

Knowledge required in chemistry

General chemistry

Gas

- States of matter (++)
- Gas laws (++)

Thermodynamics

- 1^o Law (++)
- 2^o and 3^o law (++)
- Partial Molar values (+++)
- Phase diagramm (+++)
- Raoult's law and Henry's law (+++)

Chemical equilibrium

- Equilibrium constant (++)
- Thermodynamic and equilibrium chemistry (++)
- Le Chatelier's principle (++)

Physical properties of solutions

- The enthalpy of dissolution (++)
- Colligative properties (+++)

Analytical chemistry

Acids and bases

- Acids and bases according to Brönsted and Lewis (++)
- pH scale (++)
- pK_A and pK_B (++)
- Buffer solutions (++)
- Acid-base titrations (++)

Solubility and complexation

- Solubility product (++)
- pH influence (+++)
- Common ion effect (+++)
- Solubility and complex ions (+++)
- Complex ions in acid-base reactions (+++)

Electrochemistry

- Oxydo-reduction (++)
- Electrolysis (++)
- Electromotive force of batteries (++)
- Faraday's law (++)
- Nernst equation (++)
- pH measurement (++)

Basics concepts of kinetics

- Classification of chemical reactions (++)
- Factors that affect reaction rates (++)
- 1st order reaction (++)
- 2nd order reaction (++)
- Determination of the order of a reaction by the initial velocity method (+++)
- Arrhenius Law (++)

Organic chemistry

Alkenes :

- Hydrogenation (++)
- Electrophilic additions (++)
- Different types of oxidation (+++)

Alkynes :

- Acidity of alkynes (++)
- Reduction (++)

Aromatic compounds :

- Electrophilic aromatic substitutions (++)

Halogenoalkanes :

- Nucléophilic substitutions (+++)
- Eliminations (+++)

Alcohols :

- Halogenation (++)
- Dehydratation (++)
- Oxidation (++)

Amines :

- Alkylation (++)
- Reaction with carbonyl compounds (+++)

Aldehydes and ketones :

- Protection (+++)
- Reduction and oxidation (++)

Carboxylic acids and derivatives:

- Esterification (+++)
- Reduction (++)
- Alkylation (++)