

Acids, Bases and Neutralisations Reactions

By the end of this topic you should be able to state that

1. The test for hydrogen gas - hydrogen burns with a pop
2. When hydrogen burns it produces water
3. The test for water - water turns blue cobalt chloride paper pink
4. The pH scale runs from below 0 to above 14
5. A neutral solution has a pH of 7
6. Acidic solutions have a pH below 7
7. Alkaline solutions (alkalis) have a pH above 7
8. pH can be measured in 3 ways
 - (i) using pH paper
 - (ii) using Universal indicator
 - (iii) using a pH meter
9. Examples of household acids - vinegar, citrus fruits
10. Examples of household alkalis - toothpaste, household cleaners
11. Examples of lab acids - hydrochloric acid and sulfuric acid
12. Examples of lab alkalis - sodium hydroxide and calcium hydroxide
13. Dilution of an acidic solution with water will increase the pH toward
14. Dilution of an alkaline solution with water will decrease the pH towards 7.
15. If an acid is added to an alkali and vice versa the pH can be moved to 7 - this is called a neutralisation reaction
16. Examples of everyday of neutralisation reactions
 - (i) Acidic bee sting neutralised with baking soda
 - (ii) Alkaline wasps sting neutralised with vinegar
 - (iii) Gardeners adding lime to acidic soil
 - (iv) Taking indigestion tablets for excess stomach acid

17. In labs a neutralisation reaction is one in which a base reacts with an acid to form water. A salt is also formed in this reaction

18. Bases are a family of compounds which can neutralise acids - there are 3 types

(i) Metal oxides

(ii) Metal hydroxides

(iii) Metal carbonates

19. Soluble bases are called alkalis

20. Word equations for bases reacting with acids can be written for the following neutralisation reactions:

(i) metal oxide + an acid $\rightarrow$ a salt + water

(ii) metal hydroxide + an acid $\rightarrow$ a salt + water

(iii) metal carbonate + an acid $\rightarrow$ a salt + water + carbon dioxide

21. The test for carbon dioxide - carbon dioxide turns lime water cloudy

22. The name of the salt produced depends on the acid and base used:

hydrochloric acid produces chlorides

sulfuric acid produces sulfates

nitric acid produces nitrates.