

Chemical analysis

What does Rf mean?

Chromatography.

Chemical analysis

What is the formula to calculate the Rf of a substance?

Chromatography.

Chemical analysis

What is the Rf value of a sample which has travelled half the distance of the solvent front?

Chromatography.

Chemical analysis

What is the Rf value of a sample which has travelled a quarter of the distance of the solvent front?

Chromatography.

Chemical analysis

How can chromatography be used to determine if a substance is pure?

Chromatography.

Chemical analysis

What is the test for hydrogen?

Identification of common gases.

Chemical analysis

What is the test for oxygen?

Identification of common gases.

Chemical analysis

What is the test for carbon dioxide?

Identification of common gases.

Chemical analysis

What is the test for chlorine?

Identification of common gases.

Chemistry of the atmosphere

For approximately how long have the proportions of the gases in the atmosphere today been this way?

The proportions of different gases in the atmosphere.

$R_f = \text{distance moved by substance} / \text{distance moved by solvent}$

Relative front.

0.25

0.5

Place a burning splint at the mouth of a test tube containing a gas. If hydrogen is present, a popping sound will be heard.

A pure compound will only produce a single spot on a chromatograms. A mixture will separate into two or more spots.

Bubble a gas through an aqueous solution of calcium hydroxide (lime water). If carbon dioxide is present the lime water will turn cloudy.

Place a glowing splint at the mouth of a test tube containing a gas. If oxygen is present the splint will relight.

200 million years

A piece of damp litmus paper is placed at the mouth of a test tube containing a gas. If the gas is chlorine the litmus paper will be bleached and turn white.

Chemistry of the atmosphere

What is the proportion of nitrogen in the atmosphere?

The proportions of different gases in the atmosphere.

Chemistry of the atmosphere

What is the proportion of oxygen in the atmosphere?

The proportions of different gases in the atmosphere.

Chemistry of the atmosphere

Name three other components that are found in small proportions in the atmosphere?

The proportions of different gases in the atmosphere.

Chemistry of the atmosphere

Name two greenhouse gases which have increased as a result of human activities.

Greenhouse gases in the atmosphere.

Chemistry of the atmosphere

Name two human activities which have increased the amount of carbon dioxide in the atmosphere.

Greenhouse gases in the atmosphere.

Chemistry of the atmosphere

Name two human activities which have increased the amount of methane in the atmosphere.

Greenhouse gases in the atmosphere.

Chemistry of the atmosphere

Describe what the effect of human activities will be on the Earth's atmosphere?

Greenhouse gases in the atmosphere.

Chemistry of the atmosphere

How can scientists trust the data that has been collected about effect of greenhouse gases?

Greenhouse gases in the atmosphere.

Chemistry of the atmosphere

Explain why differing opinions are presented in the media about climate change?

Greenhouse gases in the atmosphere.

Chemistry of the atmosphere

What is a major cause of global climate change?

Global climate change.

One-fifth (about 20%)

Four-fifths (about 80%)

Carbon dioxide and methane.

Carbon dioxide, water vapour and noble gases.

Agriculture (cattle ranches, rice) and landfill sites.

Deforestation and burning fossil fuels.

The data published has been subjected to peer review (checked by other scientists) to ensure the data is not inaccurate or biased.

An increase in the temperature of the Earth's atmosphere which will result in global climate change.

An increase in average global temperature.

It is difficult to model a complex system such as the environment. In an effort to help people understand the issue, simplified models are often used. This can lead speculation and opinions presented by the media which is based only on parts of the evidence and may be biased or lack all the evidence.

Chemistry of the atmosphere

List four potential effects of global climate change?

Global climate change.

Chemistry of the atmosphere

Discuss the environmental implications of global climate change?

Global climate change.

Chemistry of the atmosphere

Define the term carbon footprint.

The carbon footprint

Chemistry of the atmosphere

Describe how the carbon footprint can be reduced?

The carbon footprint

Chemistry of the atmosphere

Describe actions which can be taken to reduce carbon dioxide and methane emissions.

The carbon footprint

Chemistry of the atmosphere

Suggest why the actions may have a limited effect.

The carbon footprint

Chemistry of the atmosphere

What is the effect of greenhouse gases on the Earth?

Atmospheric pollutants from fuels.

Chemistry of the atmosphere

Name three greenhouse gases?

Atmospheric pollutants from fuels.

Chemistry of the atmosphere

Describe the greenhouse effect.

Atmospheric pollutants from fuels.

Chemistry of the atmosphere

What are the properties of carbon monoxide?

Properties and effects of atmospheric pollutants.

Melting of ice caps could lead to a rise in sea levels, flooding and coastal erosion. Changes in rainfall patterns could cause a change in the distribution of water and affect the ability to produce food. Severe storms will damage infrastructure and cause more people to become homeless and increase the spread of diseases such as cholera. The rise in temperature and availability of water may affect habitats and affect the distribution of wild species.

Polar ice caps melting, changes in rainfall, changes in temperature, frequency and severity of storms, availability of water.

Reduce the emissions of carbon dioxide and methane.

The total amount of carbon dioxide and other greenhouse gases emitted of the life cycle of a product service or event.

Countries do not want to sacrifice economic development. Individuals need to change habits and need to be educated how to do so.

Use renewable energy or nuclear power. Use efficient processes to conserve energy and cut waste. Introduce a carbon tax to reward companies who reduce their carbon footprint. Put a cap on greenhouse emissions. Capture carbon dioxide from the atmosphere.

Water vapour, carbon dioxide and methane.

Greenhouse gases maintain temperatures on Earth at a high enough level to support life.

A toxic colourless and odourless gas.

The sun emits short wave radiation which is not absorbed by greenhouse gases. The short wave radiation is absorbed by the Earth, warming it. This heat is emitted from the Earth as long wave radiation. Greenhouse gases absorb long wave radiation. The more greenhouse gases there are the more long wave radiation is absorbed causing a rise in temperature.

Chemistry of the atmosphere

What is the effect of carbon monoxide on the body?

Properties and effects of atmospheric pollutants.

Chemistry of the atmosphere

What is formed by sulfur dioxide in the atmosphere?

Properties and effects of atmospheric pollutants.

Chemistry of the atmosphere

What is formed by oxides of nitrogen in the atmosphere?

Properties and effects of atmospheric pollutants.

Chemistry of the atmosphere

What are the effects of particulates on the body?

Properties and effects of atmospheric pollutants.

Chemistry of the atmosphere

What is the effect of particulates on the atmosphere?

Properties and effects of atmospheric pollutants.

Using resources

What do humans use the Earth's resources for?

Using the Earth's resources

Using resources

What do natural resources, supplemented by agriculture provide?

Using the Earth's resources

Using resources

What are processed finite resources from the earth, oceans and atmosphere used to provide?

Using the Earth's resources

Using resources

What is sustainable development?

Using the Earth's resources

Using resources

Give three examples of natural products and their synthetic replacements.

Using the Earth's resources

Acid rain.

Combines easily with haemoglobin in your blood and prevents oxygen from being taken up by the red blood cells.

Health problems such as aggravating asthma.

Acid rain.

To provide warmth, shelter, food and transport.

Global dimming.

Energy and materials.

Food, timber, clothing and fuels.

Rubber (a natural product) has been replaced by man made polymers. Cotton (a natural product) has been replaced by synthetic fibres such as polyester or Lycra. Plant dyes (a natural product) have been replaced by synthetic dyes.

Development that meets the needs of the current generations without compromising the ability of future generations to meet their own needs.