

# Reactions

## 2. Acids and alkalis

### CONCEPT 2

### INDICATORS AND THE pH SCALE

#### NOTES

When we are trying to determine (find out) if a substance is an acid, alkali or neither, we use something called an indicator. An indicator is another substance that changes into different colours in acids and alkalis. An example, litmus solution is an indicator. If litmus solution turns red, the substance you are testing will turn red. It will go blue in an alkali.

If a substance is neither acid nor alkali, we say it is neutral.

There are other indicators, such as litmus paper, cabbage juice, and universal indicator. Litmus solution and paper are simple indicators, as they only tell us if a substance is acid or alkali, but not how acidic or alkali. Red litmus paper will turn blue in an alkali; blue litmus paper will turn red in an acid.

Universal indicator is a very good indicator because it can change into a range of different colours, and can tell us how acidic, or alkali a substance is. Universal Indicator is a mixture of several different indicators. It tells us how strong the acid or alkali is. The different colours will give us the pH number of the substance.

It is the pH scale that shows us the strength of acids and alkalis:



Acids that are found in food and drink are weak and dilute acids. They are far less corrosive. These include apple juice, coffee and tomatoes, and they turn orange, yellow and lighter green when added to universal indicator. The higher the pH (as long as it is below pH7), the weaker the acid is. Strong acids have very low pH numbers.

Alkalis that turn dark green, and lighter blues are weaker. They include toothpaste, baking powder and soap. If above 7, the lower the pH, the weaker the alkali. The higher the pH, the stronger the alkali.