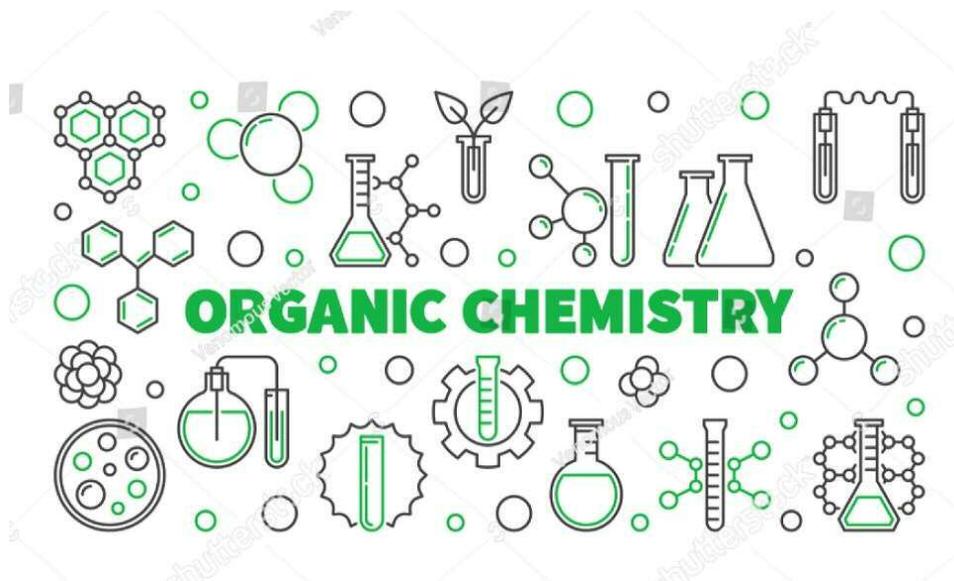


Einführung in die Organische Chemie



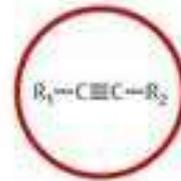
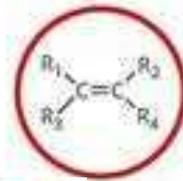
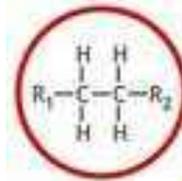
Prof. S. Schlücker

- 1. Funktionelle Gruppen: Übersicht Stoff-Vielfalt**
- 2. Reaktionstypen: Übersicht Transformations-Vielfalt**
- 3. Reaktionsmechanismen: Das passiert im Detail**

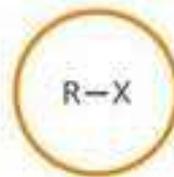
- 1. Funktionelle Gruppen: Übersicht Stoff-Vielfalt**
2. Reaktionstypen: Übersicht Transformations-Vielfalt
3. Reaktionsmechanismen: Das passiert im Detail

1. Funktionelle Gruppen

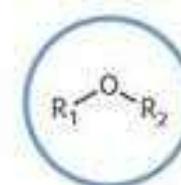
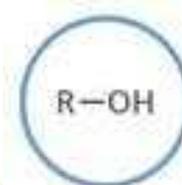
Kohlenwasserstoffe (CH)



Halogenverbindungen (CH+X)



Sauerstoffverbindungen (CH+O)



Carbonylverbindungen

Stickstoffverbindungen (CH+N)

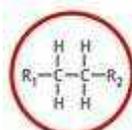


1. Funktionelle Gruppen

FUNCTIONAL GROUPS IN ORGANIC CHEMISTRY

FUNCTIONAL GROUPS ARE GROUPS OF ATOMS IN ORGANIC MOLECULES THAT ARE RESPONSIBLE FOR THE CHARACTERISTIC CHEMICAL REACTIONS OF THOSE MOLECULES. IN THE GENERAL FORMULAE SHOWN BELOW FOR EACH FUNCTIONAL GROUP, 'R' REPRESENTS THE REST OF THE MOLECULE, AND 'X' REPRESENTS ANY HALOGEN ATOM.

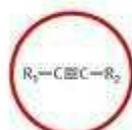
● HYDROCARBONS
 ● SIMPLE OXYGEN HETEROATOMICS
 ● HALOGEN HETEROATOMICS
 ● CARBONYL COMPOUNDS
 ● NITROGEN-BASED
 ● SULFUR-BASED
 ● AROMATIC



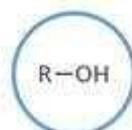
ALKANE
 Naming: -ane
 e.g. ethane



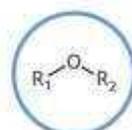
ALKENE
 Naming: -ene
 e.g. ethene



ALKYNE
 Naming: -yne
 e.g. ethyne



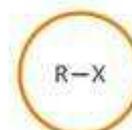
ALCOHOL
 Naming: -ol
 e.g. ethanol



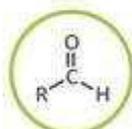
ETHER
 Naming: -oxy-ane
 e.g. methoxyethane



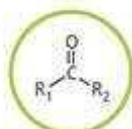
EPOXIDE
 Naming: -ene oxide
 e.g. ethene oxide



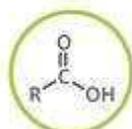
HALOALKANE
 Naming: halo-
 e.g. chloroethane



ALDEHYDE
 Naming: -al
 e.g. ethanal



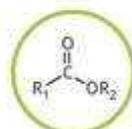
KETONE
 Naming: -one
 e.g. propanone



CARBOXYLIC ACID
 Naming: -oic acid
 e.g. ethanoic acid



ACID ANHYDRIDE
 Naming: -oic anhydride
 e.g. ethanoic anhydride



ESTER
 Naming: -yl -oate
 e.g. ethyl ethanoate



AMIDE
 Naming: -amide
 e.g. ethanamide



ACYL HALIDE
 Naming: -yl halide
 e.g. ethanoyl chloride



AMINE
 Naming: -amine
 e.g. ethanamine



NITRILE
 Naming: -nitrile
 e.g. ethanenitrile



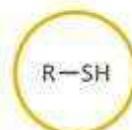
IMINE
 Naming: -imine
 e.g. ethanimine



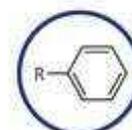
ISOCYANATE
 Naming: -yl isocyanate
 e.g. ethyl isocyanate



AZO COMPOUND
 Naming: -azo-
 e.g. azoethane



THIOL
 Naming: -thiol
 e.g. methanethiol



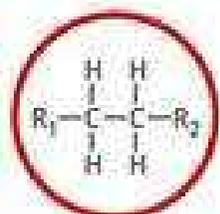
ARENE
 Naming: -yl benzene
 e.g. ethyl benzene

1. Funktionelle Gruppen

FUNCTIONAL GROUPS IN ORGANIC CHEMISTRY

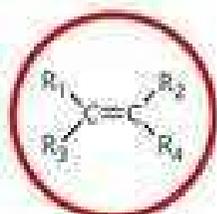
FUNCTIONAL GROUPS ARE GROUPS OF ATOMS IN ORGANIC MOLECULES THAT ARE RESPONSIBLE FOR THE CHARACTERISTIC CHEMICAL REACTIONS OF THOSE MOLECULES. IN THE GENERAL FORMULAE SHOWN BELOW FOR EACH FUNCTIONAL GROUP, 'R' REPRESENTS THE REST OF THE MOLECULE, AND 'X' REPRESENTS ANY HALOGEN ATOM.

● HYDROCARBONS:
 ● SIMPLE OXYGEN HETEROATOMICS:
 ● HALOGEN HETEROATOMICS:
 ● CARBONYL COMPOUNDS:
 ● NITROGEN-BASED:
 ● SULFUR-BASED:
 ● AROMATIC



ALKANE

Naming: -ane
e.g. ethane



ALKENE

Naming: -ene
e.g. ethene



ALKYNE

Naming: -yne
e.g. ethyne



ALCOHOL

Naming: -ol
e.g. ethanol



ETHER

Naming: -oxy-ane
e.g. methoxyethane



EPOXIDE

Naming: -ene oxide
e.g. ethene oxide



HALOALKANE

Naming: halo-
e.g. chloroethane

1. Funktionelle Gruppen

FUNCTIONAL GROUPS IN ORGANIC CHEMISTRY

FUNCTIONAL GROUPS ARE GROUPS OF ATOMS IN ORGANIC MOLECULES THAT ARE RESPONSIBLE FOR THE CHARACTERISTIC CHEMICAL REACTIONS OF THOSE MOLECULES. IN THE GENERAL FORMULAE SHOWN BELOW FOR EACH FUNCTIONAL GROUP, 'R' REPRESENTS THE REST OF THE MOLECULE, AND 'X' REPRESENTS ANY HALOGEN ATOM.

● HYDROCARBONS ● SIMPLE OXYGEN HETEROATOMICS ● HALOGEN HETEROATOMICS ● CARBONYL COMPOUNDS ● NITROGEN-BASED ● SULFUR-BASED ● AROMATIC



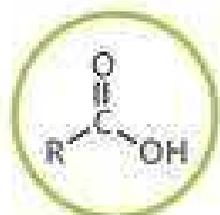
ALDEHYDE

Naming: -al
e.g. ethanal



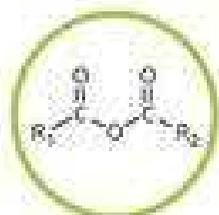
KETONE

Naming: -one
e.g. propanone



CARBOXYLIC ACID

Naming: -oic acid
e.g. ethanoic acid



ACID ANHYDRIDE

Naming: -oic anhydride
e.g. ethanoic anhydride



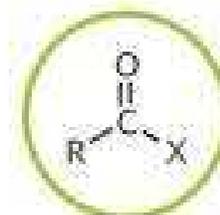
ESTER

Naming: -yl -oate
e.g. ethyl ethanoate



AMIDE

Naming: -amide
e.g. ethanamide



ACYL HALIDE

Naming: -oyl halide
e.g. ethanoyl chloride

1. Funktionelle Gruppen

FUNCTIONAL GROUPS IN ORGANIC CHEMISTRY

FUNCTIONAL GROUPS ARE GROUPS OF ATOMS IN ORGANIC MOLECULES THAT ARE RESPONSIBLE FOR THE CHARACTERISTIC CHEMICAL REACTIONS OF THOSE MOLECULES. IN THE GENERAL FORMULAE SHOWN BELOW FOR EACH FUNCTIONAL GROUP, 'R' REPRESENTS THE REST OF THE MOLECULE, AND 'X' REPRESENTS ANY HALOGEN ATOM.

● HYDROCARBONS ● SIMPLE OXYGEN HETEROATOMICS ● HALOGEN HETEROATOMICS ● CARBONYL COMPOUNDS ● NITROGEN-BASED ● SULFUR-BASED ● AROMATIC



AMINE

Naming: -amine
e.g. ethanamine



NITRILE

Naming: -nitrile
e.g. ethanenitrile



IMINE

Naming: -imine
e.g. ethanimine



ISOCYANATE

Naming: -yl isocyanate
e.g. ethyl isocyanate



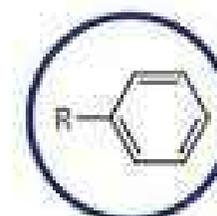
AZO COMPOUND

Naming: -azo-
e.g. azoethane



THIOL

Naming: -thiol
e.g. methanethiol



ARENE

Naming: -yl benzene
e.g. ethyl benzene