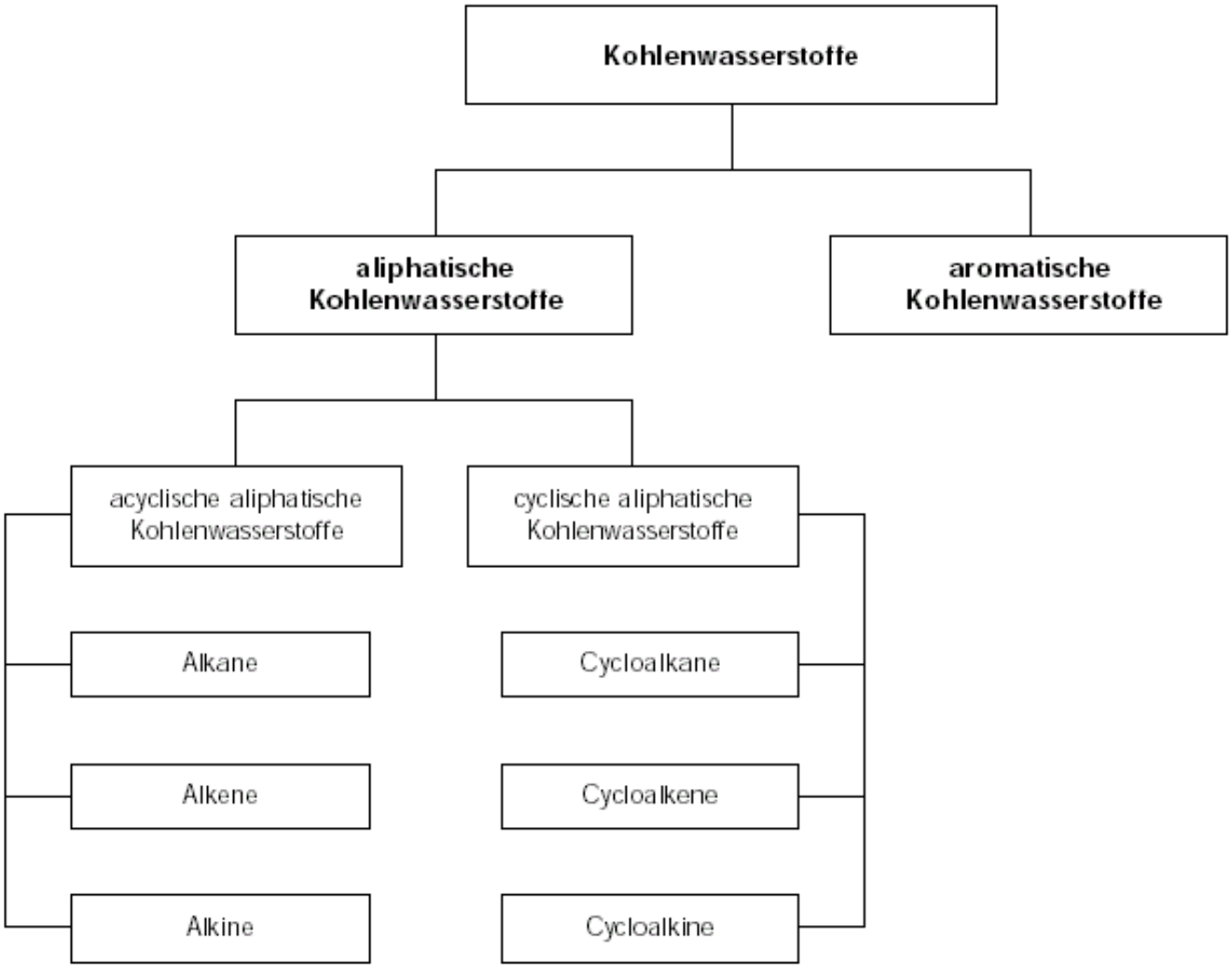


Grundlegende Einteilung der Kohlenwasserstoffe

Beispiele für verschiedene Kohlenwasserstofftypen mit 6 C-Atomen

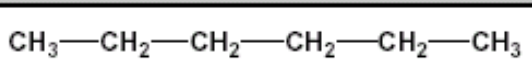
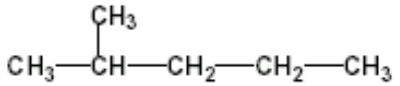
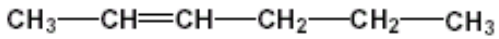
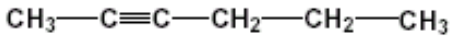
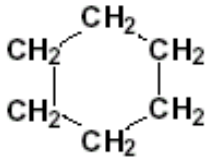
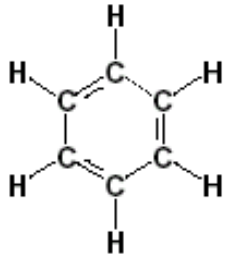
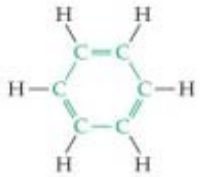
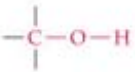
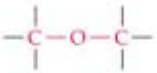
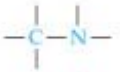
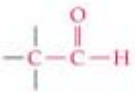
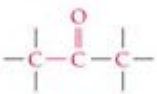
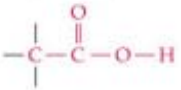
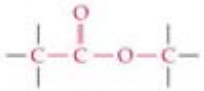
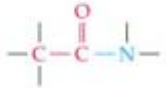
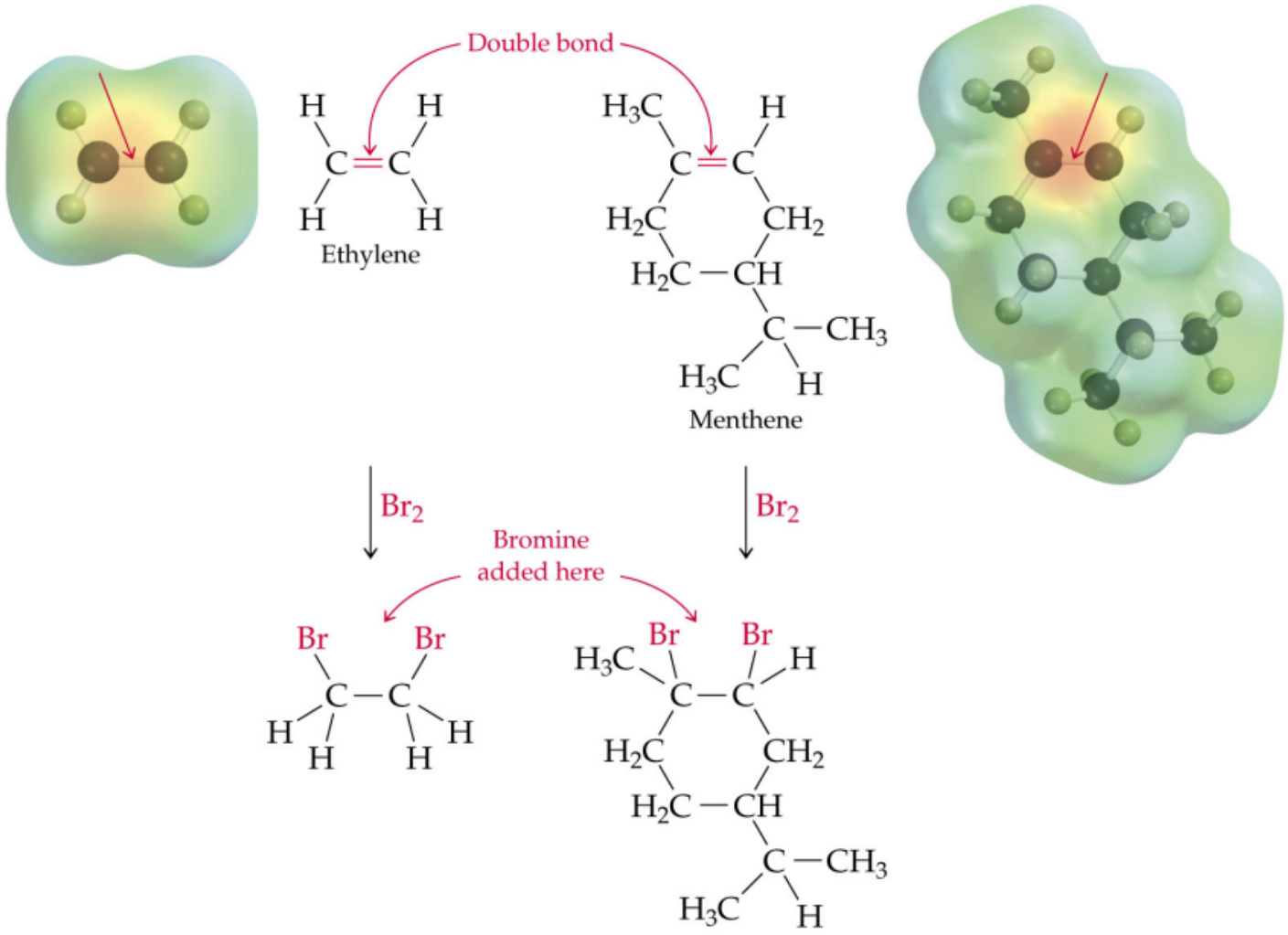
Stoffklasse	Name	Strukturformel
n-Alkan	Hexan	
iso-Alkan	2-Methylpentan	
n-Alken	Hexen-2	
n-Alkin	Hexin-2	
Cycloalkan	Cyclohexan	
aromatischer Kohlenwasserstoff	Benzol	

TABLE 23.2 Some Important Families of Organic Molecules

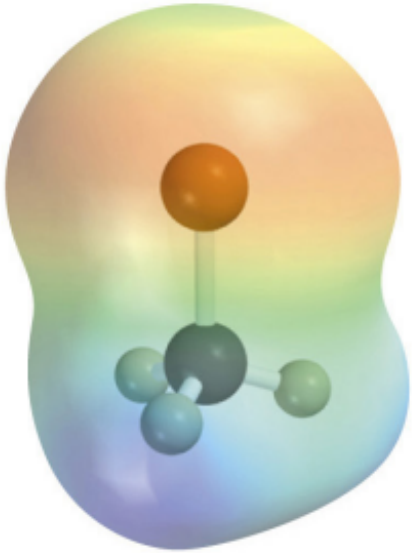
Family Name	Functional Group Structure	Simple Example	Name	Name Ending
Alkane	(contains only C—H and C—C single bonds)	CH_3CH_3	Ethane	*-ane*
Alkene		$H_2C{=}CH_2$	Ethene (Ethylene)	*-ene*
Alkyne		$H{-}C{\equiv}C{-}H$	Ethyne (Acetylene)	*-yne*
Arene (aromatic)			Benzene	None
Alcohol		CH_3OH	Methanol	*-ol*
Ether		CH_3OCH_3	Dimethyl ether	*ether*
Amine		CH_3NH_2	Methylamine	*-amine*
Aldehyde			Ethanal (Acetaldehyde)	*-al*
Ketone			Propanone (Acetone)	*-one*
Carboxylic acid			Ethanoic acid (Acetic acid)	*-oic acid*
Ester			Methyl ethanoate (Methyl acetate)	*-oate*
Amide			Ethanamide (Acetamide)	*-amide*

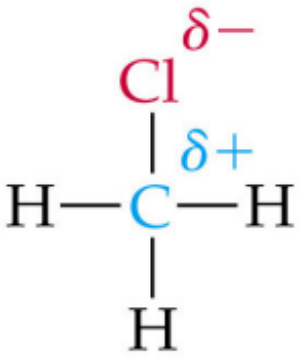
*The bonds whose connections aren't specified are assumed to be attached to carbon or hydrogen atoms in the rest of the molecule.

2 Beispiele für die Addition von Brom an Doppelbindungen

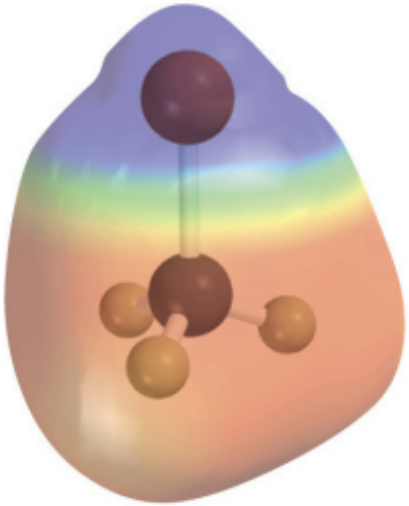


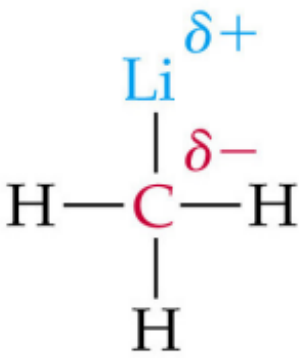
Beispiele für polare kovalente Bindungen





Chloromethane, CH_3Cl
(electron-poor carbon)

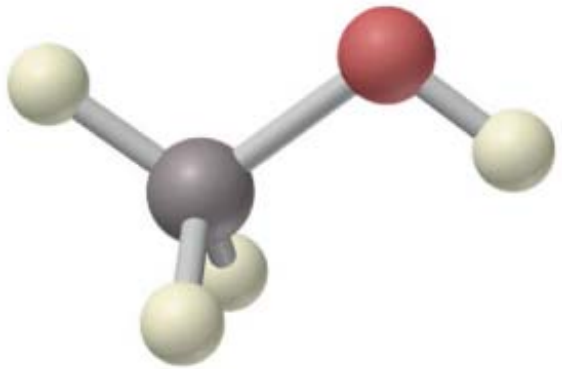




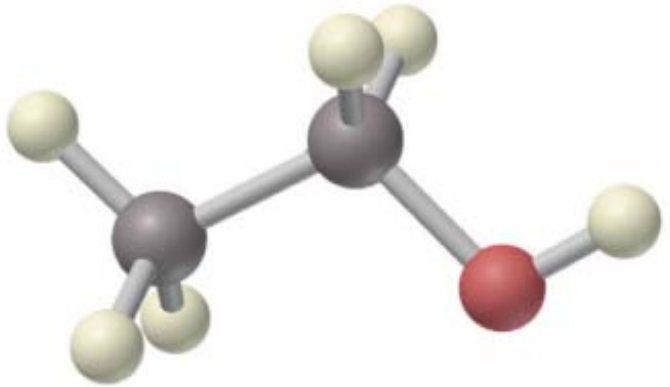
Methyllithium, CH_3Li
(electron-rich carbon)

Beispiele für die Herstellung von Methanol bzw. Ethanol

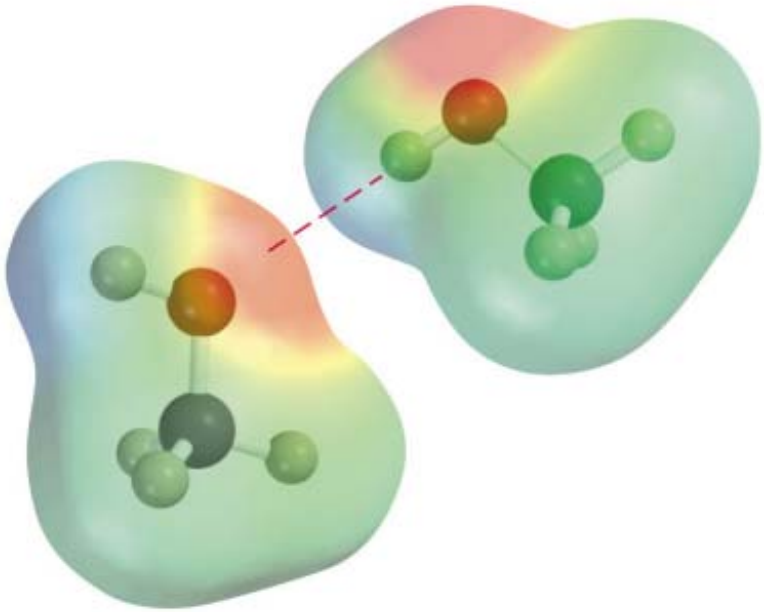
$$CO + 2\,H_2 \xrightarrow[ZnO/Cr_2O_3\ \text{catalyst}]{400^\circ C} CH_3OH$$

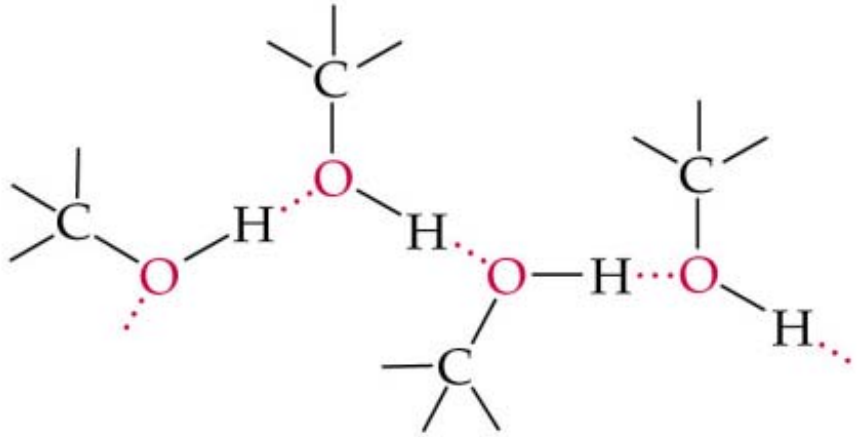


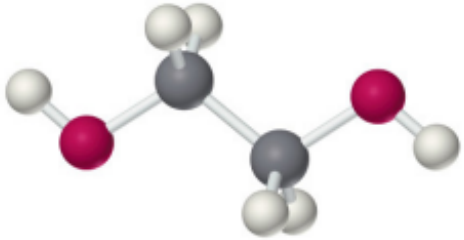
$$\underset{\text{Glucose}}{C_6H_{12}O_6} \xrightarrow{\text{Yeast}} 2\,CO_2 + 2\,\underset{\text{Ethanol}}{CH_3CH_2OH}$$



Wasserstoffbrücken im Methanol

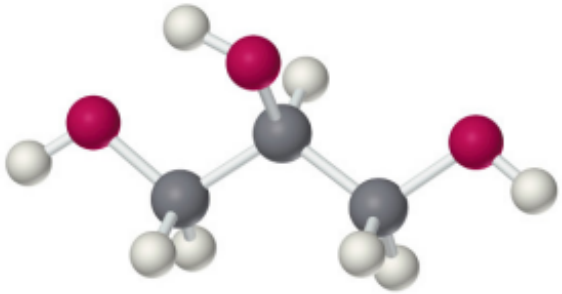






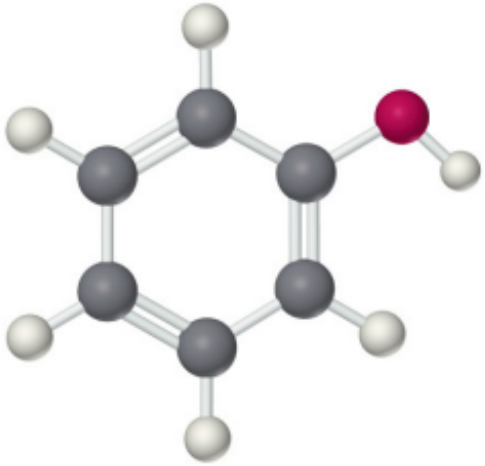
$HOCH_2CH_2OH$

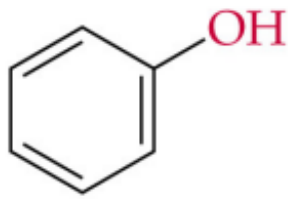
1,2-Ethanediol
(Ethylene glycol)



$HOCH_2\underset{\displaystyle OH}{\underset{|}{C}}HCH_2OH$

1,2,3-Propanetriol
(Glycerol)





Phenol

$CH_3CH_2OCH_2CH_3$

Diethyl ether