

Acids Knowledge oraginiser

Word	meaning
Acid	a substance with particular chemical properties including turning litmus red, neutralizing alkalis, and dissolving some metals; typically, a corrosive or sour-tasting liquid of this kind.
Alkali	base that dissolve in water
Base	Any of a class of compounds that form hydroxyl ions (OH ⁻) when dissolved in water, and whose aqueous solutions react with acids to form salts
Beaker	a lipped cylindrical glass container for laboratory use.
Bunsen burner	a small adjustable gas burner used in laboratories as a source of heat.
Control	A measure to prevent the risk of a hazard.
Equipment	A scientific instrument is an instrument used for scientific purposes.
Fire	Fire is the visible effect of the process of combustion
Hazard	A hazard is any source of potential damage, harm or adverse health effects on something or someone.
Heat	a form of energy associated with the movement of atoms and molecules in any material.
Indicators	are chemicals that can identify another chemical as an acid or an alkali.
Litmus indicator	changes to a different colour in acids, alkalis and neutral solutions
Measuring cylinder	cylindrical container marked with horizontal lines to represent units of measurement and used to precisely measure the volume of liquids.
Metal carbonates	Carbonates and hydrogen carbonates are two other types of base. They also make a salt and water when we neutralise them with acid. But this time we get carbon dioxide gas too.
Metals	a solid material which is typically hard, shiny, malleable, fusible, and ductile, with good electrical and thermal conductivity
Neutral	solution or compound that is neither acidic nor alkaline
Neutralisation	a chemical reaction in which an acid and a base react quantitatively with each other.
Oxygen	an element that is needed for combustion.
pH	A measure of acidity or alkalinity of water soluble substances (pH stands for 'potential of Hydrogen').
Pipette	for transferring or measuring out small quantities of liquid
Risk	A potential harm.
Safety	Freedom from the occurrence or risk of injury, danger, or loss.
Test tube	a thin glass tube closed at one end, used to hold small amounts of material for laboratory testing or experiments.
Universal Indicator (UI)	is an indicator that tells us the strength of an acid or alkali.

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Acids are chemicals that we use every day for a range of different jobs. All acids contain the element hydrogen.

- Citrus fruits contain citric acid
- Vinegar is an acid
- Fizzy drinks contain carbonic acid
- Our stomach contains hydrochloric acid
- Sulphuric acid is used in car batteries
- Nitric acid is used to make fertilisers and paints
- An acid may be **irritant** which means it makes skin go red and blister in extreme cases.
- **Corrosive** acids will destroy skin and metals if they are spilt.
- Acids in food/drink are very weak, but may still sting if they get into a cut.
- Many alkalis are also dangerous and present in our homes – oven cleaners and caustic soda are amongst the most concentrated and dangerous chemicals
- Because they are corrosive due to the **sodium hydroxide** they contain.
- Other alkalis are irritants, more so than acids because alkalis tend to become soapy when attempted to be washed off.
- **Indicators** are chemicals that can identify another chemical as an acid or an alkali.
- **Litmus indicator** changes to a different colour in acids, alkalis and neutral solutions
- Plants can be used to make indicator chemicals – any plant with a purple/red colour can be used. Indicators are useful for gardeners trying to pick the correct plants to grow – some prefer acidic soil, other alkaline. In industry, it can be used to check if waste is acidic or alkaline.
- **Universal Indicator (UI)** is an indicator that tells us the strength of an acid or alkali.



Each colour matches a number on the scale above:

- 1-6 acidic
- 7 neutral
- 8-14 alkaline

The further away from 7, the stronger the acid/alkali.

The number is called the pH of the chemical.

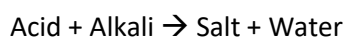
pH probes are machines that can be used to measure the pH of a chemical. They are better than the pH scale because it is much more accurate (can measure to decimal places) and isn't as hard to read as telling different shades apart.

The reaction between an acid and alkali is called a neutralisation reaction.

If the right amount of acid and alkali are mixed the resulting solution will be neutral.

This is useful in toothpaste for acid made by bacteria and also in indigestion remedies.

The other product of neutralisation is a salt. This salt depends on the acid and alkali used. They give us a general equation for neutralisation:



The effectiveness of different antacids can be compared by measuring the amount of antacid needed to neutralise a solution or by the amount of time it takes to neutralise a solution.

In these experiments it is important to only change the antacid being tested and keep everything else the same so it is a fair test and the results can be compared to each other. Also, a control experiment should be done to compare against.