

WJEC (Eduqas) Chemistry GCSE

7 - Chemistry of Acids

Flashcards

This work by [PMT Education](https://www.pmt.education) is licensed under [CC BY-NC-ND 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/)



What is an acid?



What is an acid?

Acid produces hydrogen ions (H^+) in aqueous solutions with a pH range between 0 and 7. When it reacts with metal, it produces salt and hydrogen. Reaction with carbonate produces salt, water and carbon dioxide.



What is an alkali?



What is an alkali?

Alkali produces hydroxide ions (OH^-) in aqueous solutions with a pH range between 7 and 14. Alkalis are water soluble bases.



Give an example of an alkali.



Give an example of an alkali.

Soluble metal hydroxide



Give an example of a base.



Give an example of a base.

Insoluble metal hydroxide



What is the product formed when acid reacts with metal?



What is the product formed when acid reacts with metal?

Salt and hydrogen



What does neutralisation mean?



What does neutralisation mean?

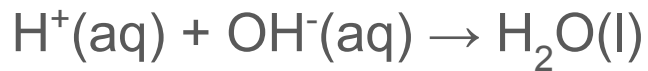
The reaction in which an acid and a base react together to form a salt and water.



Give an ionic equation of neutralisation reaction between an acid and a base.



Give an ionic equation of neutralisation reaction between an acid and a base.



Give 3 equations which define neutralisation of acids.



Give 3 equations which define neutralisation of acids.

- acid + alkali \rightarrow salt + water
- acid + base \rightarrow salt + water
- acid + metal carbonate \rightarrow salt + water + carbon dioxide



How does acidity and alkalinity are measured?



How does acidity and alkalinity are measured?

They are measured by the use of a pH scale (0 to 14). Higher concentration of H^+ ions will lower the pH value.

- pH 0 - 6: acidic
- pH 7: neutral
- pH 8-14: alkaline



Give an example of equation describing reaction of acid with alkali.



Give an example of equation describing reaction of acid with alkali.

acid + alkali \rightarrow salt + water



Give an example of equation describing reaction of acid with metal carbonate.



Give an example of equation describing reaction of acid with metal carbonate.

acid + metal carbonate \rightarrow salt + water + carbon dioxide



Describe a test used to identify carbon dioxide.



Describe a test used to identify carbon dioxide.

Bubble the gas through limewater (calcium hydroxide) and it will turn milky (cloudy)



Describe a test used to identify carbonate ions using dilute acids.



Describe a test used to identify carbonate ions using dilute acids.

- Carbonates react with dilute acids to create carbon dioxide.
- This gas can be bubbled through limewater. If the limewater goes cloudy, the gas is CO₂.



Describe a test used to identify sulfate ions.



Describe a test used to identify sulfate ions.

- First add dilute hydrochloric acid, followed by barium chloride solution
- A white precipitate will form when sulfate ions are present in the solution



Define the term strong acid.



Define the term strong acid.

An acid which is completely ionised in an aqueous solution so that nearly all the H^+ ions are released.



List 3 examples of strong acids.



List 3 examples of strong acids.

- Hydrochloric acid
- Nitric acid
- Sulfuric acid



Define the term weak acid.



Define the term weak acid.

An acid which is only partially ionised in an aqueous solution. This means only a small number of the H^+ ions are released.



List 3 examples of weak acids.



List 3 examples of weak acids.

- Ethanoic acid
- Citric acid
- Carbonic acid



How do strong acids react differently to weak acids?



How do strong acids react differently to weak acids?

- Reactions are more vigorous with stronger acids
- Effervescence is greater with a stronger acid and a carbonate than that of a weaker acid



How does the term dilute/concentrated differ the term to weak/strong (with reference to acids)?



How does the term dilute/concentrated differ to the term weak/strong (with reference to acids)?

- concentrated/dilute refers to the amount of substance in a given volume
- strong/weak refers to the H^+ ion concentration in aqueous solutions



How does pH value change when the concentration of hydrogen ions increases by a factor of ten?



How does pH value changes when the concentration of hydrogen ions increases by a factor of ten?

The pH value of a solution decreases by one



How do stronger acids affect pH?



How do stronger acids affect pH?

- Stronger acids produce higher concentration of H^+ ions, lowering the pH value.



What is a technique used to prepare crystals of soluble salts?



What is a technique used to prepare crystals of soluble salts?

Titration



What is titration?



What is titration?

A technique used where a solution of known concentration is used to determine the concentration of an unknown solution.

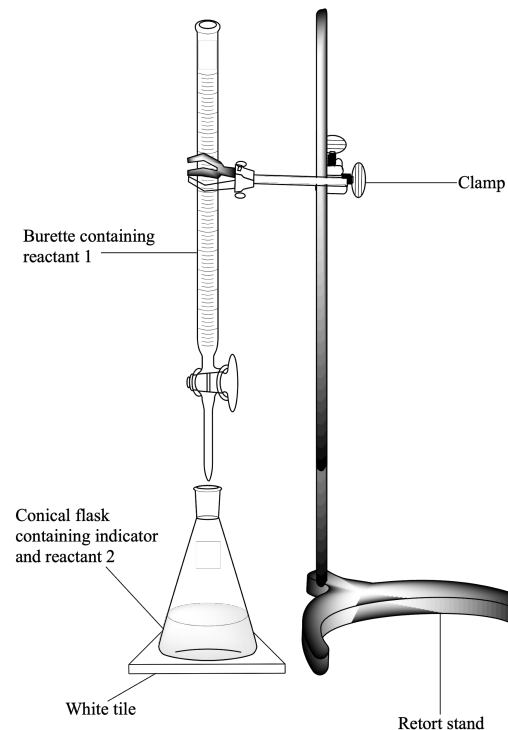


List the procedure for titration.



List the procedure for titration.

1. Add acid to burette using a funnel, record the volume in the burette to start
2. Add known volume of alkali to a conical flask and add some indicator
3. Place conical flask on white tile (so you can see colour change clearly)
4. Add acid to alkali until you reach the end point
5. Calculate how much acid has been added (titre)
6. Repeat until you get concordant titres



How are soluble salts made?



How are soluble salts made?

They can be made from acids by reacting them with solid insoluble substances, such as metals, metal oxides, hydroxides or carbonates.



Define the formulae used to calculate concentration of a solution in g dm^{-3} and in mol dm^{-3} .



Define the formulae used to calculate concentration of a solution in g dm^{-3} and in mol dm^{-3} .

- concentration (g dm^{-3}) = mass \div volume
- concentration (mol dm^{-3}) = moles \div volume

