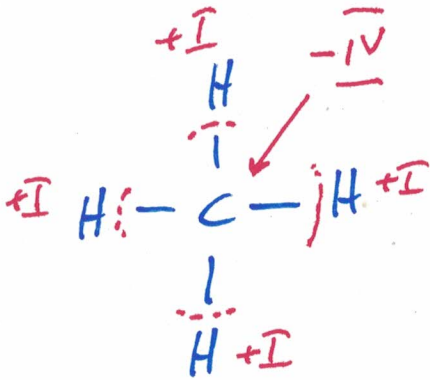


OC II

3-b

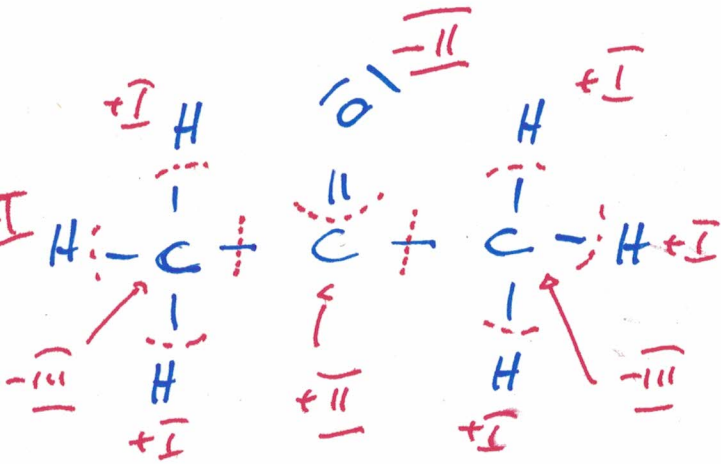
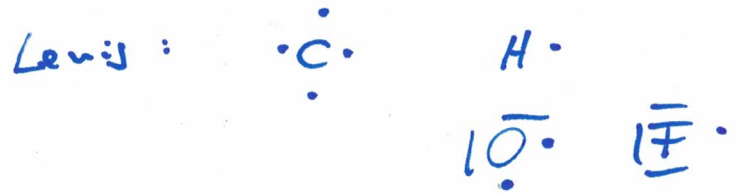
I

1. Oxidationszahlen

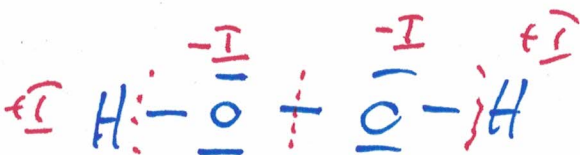
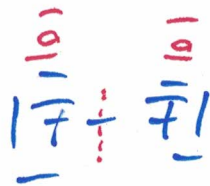
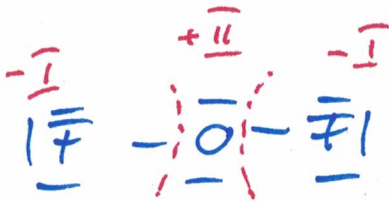


EN(H) = 2.2

EN(C) = 2.6



EN(O) = 3.4



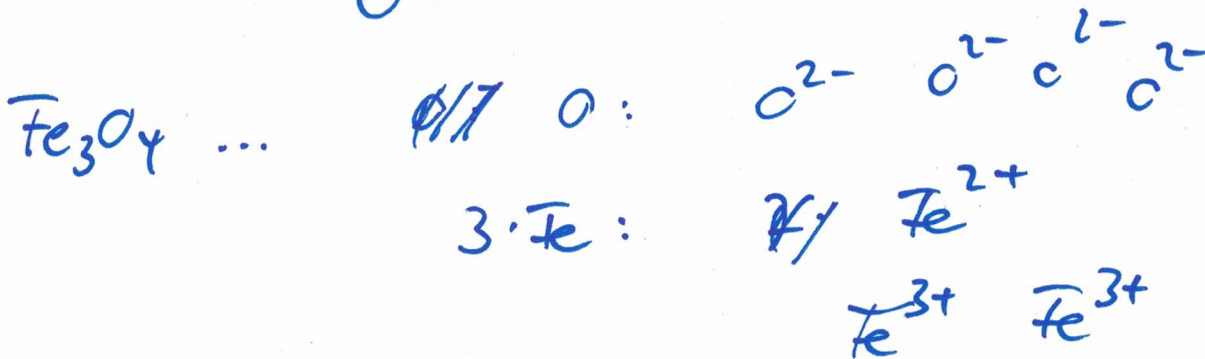
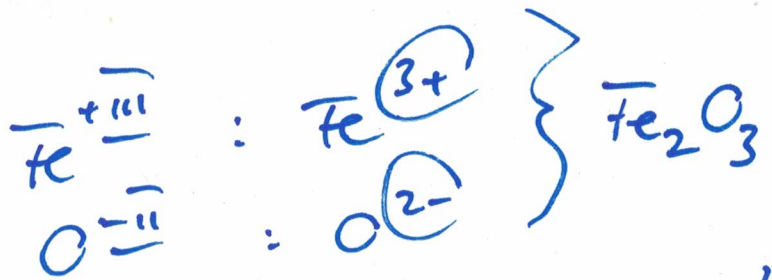
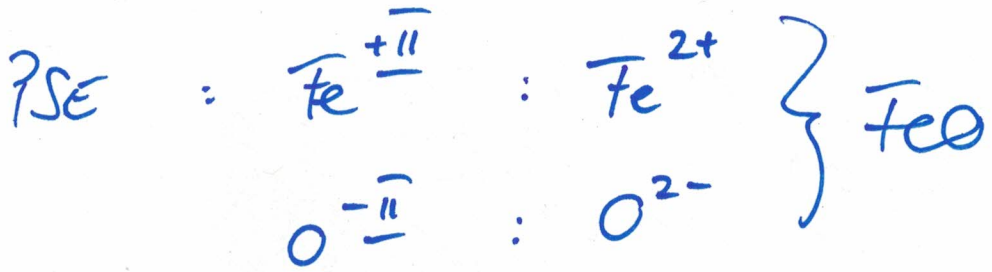
1.1. Oxidation

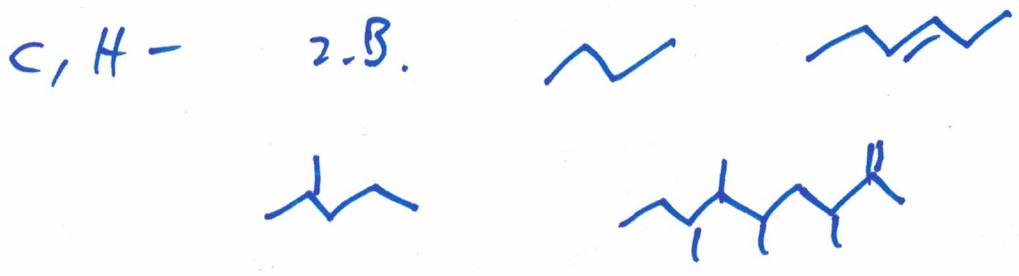
Def :

- Reaktion mit Sauerstoff
- Abgabe von Elektronen

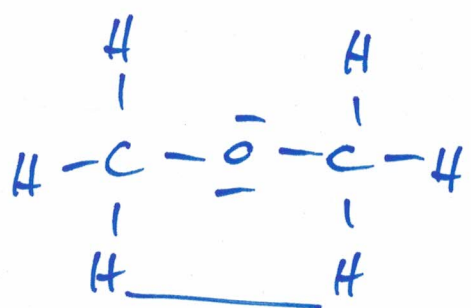
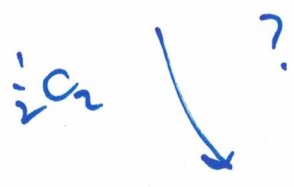
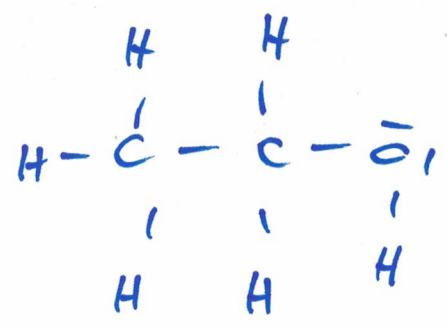
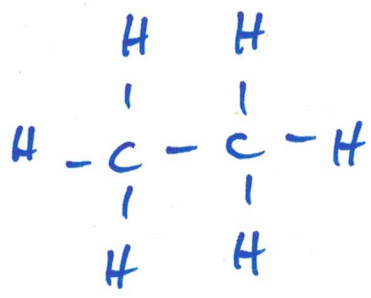
Bsp. Rest (Fahrradbatterie)

Eisenoxid, FeO, Fe₂O₃

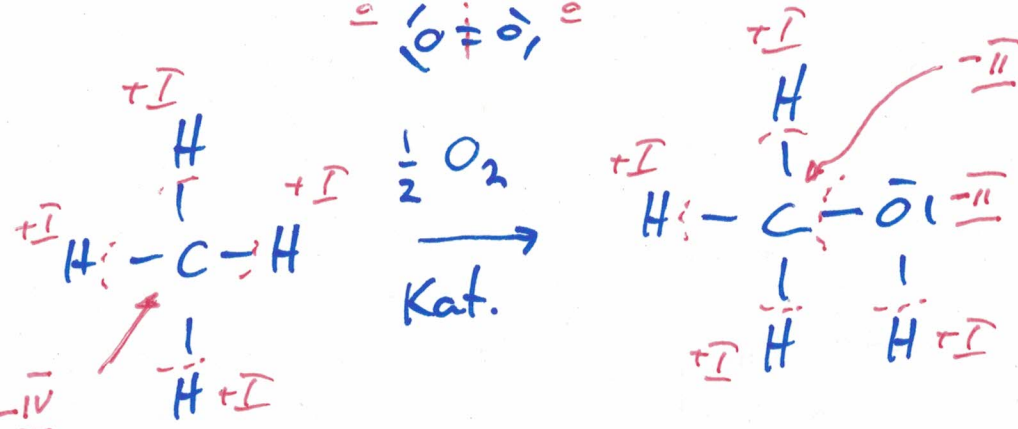




Verkommen: Erdöl



nein!



Alkan

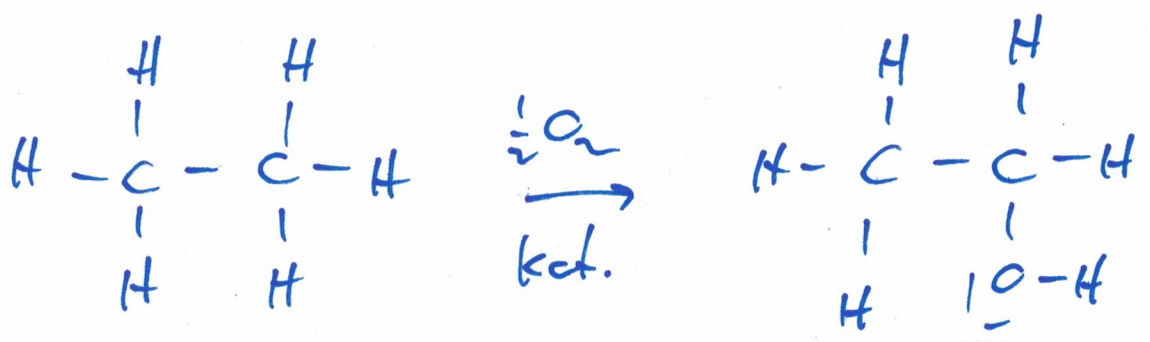
Alkohol

Oxidation \uparrow

Oxidation: $\text{C}(-IV) \rightarrow \text{C}(-II)$ (e^- -Abgabe)

$\text{O}(0) \rightarrow \text{O}(-II)$ (e^- -Aufnahme)

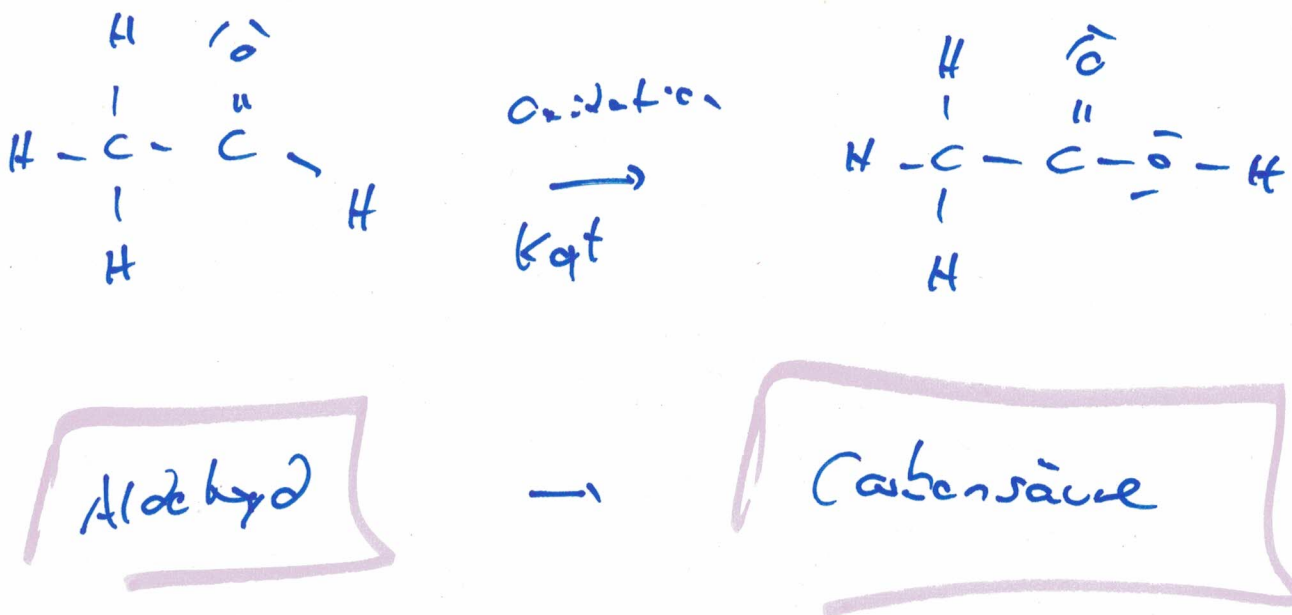
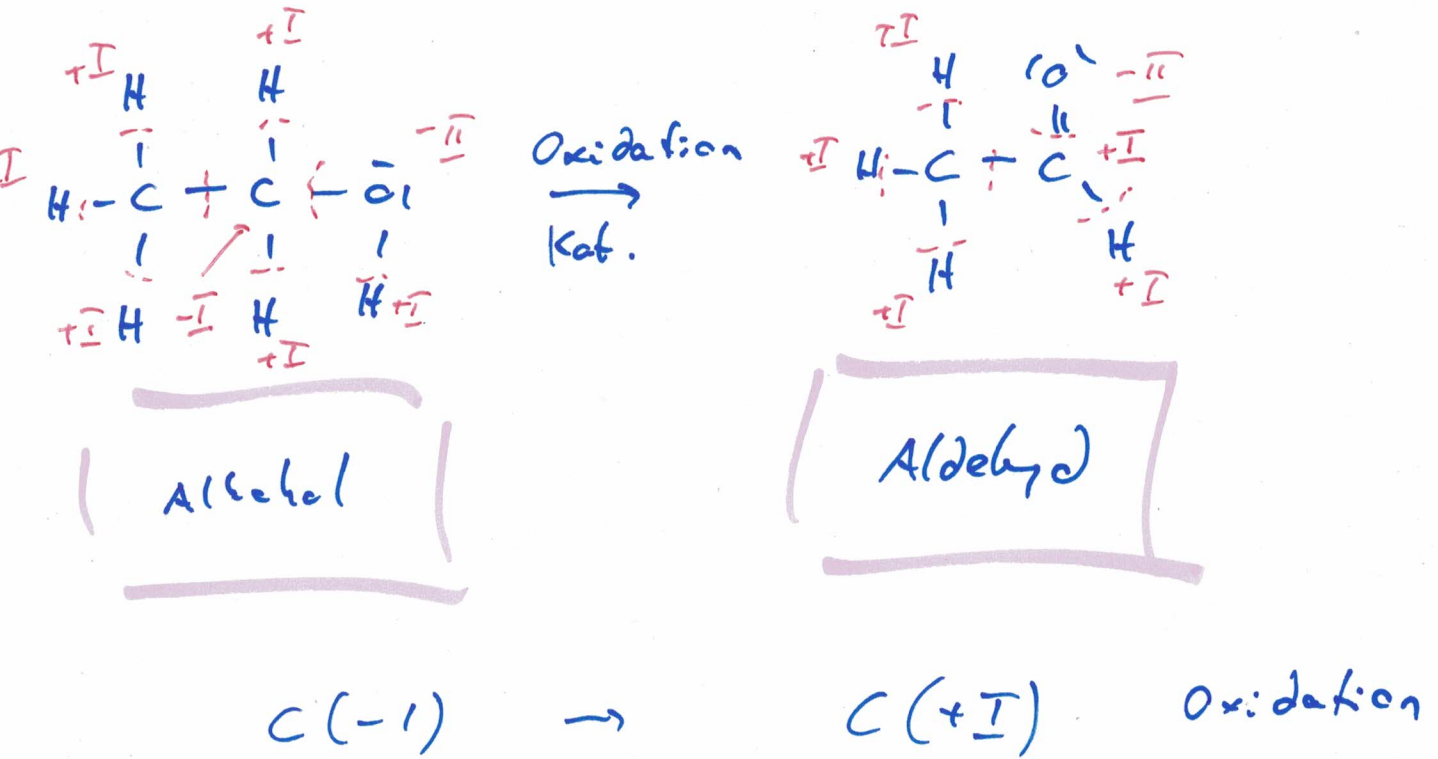
Reduktion \downarrow



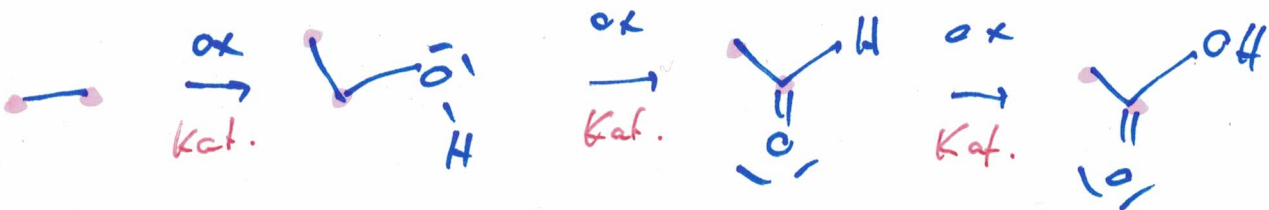
Ethan

Ethanol

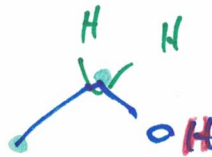
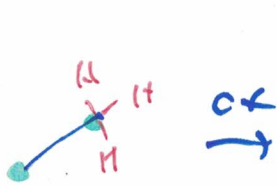
1.1 weitere Oxidationsstufe



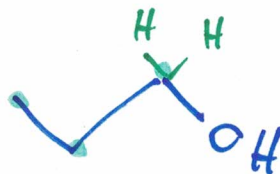
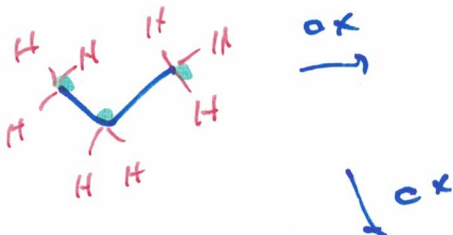
Bsp.



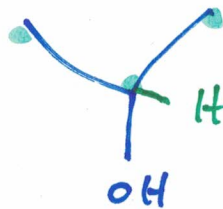
1.2. weitere/andere Alkohole



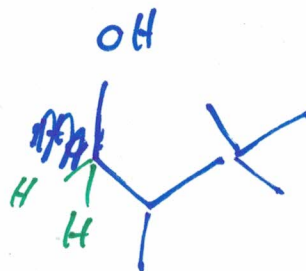
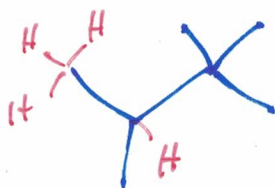
primäre Alkohol



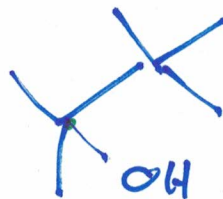
primäre Alkohol



sekundärer Alkohol



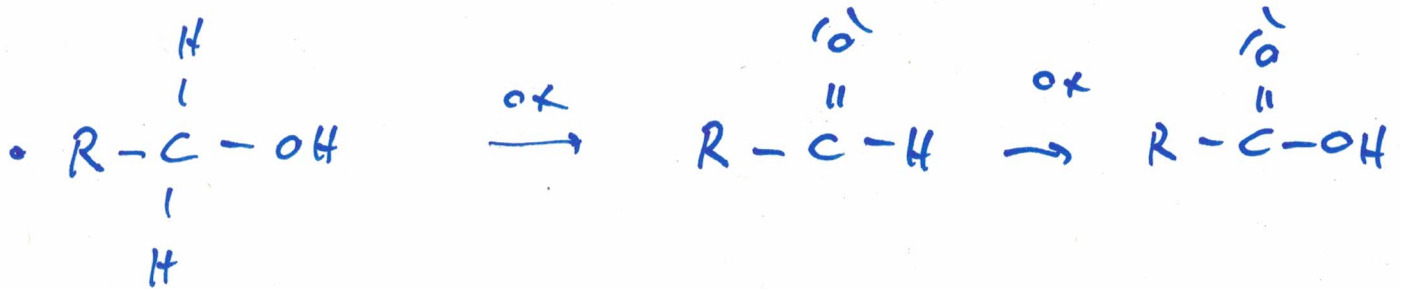
primäre Alkohol



tertiäre Alkohol

1.3 Oxidationsstrasse

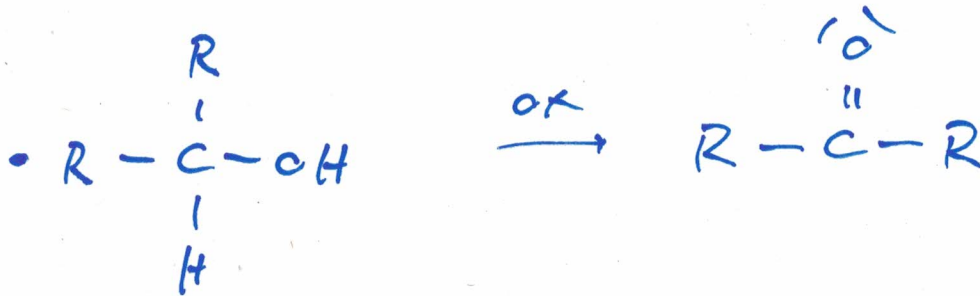
Notationshinweis: "R" : Rest aus C, H



primäres Alk.

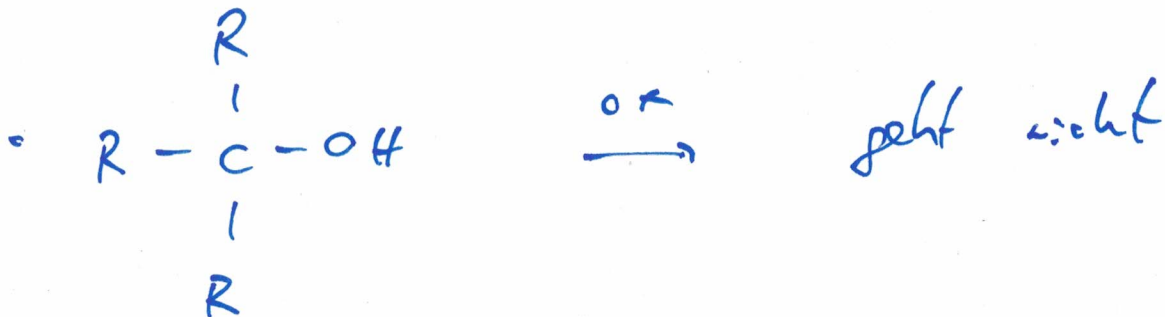
Aldehyd

Carbonsäure



sekundäres Alk.

Keton



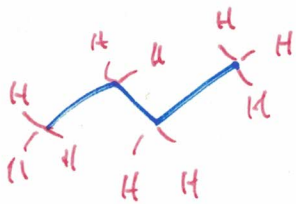
tertiäres Alk.

Stelle folgende Verbindungen nur durch Oxidation(en) her. Ausgangsprodukt sei jeweils ein Kohlen-Wasserstoff Gerüst

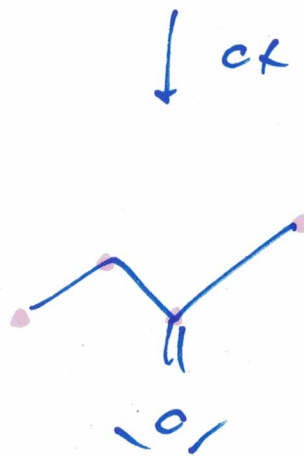
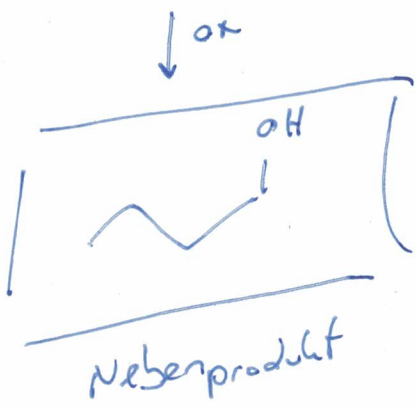
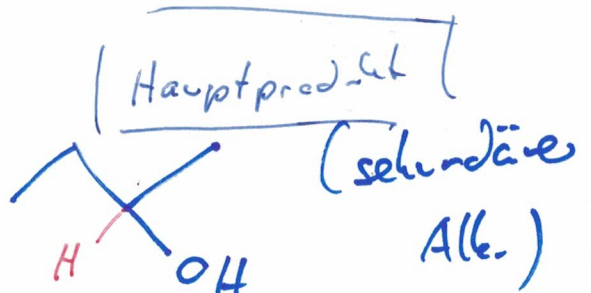
Bsp.



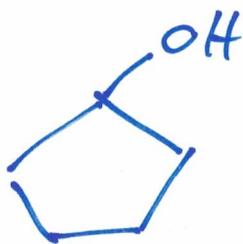
plt. Gruppe: Keton



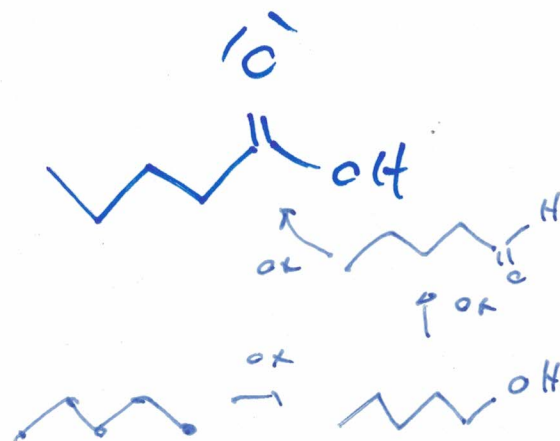
OK →



HA:

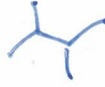


OK ↑



1.4 Anzahl C-Atome bleibt nicht konstant... :

z. B. Öl



Cracken



Kat.
→



+



"Reformieren"

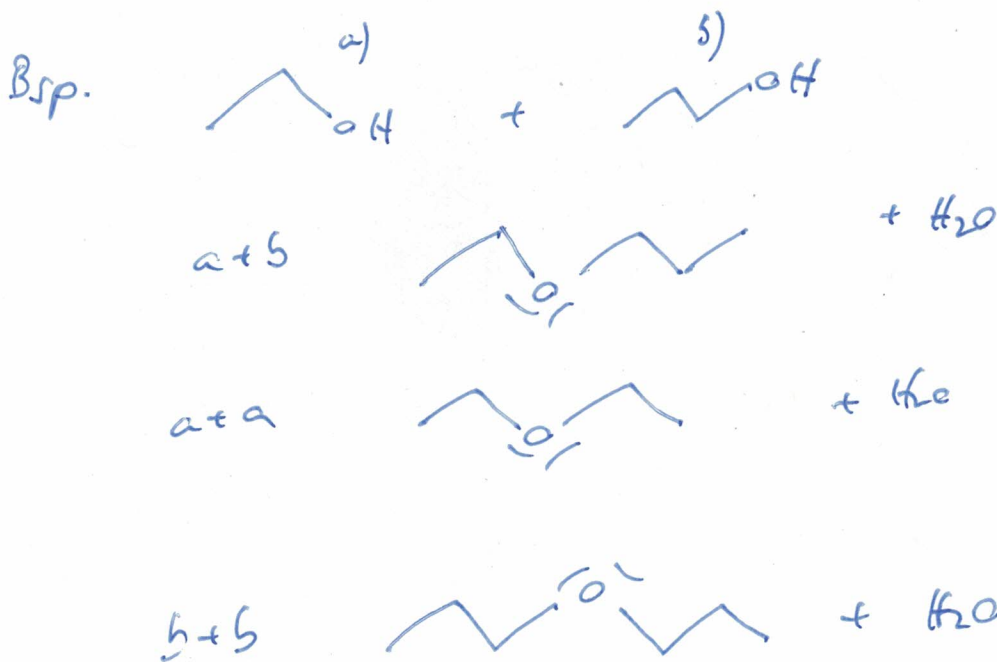
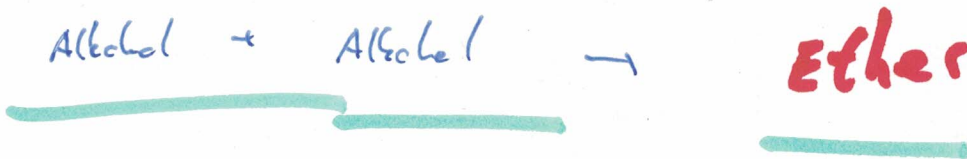


Kat.
→

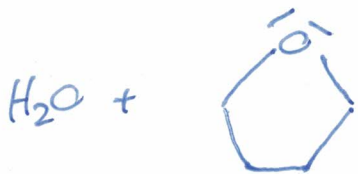


Exp. Fettbrand / wachse + the

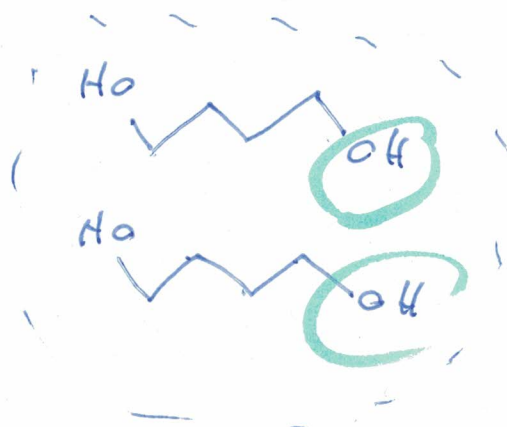
Kap. 1.5 Reaktionen der funkt. Gruppen untereinander



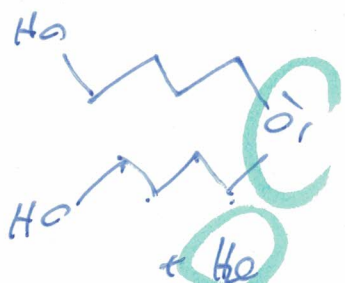
cyclischer Ether

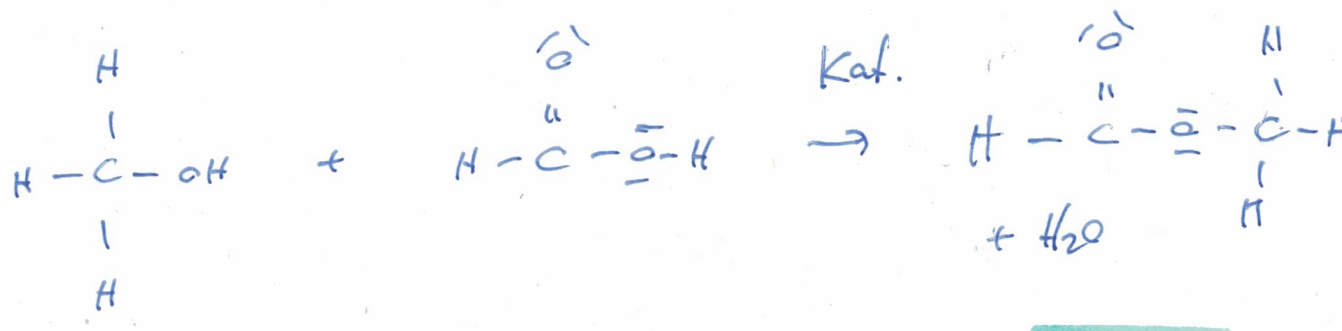


Neben-
produkt



z.B.



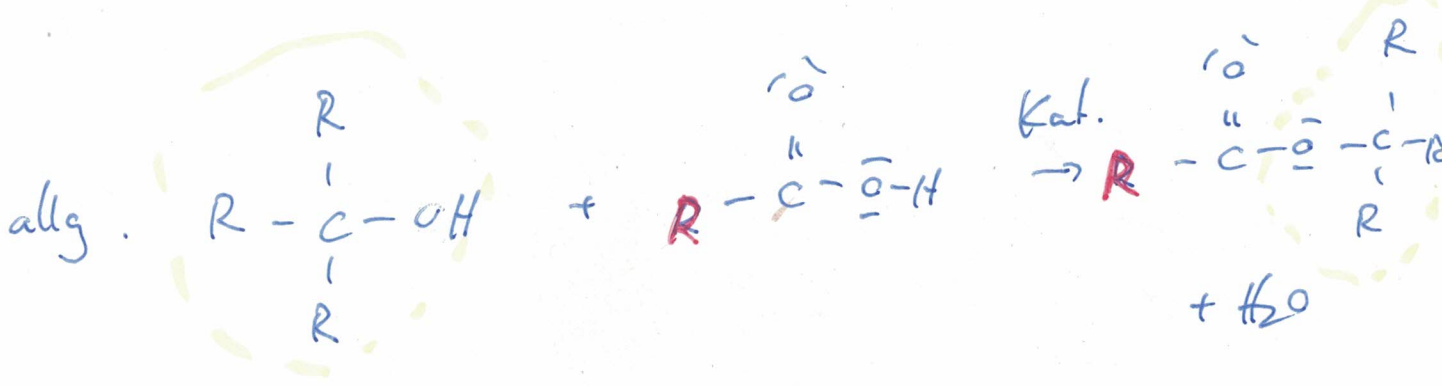


Alkohol

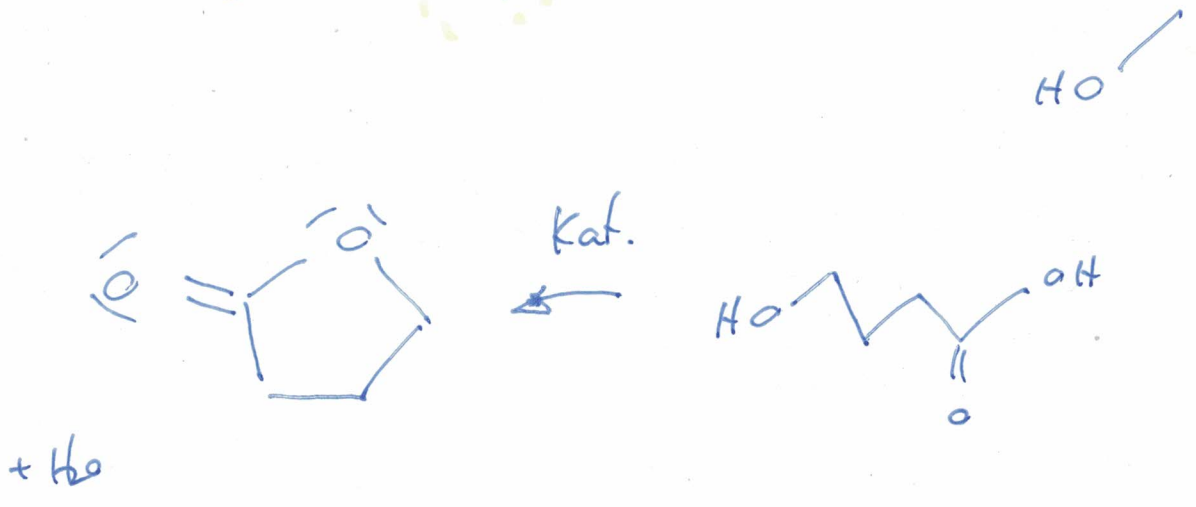
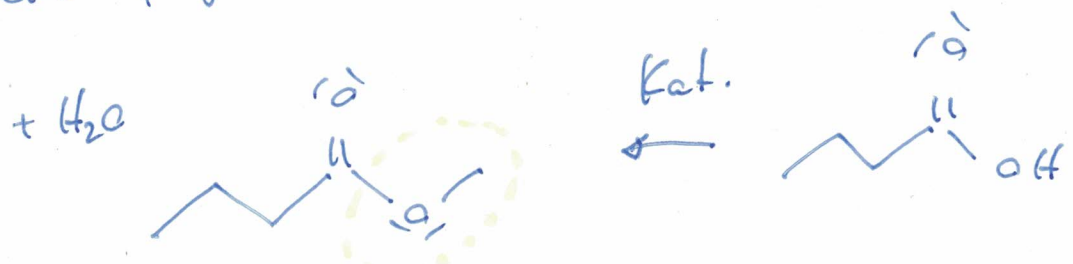
Carbonsäure

Ester

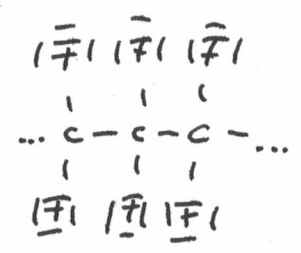
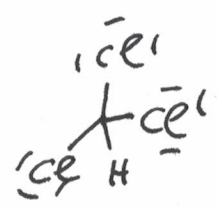
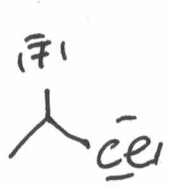
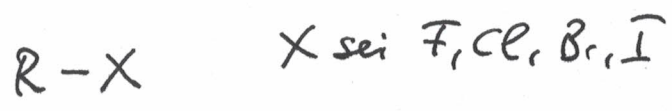
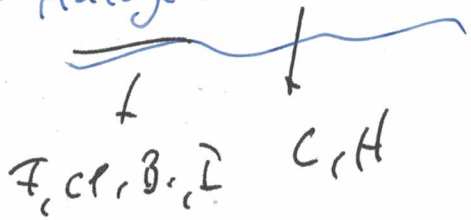
vgl. Labor: Aspirinsynthese



Stelle folgenden Ester her (aus Alkohol + Säure)



Halogenalkane



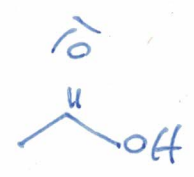
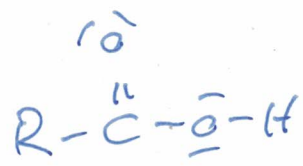
"FCKW"
 Fluor-Chlor-Kohlen-Wasserstoff
 Treibhausgas!

Chloroform

Teflon

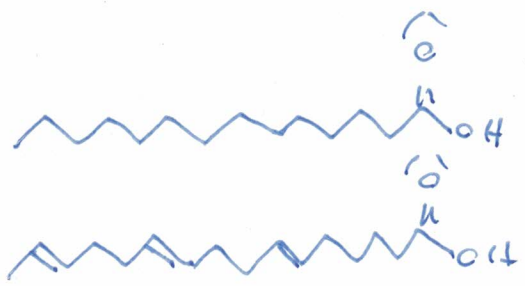
→ Ozonproblematik

Carbonsäuren z.B.



Schwefelsäure, saures Regen, Schmelzsäure ...
 pH = 7 ?

→ Kapitel 2



gesättigte Ölsäuren / Fettsäuren

ungesättigte Ölsäuren / Fettsäuren

↓
 heißt: mindestens
 eine Doppelbindung