

AMIDE BONDS

Amide Bond: Amides are a product of a condensation reaction between amines and carboxylic acids.

Structure: The nitrogen lone pair is conjugated to the C=O double bond, creating a partial double bond between N and C.

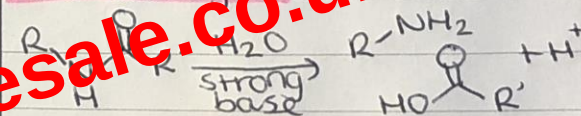
Due to orbital constraints, **free rotation** around the C-N bond is not permitted. Rotation can occur but at an **energy price**.

The amide nitrogen is **not nucleophilic**, it is an acid and acts as a hydrogen bond donor.

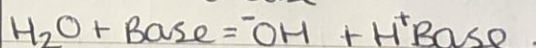
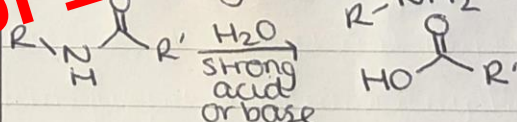
Amides are often **synthesised** through the pre-activation of the carboxylic acid. Dicyclohexylcarbodiimide (**bcc**) is a more common activating agent because it allows one-pot synthesis. It is a **peptide coupling agent**, which replaces the -OH leaving group with a more stable leaving group.

Hydrolysis: Amides are one of the less reactive functional groups. They are stable to weakly acidic and basic conditions.

Acid catalysed



Base catalysed:



Amide Synthesis:

