Kapitel 8
Alkohole, Ether, Amine

Nomenklatur Alkohole

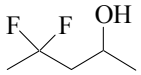
Name = KW-Stamm + [Position OH-Gruppe]-ol
Name = [Position OH-Gruppe]-„Hydroxy“ + KW-Stamm

Beispiele

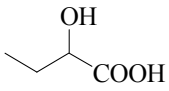
Methanol
(prim. Alkohol)

1-Propanol

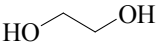
2-Propanol
(sek. Alkohol)



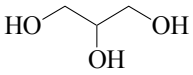
4,4-Difluorpentan-2-ol



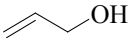
2-Hydroxybuttersäure



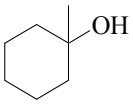
Glycol



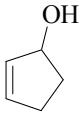
Glycerin



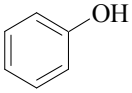
Allylalkohol



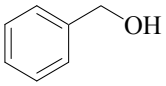
1-Methylcyclohexanol
(tert. Alkohol)



2-Cyclopentenol



Phenol

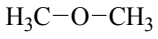


Benzylalkohol

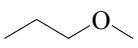
Nomenklatur Ether

Name = KW-Stämme + „yl“ + ether
Name = [Position RO-Gruppe]-Alkoxy + KW-Stamm

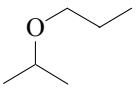
Beispiele



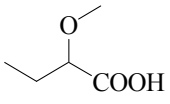
Dimethylether



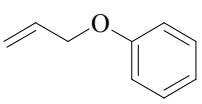
Methyl-propylether



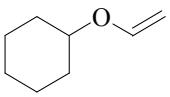
1-Propyl-2-propylether



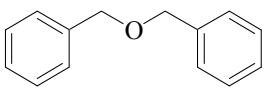
2-Methoxybuttersäure



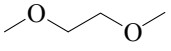
Allyl-phenylether



Cyclohexyl-vinylether



Dibenzylether

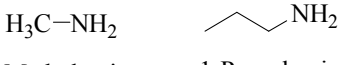


1,2-Dimethoxyethan
Glycoldimethylether

Nomenklatur Amine

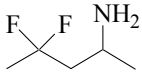
Name = KW-Stamm + [Position NH_2-Gruppe]-amin
Name = [Position NH_2-Gruppe]-„Amino“ + KW-Stamm

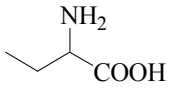
Beispiele

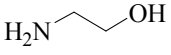

Methylamin (prim. Amin)

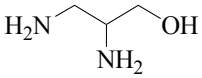
1-Propylamin

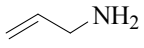

2-Propylamin

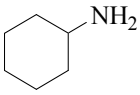

4,4-Difluor-2-pentylamin

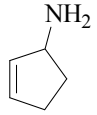

2-Aminobuttersäure

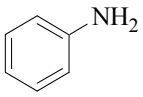

2-Aminoethanol

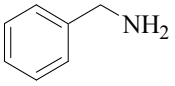

2,3-Diaminopropanol

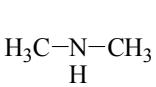

Allylamin

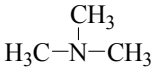

Cyclohexylamin

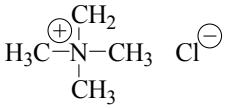

Cyclopent-2-enylamin


Anilin

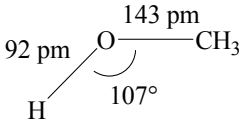

Benzylamin

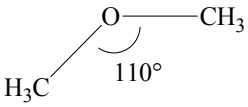

Dimethylamin (sek. Amin)

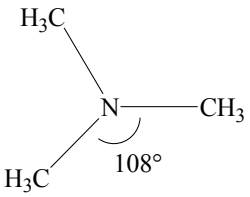

Trimethylamin (tert. Amin)


Tetramethylammonimchlorid (quart. Ammoniumsalz)

Allgemeine Eigenschaften







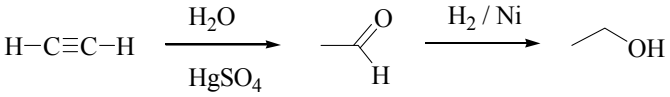
Alkohole: hohe Siedepunkte wg. H-Brücken	MeOH	Kp 64.7°C
Ether: niedrige Siedepunkte	Me_2O	Kp -24.0°C
Amine: mittlere Siedepunkte	Me_2NH	Kp 6.9°C

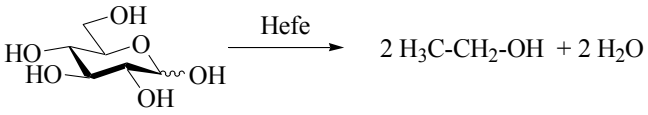
Alkohole

pK_S-Werte	aliphatische Alkohole: 16-18	MeOH	16
	aromatische Alkohole: 10-16	Phenol	10

Darstellung

Technische Synthesen: $CO + 2H_2 \rightarrow MeOH$ (Kat. ZnO)

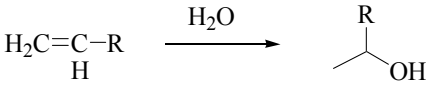




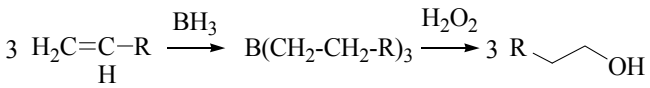
D-Glucose $C_6H_{12}O_6$

Gärung:

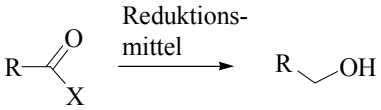
Chemische Synthesen:



Markovnikov Addition

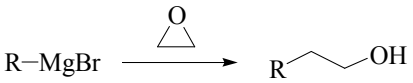


Anti-Markovnikov Addition

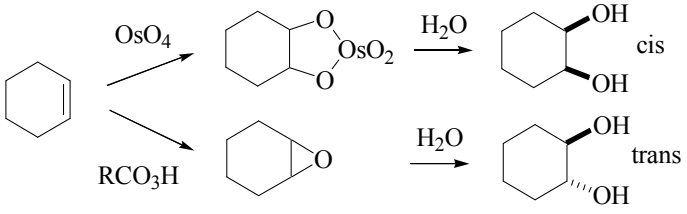


Reduktion von Carbonylverbindungen

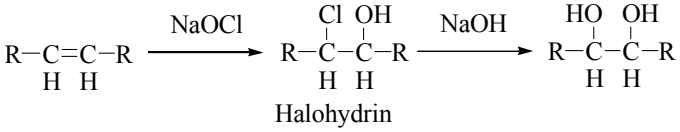
X = H, OR' $LiAlH_4$
X = H $NaBH_4$



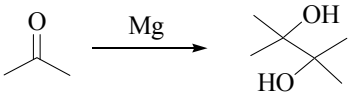
Addition von Grignardverbindungen an Ethylenoxid (Oriran)



Dihydroxylierung

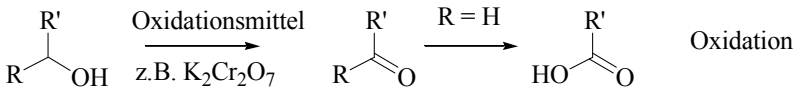


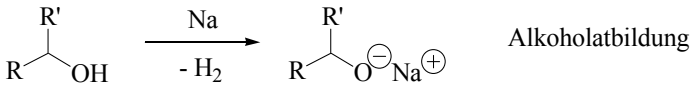
Halohydrin

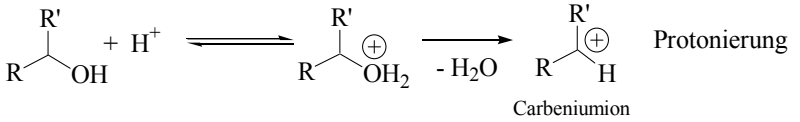


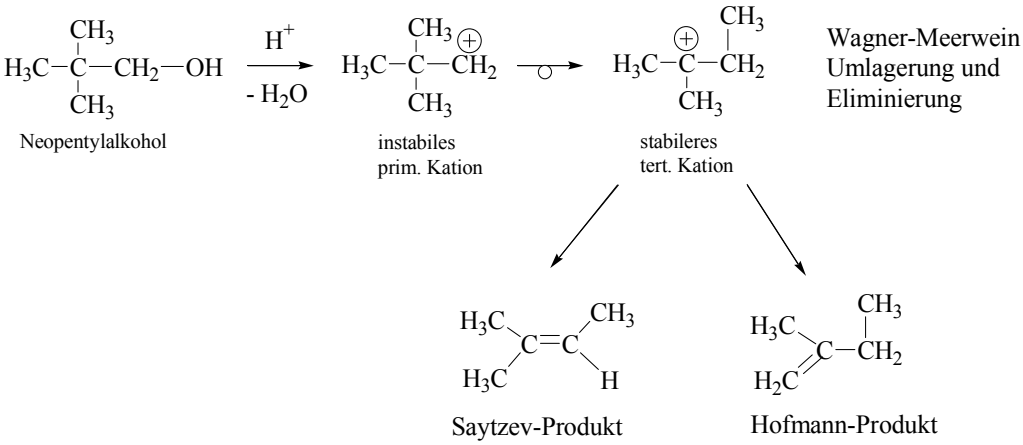
Pinakol-Reaktion

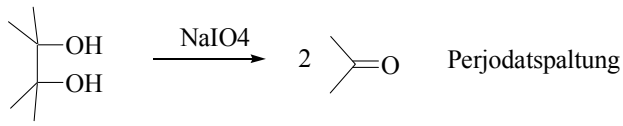
Reaktionen





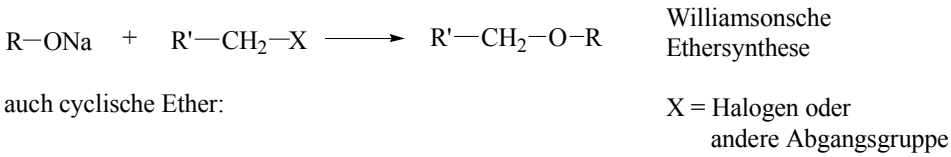


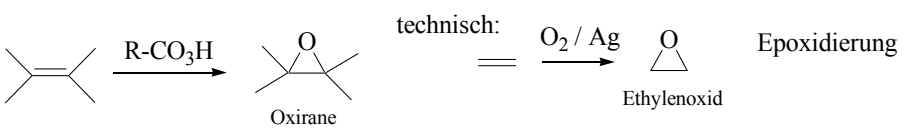


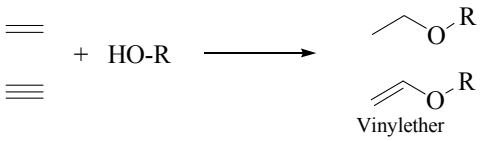


Ether

Darstellung



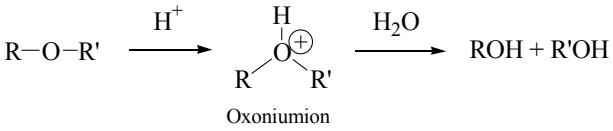




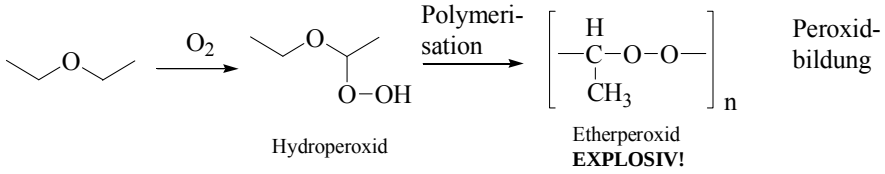
Addition von ROH an Alkene und Alkine

Etherspaltung

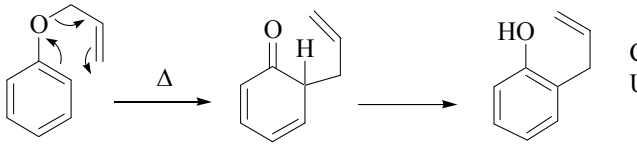
Ether sind im alkalischen stabil aber werden mit Säuren gespalten



Reaktionen



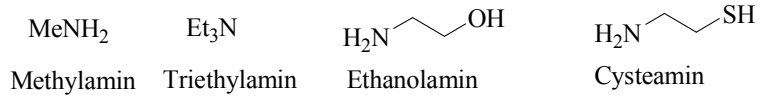
Peroxid-bildung



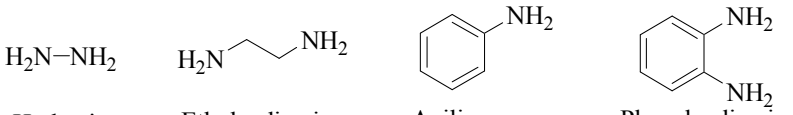
Claisen-Umlagerung

Amine

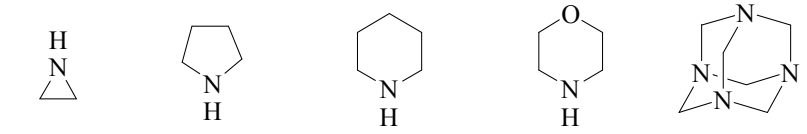
Wichtige Amine



Methylamin Triethylamin Ethanolamin Cysteamin

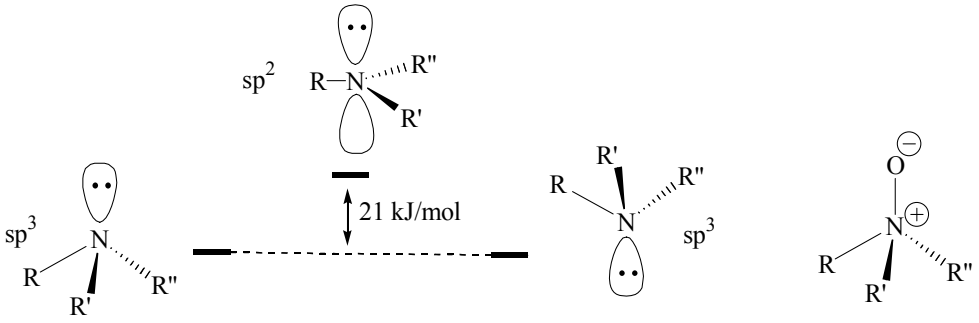


Hydrazin Ethylendiamin Anilin Phenylendiamin



Aziridin Pyrrolidin Piperidin Morpholin Urotropin

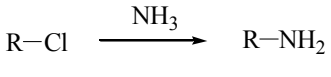
Struktur



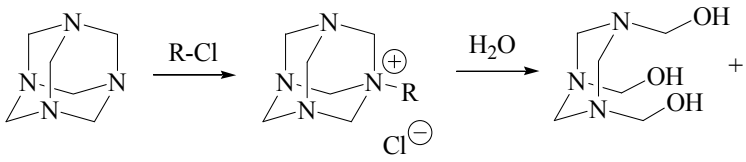
Amine können chiral sein, sind jedoch wegen der geringen Konversionsbarriere nicht konfigurationsstabil

Amin-N-oxide sind konfigurationsstabil

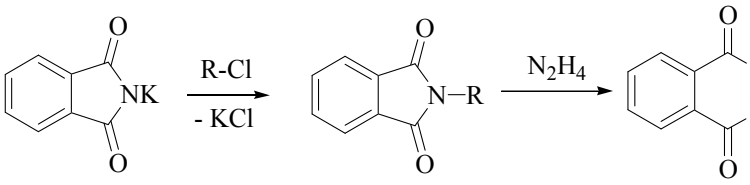
Darstellung



Alkylierung von Ammoniak
auch sek. und tert. Amine werden gebildet

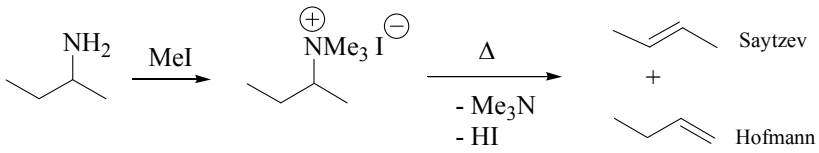


via
Urotropin



Gabriel-
Synthese

Reaktionen



Eliminierung
über quart.
Ammoniumsalze
(Hofmann-Eliminierung)