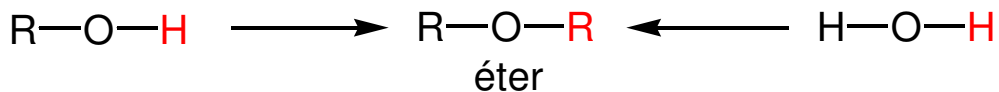
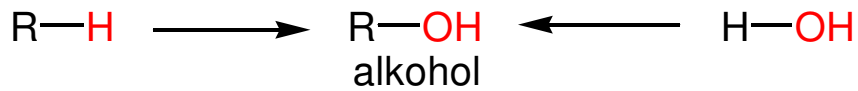


ALKOHOLOK ÉS SZÁRMAZÉKAIK

Levezetés



Elnevezés

Nyíltláncú, telített alkoholok

általános név: alkanol
alkil-alkohol

CH_3OH
metanol
metil-alkohol

$\text{CH}_3\text{CH}_2\text{OH}$
etanol
etil-alkohol

$\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
propán-1-ol
propil-alkohol

$\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$
propán-2-ol
izopropil-alkohol

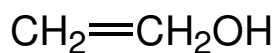
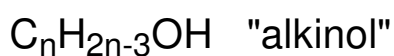
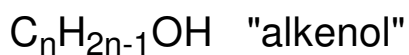
$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$
bután-1-ol
butil-alkohol

$\text{CH}_3\text{CH}_2\text{CH}(\text{OH})\text{CH}_3$
bután-2-ol
szek-butil-alkohol

$\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{OH}$
izobutil-alkohol

$\text{CH}_3\text{C}(\text{OH})(\text{CH}_3)_2$
terc-butil-alkohol

Telítetlen alkoholok



vinil-alkohol
(nem létképes)

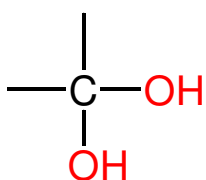


allil-alkohol

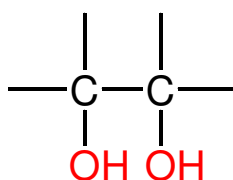


propargil-alkohol

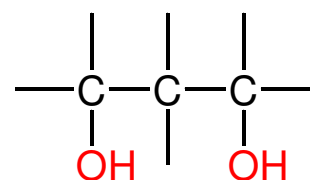
Töbértékű alkoholok



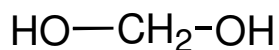
geminális



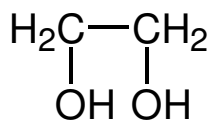
vicinális



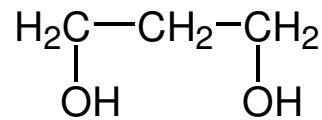
diszjunkt



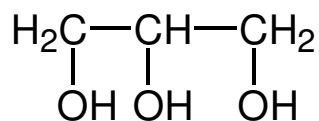
metándiol
(nem létképes)



etilénglikol

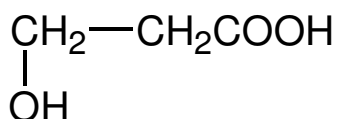


propán-1,3-diol

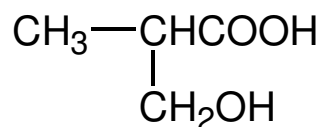


glicerín

Származékok

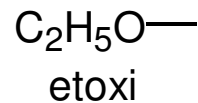
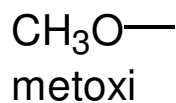
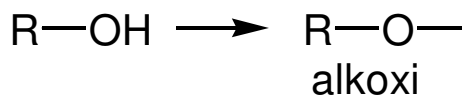


3-hidroxi-propionsav

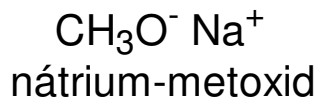
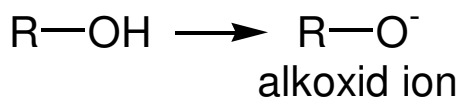


2-hidroximetil-propionsav

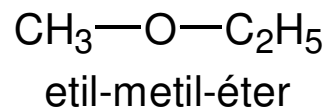
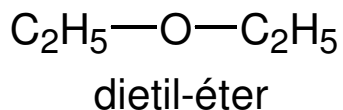
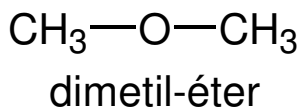
Csoportnevek



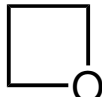
Sók



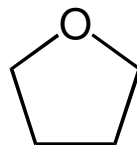
Éterek



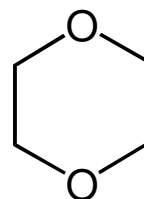
etilén-oxid



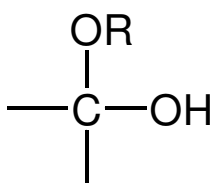
trimetilén-oxid



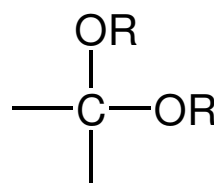
tetrahidrofurán



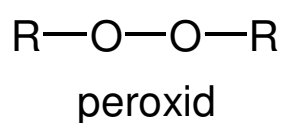
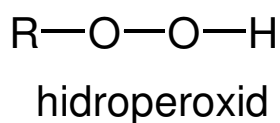
dioxán



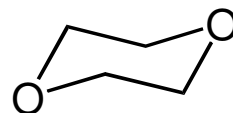
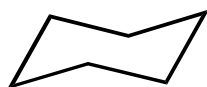
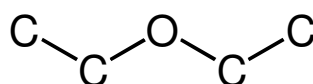
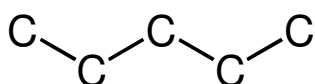
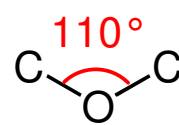
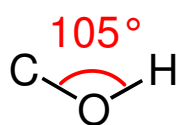
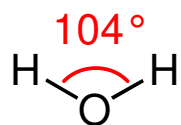
félacetál



acetál



AZ ALKOHOLOK ÉS ÉTEREK SZERKEZETE

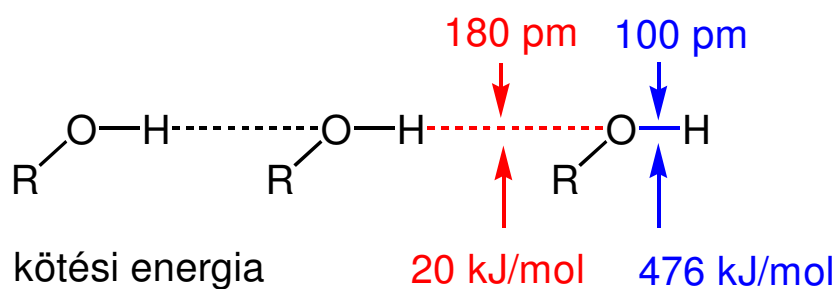


analóg szerkezetek

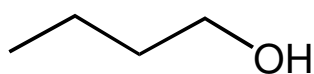
AZ ALKOHOLOK FIZIKAI TULAJDONSÁGAI

	Molekulatömeg	Forráspont (C°)
CH ₃ OH	32	65
CH ₃ CH ₃	30	-89
CH ₃ CH ₂ OH	46	78
CH ₃ OCH ₃	46	-24
CH ₃ CH ₂ CH ₃	44	-42
HOCH ₂ -CH ₂ OH	62	200
CH ₃ CH ₂ CH ₂ CH ₃	58	-1
HOCH ₂ -CHOH-CH ₂ OH	92	290
CH ₃ (CH ₂) ₄ CH ₃	86	69

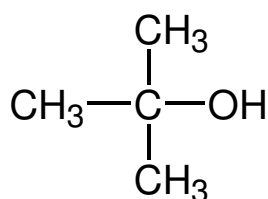
Hidrogénkötés



Olvadáspont



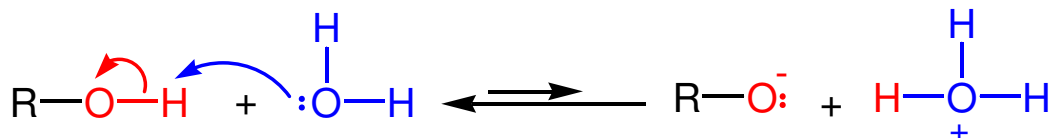
-90 °C



26 °C

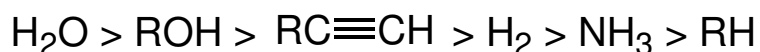
AZ ALKOHOLOK SAV-BÁZIS TULAJDONSÁGAI

Savi jelleg

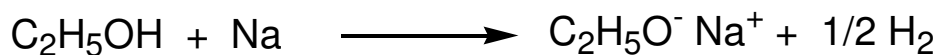
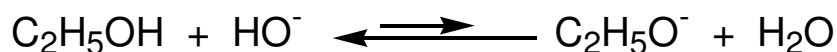
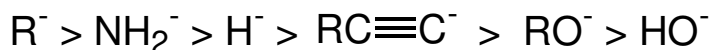


H—A	MeOH	H ₂ O	EtOH	Me ₃ COH
pK_a	15.5	15.7	15.9	18

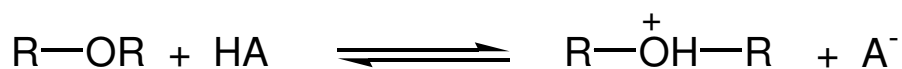
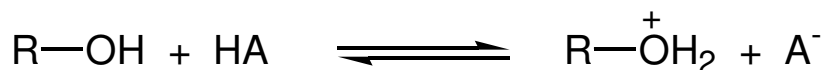
aciditási sorrend



bázicitási sorrend

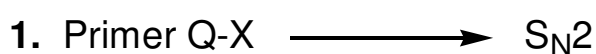
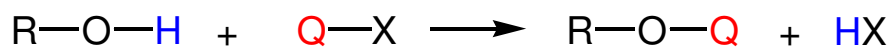


Bázicitás

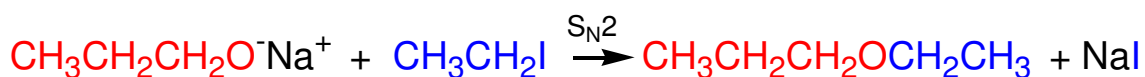
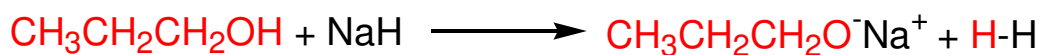


AZ ALKOHOLOK KÉMIAI TULAJDONSÁGAI

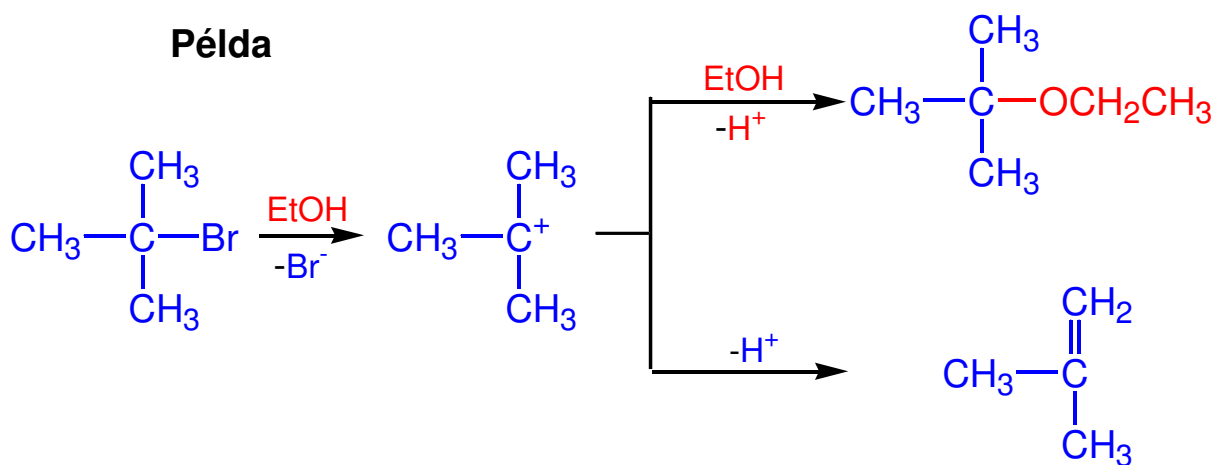
Az alkoholok alkilezése; Williamson éterszintézis



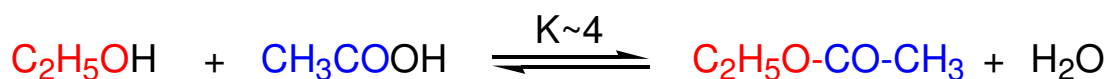
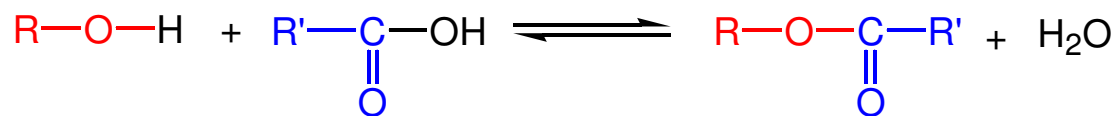
Példa



Példa

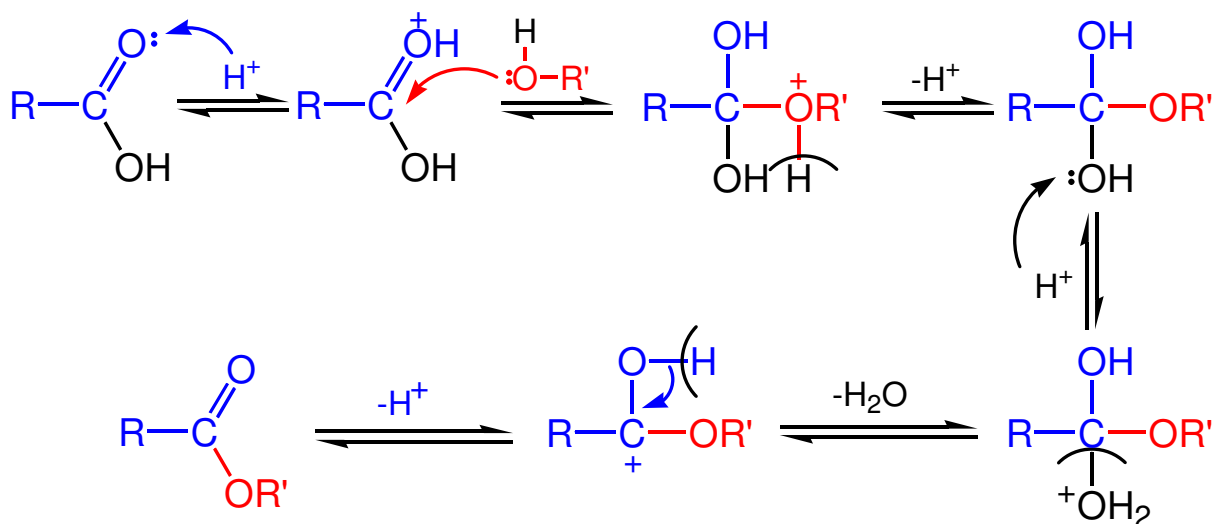


Az alkoholok acilezése. Közvetlen észterezés.

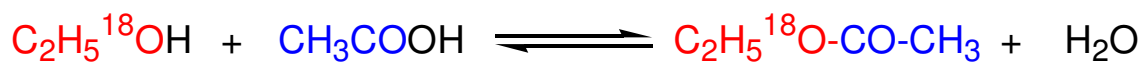


Savkatalizált észterezés

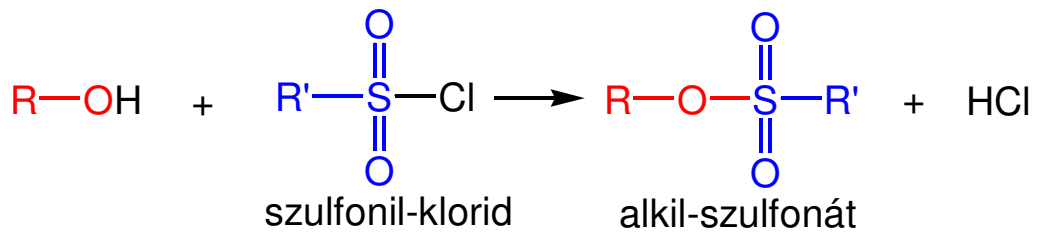
a) Primer alkoholok reakciója



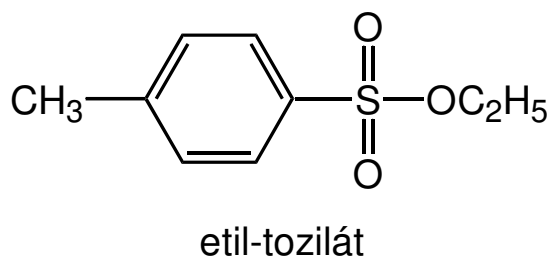
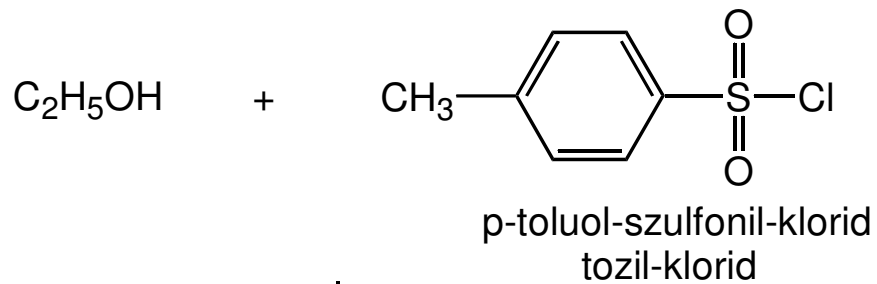
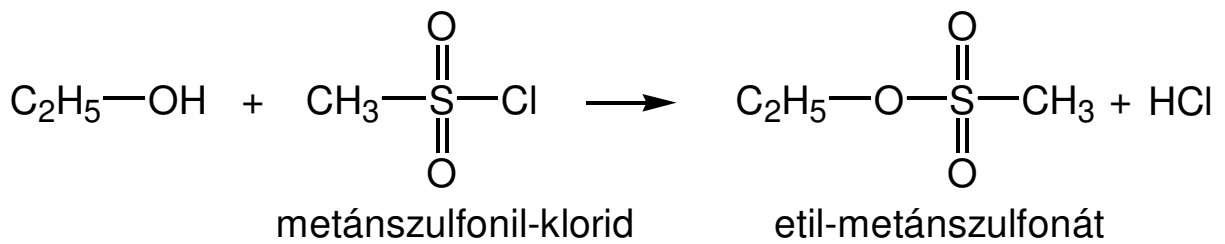
acil-O kapcsolat



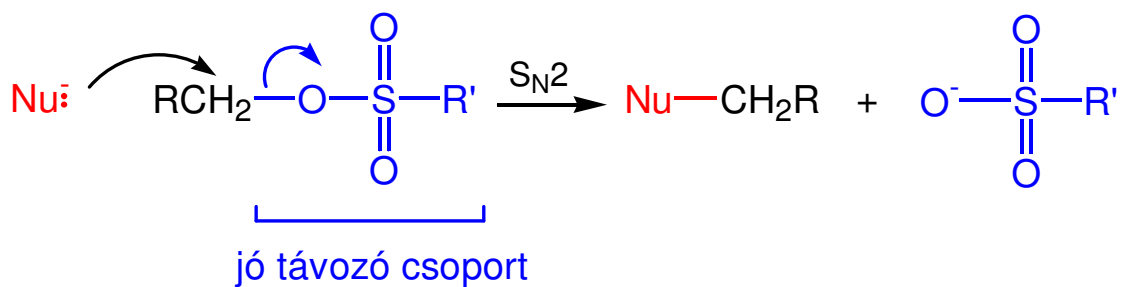
Szulfonsavak észterei



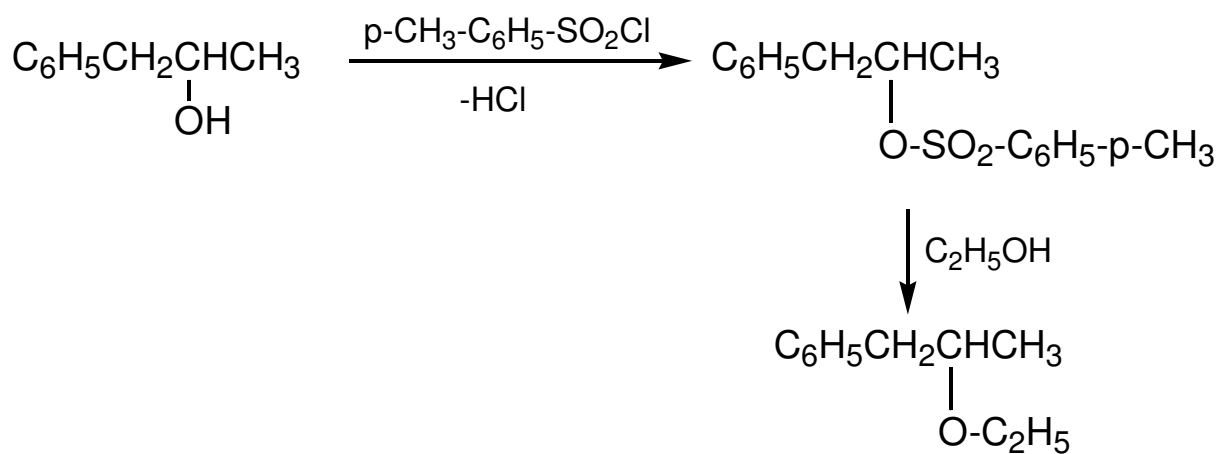
Példák



Szulfonátok felhasználása S_N2 reakciókban

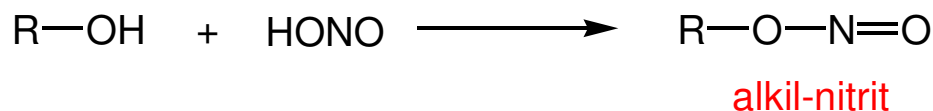


Példa

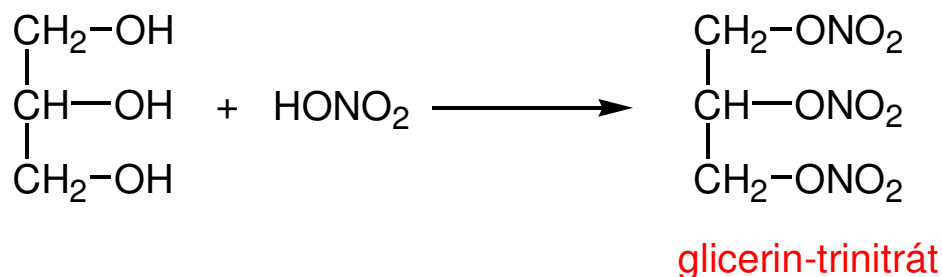
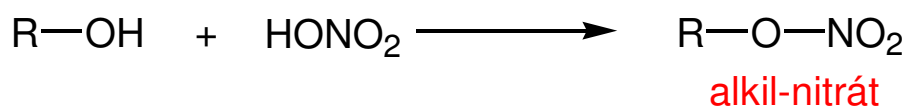


Alkoholok szervesen savakkal képzett észterei

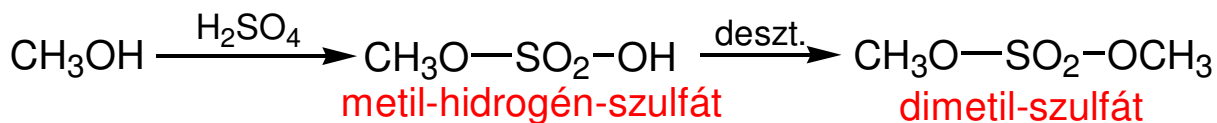
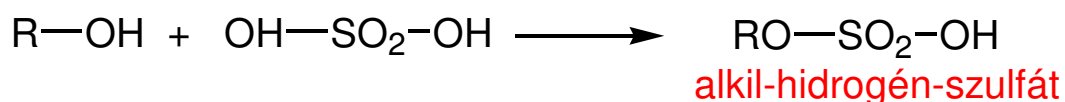
Salétromosav észterek



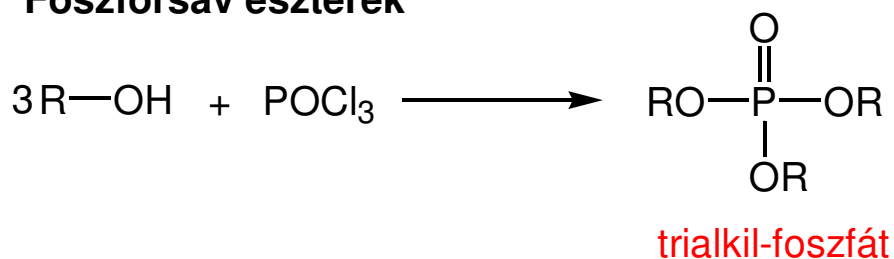
Salétromsav észterek



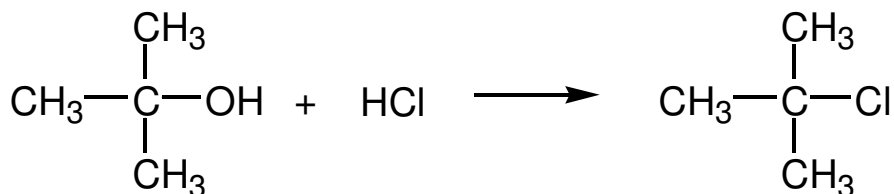
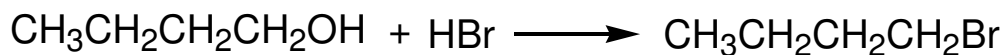
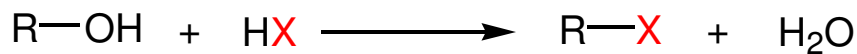
Kénsav észterek



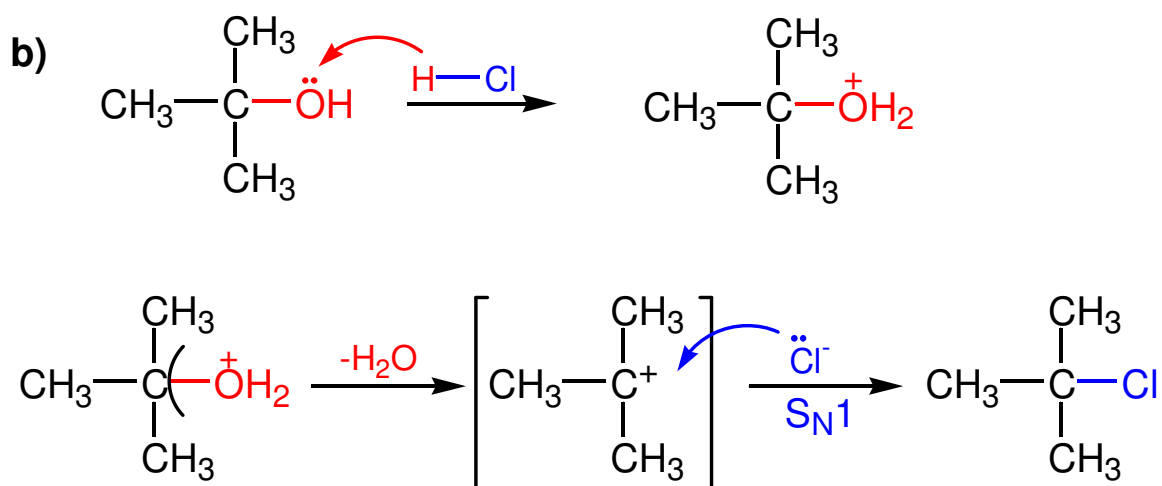
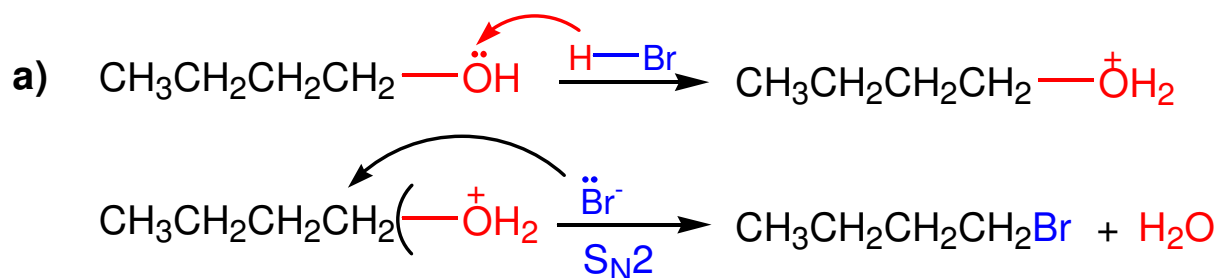
Foszforsav észterek



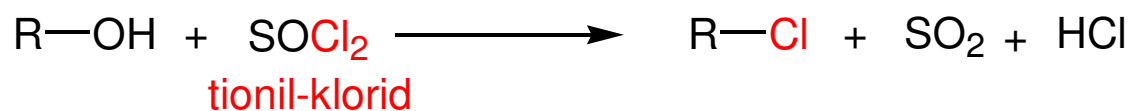
Alkil-halogenidek előállítása alkoholokból



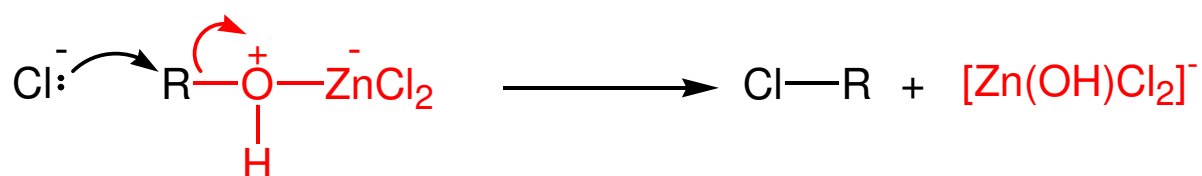
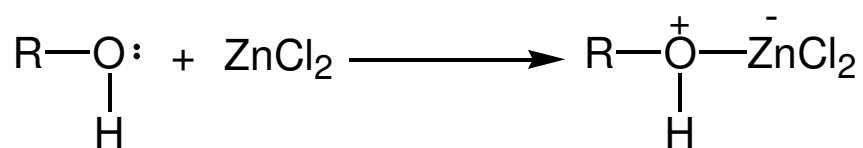
Mechanizmus



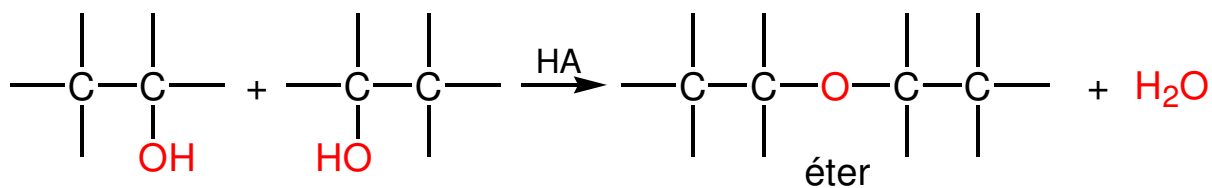
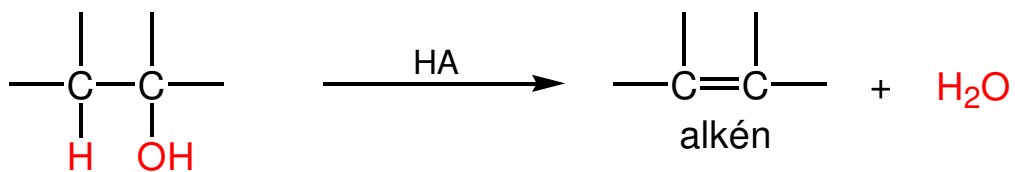
Egyéb halogénező reagensek



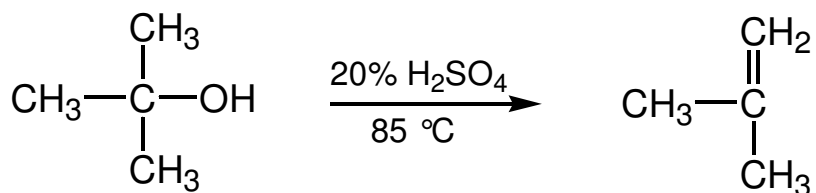
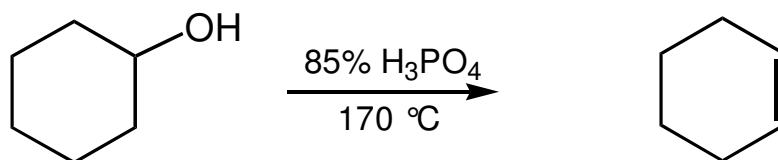
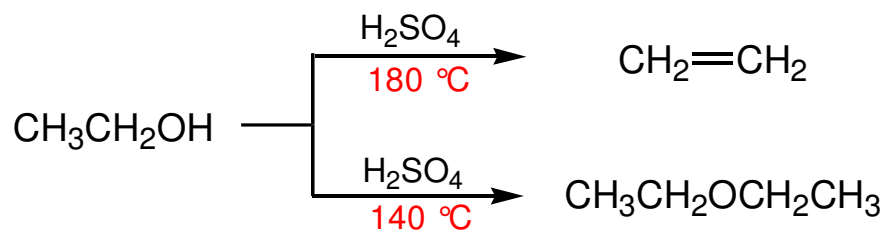
Lucas reagens; cc. HCl + ZnCl₂



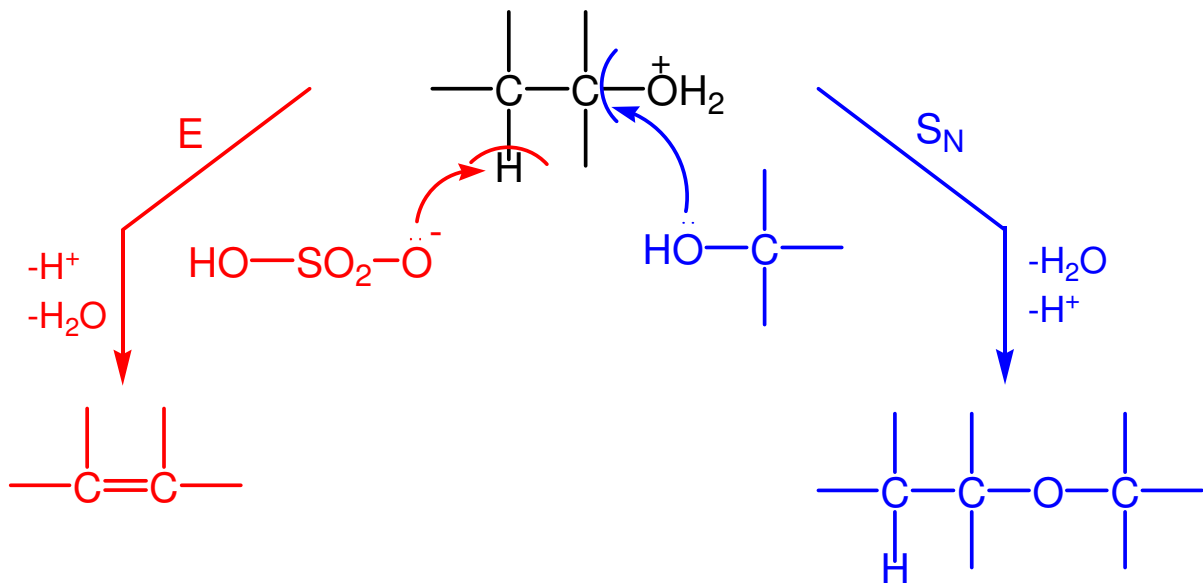
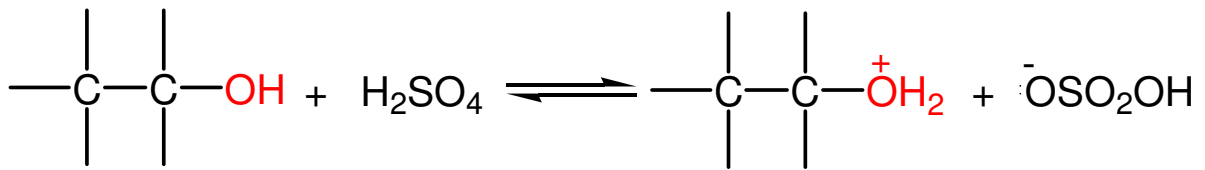
Az alkoholok dehidratálása



Példák



Mechanizmus

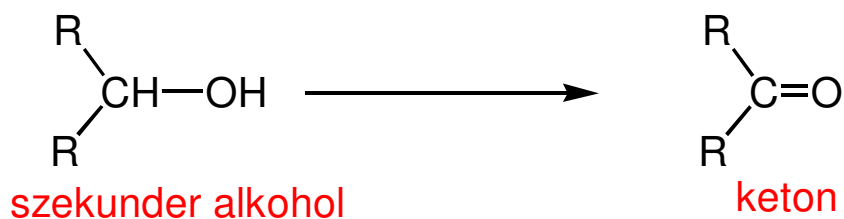
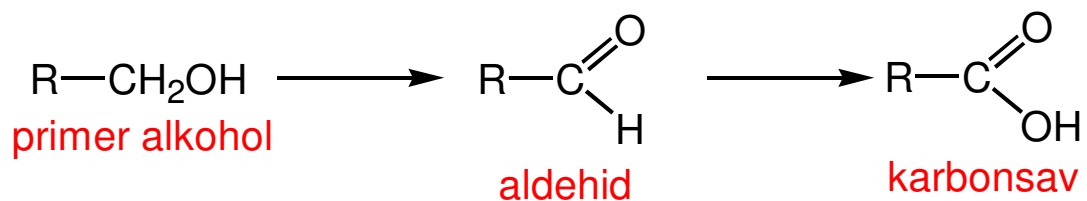


1. Primer alkohol \longrightarrow éter ($\text{S}_\text{N}2$), alkén (E_2)
(hőmérsékletfüggés)

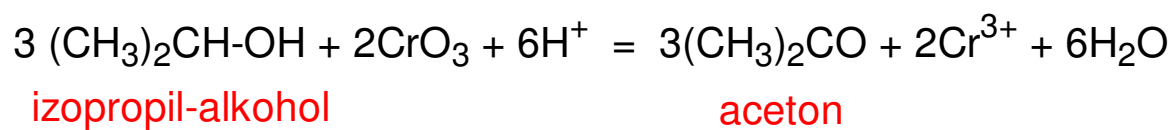
2. Szekunder alkohol \longrightarrow **alkén**, éter

3. Tercier alkohol \longrightarrow alkén (E_1)

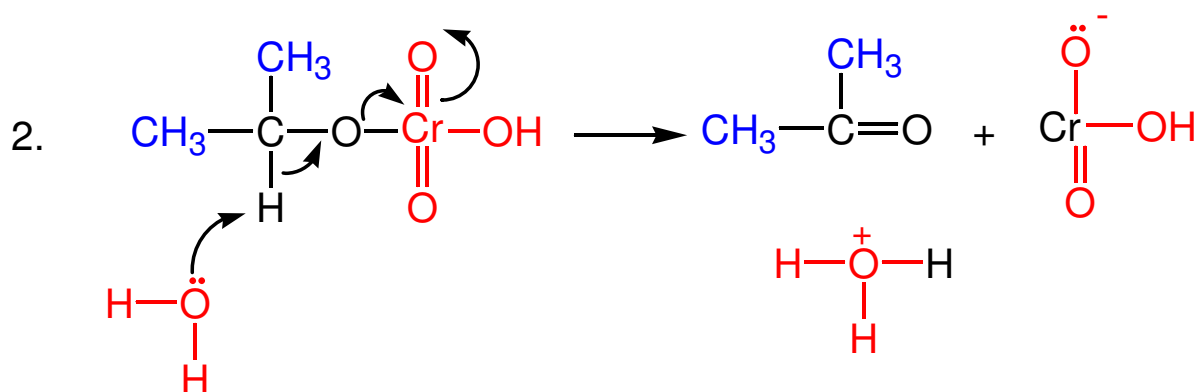
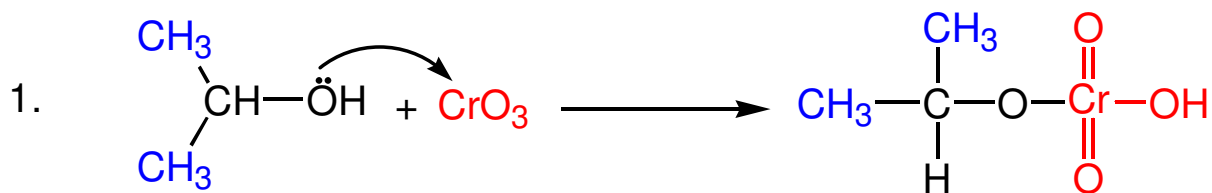
Az alkoholok oxidációja



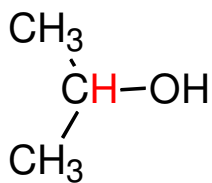
oxidálószer: CrO_3 , $\text{Na}_2\text{Cr}_2\text{O}_7$, KMnO_4



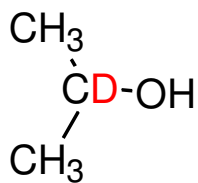
A króm-trioxidos oxidáció mechanizmusa



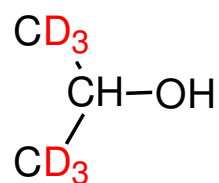
kinetikai izotópeffektus



k_{rel} 1

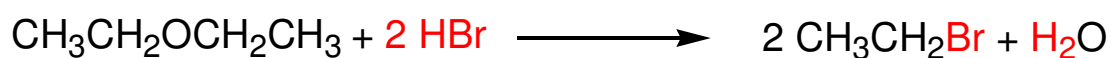
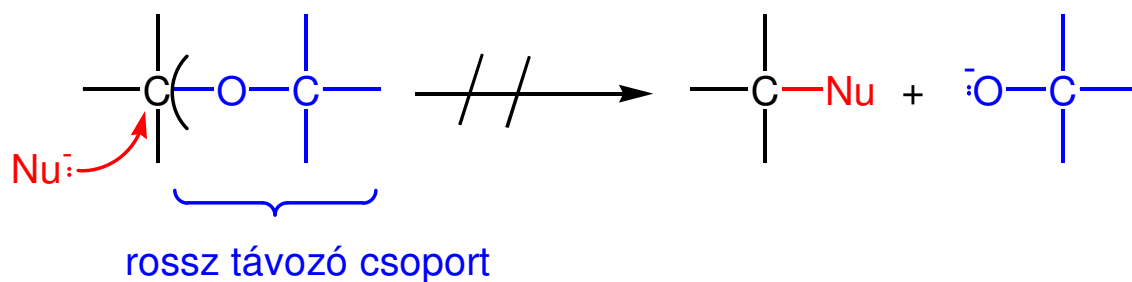


0.16

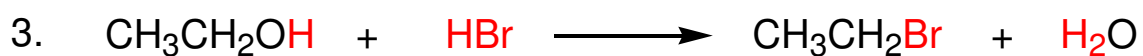
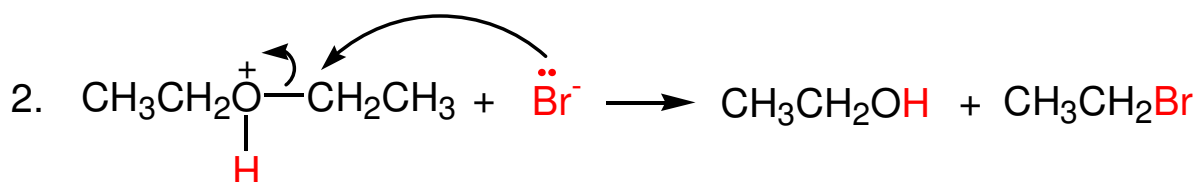
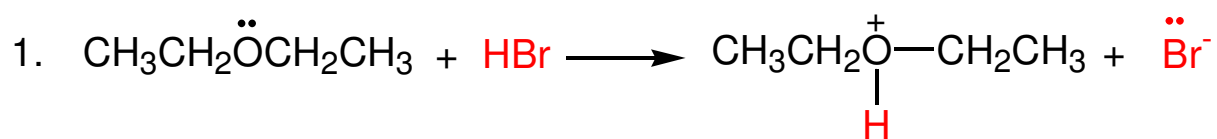


1

Az éterkötés hasítása

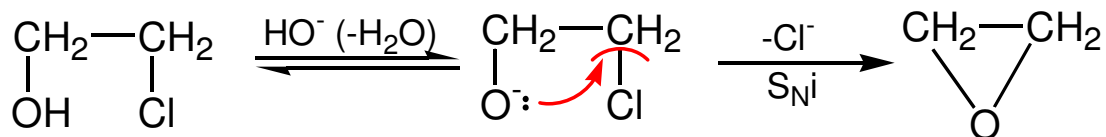


Mechanizmus



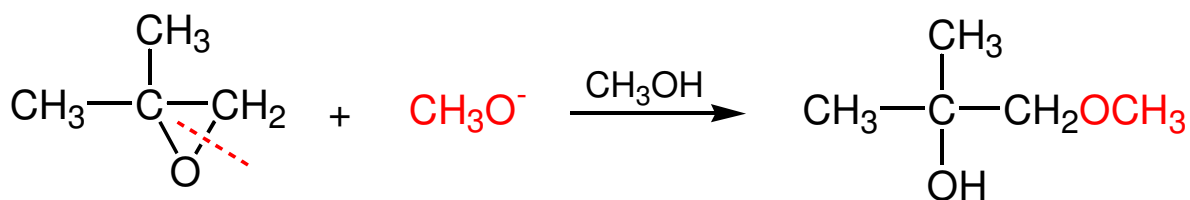
Epoxidok (oxiránok)

Előállítás

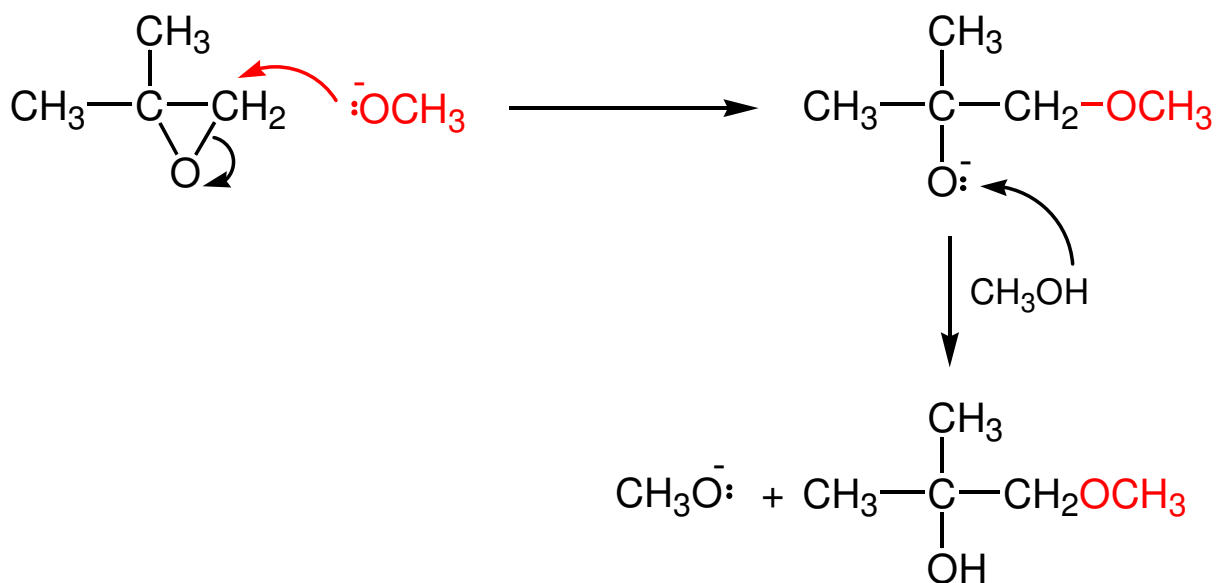


Az epoxidok hasítása

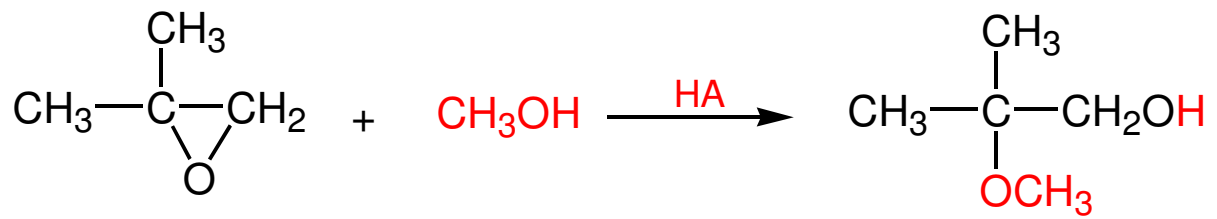
A) Bázikus közeg



Mechanizmus (S_N2)



A) Savas közeg



Mechanizmus (S_N1)

