

Acids and Alkalis

Hazard symbols are used to let scientists (and you) know how dangerous a chemical or substance is and how you should protect yourself from harm.



Before we do an experiment, we should always create a risk assessment.

A risk assessment;

- 1) identifies any hazards
- 2) Explain why they are a risk
- 3) Explains how to prevent any harm from occurring

Acids and Alkalis are a group of chemicals.

Weak acids can be found household items such as food, drink and skincare products. It is safe to handle them, and taste them. These include lemons, oranges, vinegar and fizzy drinks. **Strong acids** are very dangerous (too dangerous to taste or touch). They can be irritating or even corrosive. These include hydrochloric acid, sulfuric acid and nitric acid.

Every day acids



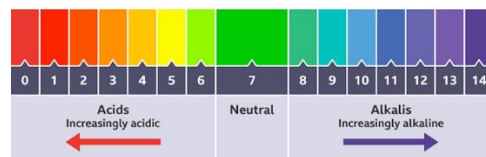
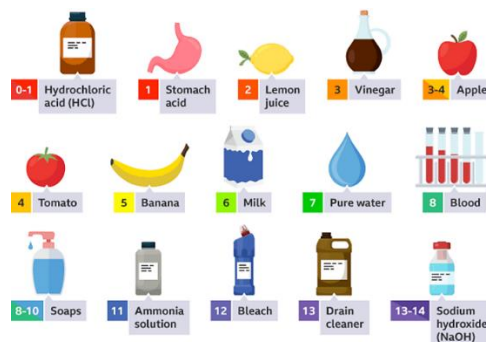
Alkalis are also found in household items such as cleaning products and some medication like antacid tablets. They can also be used in food products like bicarb soda. Strong alkalis are very dangerous too, and can be corrosive. These include sodium hydroxide.

Everyday Alkalis



The pH scale is a number scale from 0 to 14. It tells us how acidic or alkaline an aqueous solution is. The pH scale is used to classify solutions as acidic, alkaline or neutral.

- Neutral solutions are exactly pH 7.
- Acidic solutions have pH values less than 7. The closer to pH 0, the more acidic a solution is.
- Alkaline solutions have pH values more than 7. The closer to pH 14, the more alkaline a solution is.



An indicator is a substance which will change colour depending on the pH of the solution it is mixed with. Some indicators are liquids, meaning we can add drops of the indicator to the solution being tested. Other indicators are strips of paper, and we can dip these into the solution.

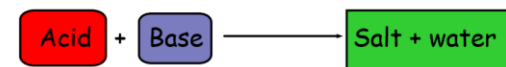


Universal indicator is supplied as a solution or as universal indicator paper. It is a mixture of several different indicators. Unlike litmus, universal indicator can show us how strongly acidic or alkaline a solution is, not just that the solution is acidic or alkaline. This is measured using the pH scale, which runs from pH 0 to pH 14.

Neutralisation happens when we mix an acid with a base.

This is a chemical reaction and new products are made. The products that are made form a **Neutral** solution.

The reaction can be represented with the equation below:



The type/name of salt produced depends on the type of Acid and Base that we react together.

acid name	salt ending in
hydrochloric acid	chloride
nitric acid	nitrate
sulphuric acid	sulphate
phosphoric acid	phosphate



The name of the acid tells us the ending of the salt name.

The name of the alkali tells us the start of the salt name

Metals can also react with acids to produce a salt.

Unlike when bases react with acids and water is produce, metals and acids produce Hydrogen gas.

The reaction can be represented with the equation below:

