

Chemistry Knowledge Organiser

Chemical changes

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| 1 | Metal oxides | Metals react with oxygen to produce metal oxides. The reactions are oxidation reactions because the metals gain oxygen. |
| 2 | Oxidation | Gain of oxygen |
| 4 | Reduction | Loss of oxygen |
| 5 | The reactivity series | Metals can be arranged in order of their reactivity in a reactivity series. |
| 6 | Displacement reaction | A more reactive metal can displace a less reactive metal from a compound. |
| 7 | Unreactive metals | Metals that don't tend to easily form positive ions. They are often found in the Earth as the metal itself. |
| 8 | Carbon extraction | Metals less reactive than carbon can be extracted from their oxides by reduction with carbon. Needs high temperatures and carbon. |
| 9 | Oxidation (electrons) | Loss of electrons |
| 10 | Reduction (electrons) | Gain of electrons |
| 11 | Acids + metals | Acids react with some metals to produce salts and hydrogen. |
| 12 | Neutralisation | Acids are neutralised by alkalis and bases to produce salts and water, and by metal carbonates to produce salts, water and carbon dioxide. |

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| 13 | Salts from acids | <ul style="list-style-type: none">• Hydrochloric acid produces a chloride• Sulphuric acid produces a sulphate• Nitric acid produces a nitrate |
| 14 | Soluble salts | Soluble salts can be made from acids by reacting them with solid insoluble substances. |
| 15 | Acids | Acids produce hydrogen ions (H^+) in aqueous solutions. |
| 16 | Alkalis | Aqueous solutions of alkalis contain hydroxide ions (OH^-). |
| 17 | pH scale | The pH scale, from 0 to 14, is a measure of the acidity or alkalinity of a solution. |
| 18 | Neutralisation | In neutralisation reactions between an acid and an alkali, hydrogen ions react with hydroxide ions to produce water. |
| 19 | Strong acids | A strong acid is completely ionised in aqueous solution. E.g. hydrochloric, nitric and sulfuric acids. |
| 20 | Weak acids | A weak acid is only partially ionised in aqueous solution. E.g. ethanoic, citric and carbonic acids. |
| 21 | Hydrogen ion concentration | As the pH decreases by one unit, the hydrogen ion concentration of the solution increases by a factor of 10. |
| 22 | Anode | Positive electrode |
| 23 | Cathode | Negative electrode |