

# OCR (B) Chemistry A-Level

## PL3 - Equilibria (Acid–Base)

### Flashcards

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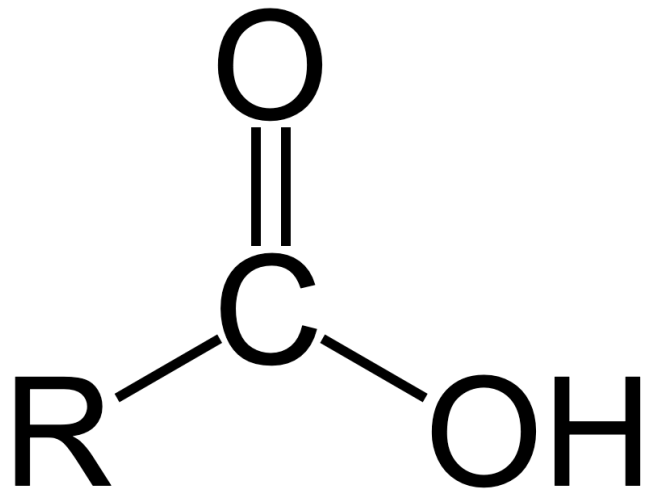


What is a carboxylic acid and why is it a weak acid?



# What is a carboxylic acid and why is it a weak acid?

- A carboxylic acid is an organic compound with the  $\text{-COOH}$  functional group.
- It is a weak acid because it partially dissociates in water to form  $\text{-COO}^-$ .



# How do carboxylic acids react with metals?



How do carboxylic acids react with metals?

Carboxylic acids react with metals to form a salt and hydrogen gas.



# How do carboxylic acids react with alkalis?



How do carboxylic acids react with alkalis?

Carboxylic acids react with alkalis to form a salt and water.



# How do carboxylic acids react with carbonates?





How do carboxylic acids react with carbonates?

Carboxylic acids react with carbonates to form a salt, water and carbon dioxide.



How do amino acids act as both an acid  
and a base?



## How do amino acids act as both an acid and a base?

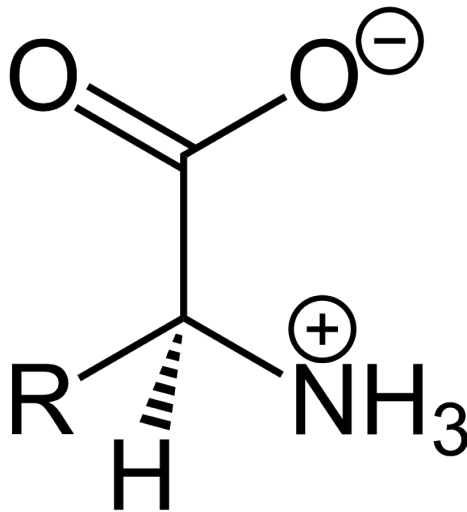
- The carboxylic acid group acts as an acid because it is a proton donor.
- The amine group acts as a base because it is a proton acceptor (has a lone pair).



# What is the structure of a zwitterion?



What is the structure of an amino acid zwitterion?

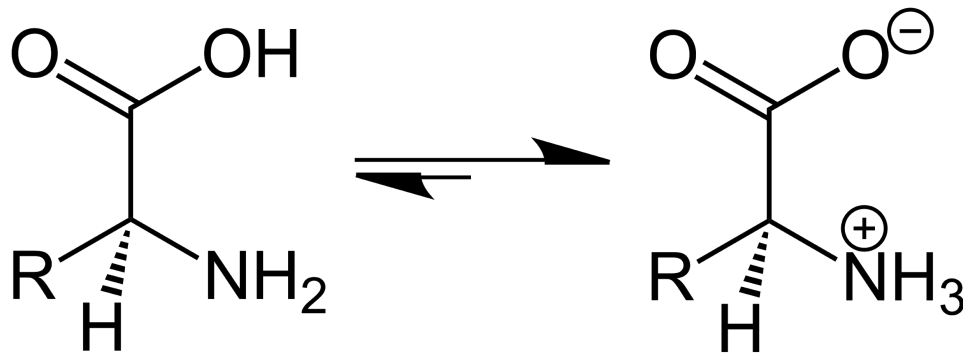


# How do amino acid zwitterions form?



## How do amino acid zwitterions form?

The presence of both acidic and basic groups results in the transfer of a  $\text{H}^+$  ion from the carboxylic acid group to the nitrogen of the amine group. There is no overall charge.



# How do amines react with acids?





# How do amines react with acids?

They react with acids to form an alkylammonium salt e.g.

