

CAIE Chemistry A-level

33: Carboxylic Acids and Derivatives

(A-level only)

Definitions

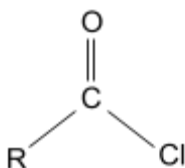
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Definitions and Concepts for CAIE Chemistry A-level Carboxylic Acids and Derivatives

Acyl chloride: A compound containing the functional group COCl . Acyl chlorides are a derivative of carboxylic acids, but the $-\text{OH}$ is substituted by $-\text{Cl}$.



Alcohols: A molecule which contains the functional group $-\text{OH}$.

Carboxylic acid: An organic compound containing the $-\text{COOH}$ functional group.

Ester: A compound containing the $\text{R}-\text{COO}-\text{R}'$ functional group (where R and R' are alkyl groups).

Fehling's reagent: A solution used to distinguish between aldehydes and ketones. When heated in Fehling's solution an aldehyde is oxidised and forms a brick red solution whereas a ketone is not oxidised and the solution remains blue.

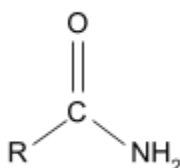
Hydrolysis: A reaction in which a molecule is broken down by its reaction with water.

Nucleophilic addition-elimination: A reaction in which a nucleophile is added to a molecule by breaking a π bond then a leaving group is removed to reform the π bond.

Oxidation: Process involving the loss of electrons. Results in an increase in oxidation number.

Phenol: Phenol is an aromatic ring with an OH group attached.

Primary amide: A molecule containing the functional group $-\text{CONH}_2$, as shown below.



Primary amine: An organic compound that contains the functional group RNH_2 (where R is an alkyl chain).





Secondary amine: An organic compound that contains the functional group R_2NH (where R is an alkyl chain).

Tollens' reagent: Also known as ammoniacal silver nitrate, this reagent forms a silver mirror in the presence of an aldehyde and can be used to distinguish between aldehydes and ketones. An aldehyde is oxidised to a carboxylic acid while silver ions in Tollens' are reduced to silver, forming a silver mirror on the wall of the test tube.

