

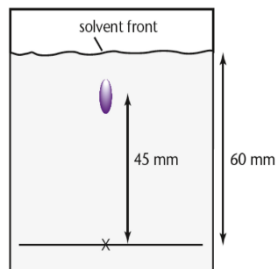
## Chemistry – C12 Chemical Analysis

### Pure substances

A **pure** substance is a single element or compound, not mixed with any other substance.

A **mixture** consists of two or more elements or compounds not chemically combined together.

**Chromatography** can be used to separate mixtures and can give information to help identify substances. Chromatography involves a stationary phase and a mobile phase.



### Testing for Gases

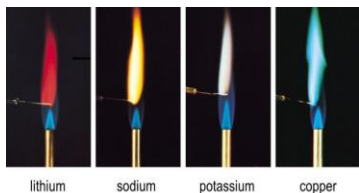
**Hydrogen:** Place a lighted splint in the gas and it burns with a squeaky pop.

**Oxygen:** Place a glowing splint in the gas and the splint will relight.

**carbon dioxide:** Bubble the gas through limewater and it will turn from clear to cloudy.

**Chlorine:** Put damp blue litmus paper in the gas which turns white as it is bleached.

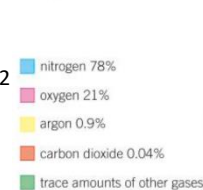
### Testing for ions(triple only)



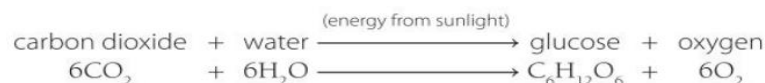
Element	Symbol	Flame colour
Calcium	Ca <sup>2+</sup>	Brick red
Sodium	Na <sup>+</sup>	Yellow
Potassium	K <sup>+</sup>	Lilac
Copper	Cu <sup>2+</sup>	Green/blue
Lithium	Li <sup>+</sup>	Crimson red

## Chemistry – C13 The Earth's Atmosphere

The early atmosphere of our planet contained high levels of CO<sub>2</sub> released by volcanoes, as well as water vapour which cooled down and formed the oceans.



Organisms that could photosynthesise evolved around 2.7 billion years ago which then produced oxygen from the carbon dioxide.

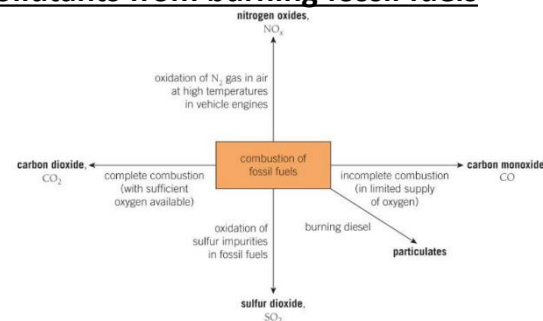


### Global Climate change:

Consequences of rising levels of greenhouse gases:

- Rising sea levels
- Increasingly common extreme weather
- Global temperature change
- Species distribution

### Atmospheric pollutants from burning fossil fuels



### Vocabulary:

**pipette:** A glass tube used to measure accurate volumes of liquids.

**$R_f$  (retention factor):** A measurement from chromatography: it is the distance a spot of substance has been carried above the baseline divided by the distance of the solvent front

**stationary phase in paper chromatography:** is the solid which does not move in chromatography e.g. The paper

**mobile phase:** Is the liquid that moves through the stationary phase carrying the components of the mixture.

**atmosphere :** The relatively thin layer of gases that surround planet Earth

**carbon capture and storage:** A technique that involves capturing carbon dioxide produced by burning fossil fuels and pumping it underground to be absorbed by porous rocks so that it is not released into the atmosphere

**carbon footprint :** the total amount of carbon dioxide and other greenhouse gases emitted over the full life cycle of a product, service or event

**global dimming :** a process that reduces the amount of sunlight reaching the Earth's surface. It is caused by particulates in the atmosphere reflecting light back into space before it can reach Earth

**incomplete combustion:** when a fuel burns in insufficient oxygen, producing carbon monoxide as a toxic product

**nitrogen oxides:** chemical compounds produced when high temperatures cause nitrogen gas in the air to react with oxygen. Nitrogen oxides are toxic and can cause acid rain.

**particulate :** Small solid particle given off from motor vehicles as a result of incomplete combustion of its fuel

### Videos



### Quizzes

