



Processes

Acids and Alkalis

Acids, bases and alkalis are found in the laboratory and at home. Acids and bases can neutralise each other. A base that can dissolve in water is also called an alkali.

Chemical reactions and states of matter

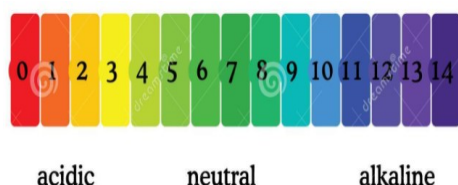
Chemical changes happen when chemical reactions occur. They involve the formation of new chemical elements or compounds. Physical changes do not lead to new chemical substances forming. In a physical change, a substance simply changes physical state, eg from a solid to a liquid.



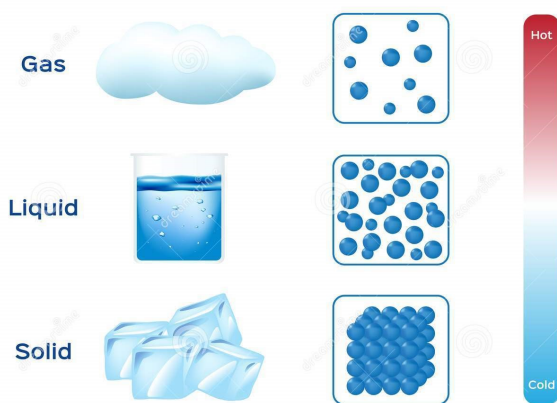
Properties

Acids and Alkalis

pH Scale:



Chemical reactions and states of matter



STATES OF MATTER



Significant Scientists

The concept of pH was introduced in 1909 by Dane chemist, Søren Sørensen (9 January 1868 – 12 February 1939), as a convenient way of expressing acidity—the negative logarithm of hydrogen ion concentration.



Careers

There are several careers that could be considered based on learning about acids and alkalis, and chemical reactions, such as:

- Soil and Plant Scientist, someone who works in the agricultural field studying the different compositions of soil and the effects they have on plant life, crops and the national food supply.
- Biologist, an expert in or student of the branch of science concerning living organisms.
- Chemical technician, a person who conducts analytical or lab-based tests on a variety of chemicals, materials or products.
- Food scientist, a person who develops and test different foods, making sure they are safe for humans to eat.



Materials

Acids

Vinegar = Ethanoic acid

Fizzy drinks = Carbonic acid

Lemons = Citric acid

Alkalis

Oven cleaner = Sodium Hydroxide

Baking Soda = sodium bicarbonate

Drain unblocker = potassium hydroxide

Chemical reactions and states of matter

Examples of solids:

- Brick
- Coin
- Rock

Examples of liquids:

- Water
- Milk
- Oil

Examples of gases:

- Oxygen
- Carbon dioxide
- Nitrogen

Key vocabulary and meanings

*pH = a scale for measuring acidity and alkalinity.

Acidic = Having a pH lower than 7.

Alkaline = Having a pH greater than 7.

Indicator = A substance that has different colours, depending upon the pH of the solution it is in.

Litmus paper = type of indicator that can be red or blue. Red litmus turns blue in alkalis, while blue litmus turns red in acids.

Neutral = When a substance is neither acidic nor alkaline, and has a pH of 7.

*States of matter—The three forms in which a substance can exist (solid, liquid, and gas).

Atom—The smallest part of an element that can exist.

Boiling—Changing from the liquid to the gas state, in which bubbles of gas form throughout the liquid.

Boiling point—The temperature at which a substance rapidly changes from a liquid to a gas.

Evaporation—The process in which a liquid changes state and turns into a gas.



Scientific vocabulary