Organic chemistry

Write a balanced chemical equation for the complete combustion of pentane.

Properties of hydrocarbons.

Organic chemistry

What is cracking?

Cracking and alkenes.

Organic chemistry

Name two methods of cracking.

Cracking and alkenes.

Organic chemistry

Describe the the two methods of cracking hydrocarbons.

Cracking and alkenes.

Organic chemistry

What are the products of cracking?

Cracking and alkenes.

Organic chemistry

Compare the reactivity of alkanes and alkenes.

Cracking and alkenes.

Organic chemistry

Describe the test for alkenes.

Cracking and alkenes.

Organic chemistry

Why is cracking required?

Cracking and alkenes.

Organic chemistry

What are alkenes used for?

Cracking and alkenes.

Chemical analysis

What is a pure substance?

Pure substances.

The breakdown of hydrocarbons into smaller, more useful molecules.

$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

Catalytic cracking is when long chain hydrocarbons are heated and vapourised. The gas is passed over a catalyst where the long chains are broken down into smaller chains. Steam cracking is when long chain hydrocarbons are heated, vapourised and mixed with steam.

Catalytic cracking and steam cracking.

Alkenes are more reactive than alkanes.

Alkanes and alkenes.

Because there is a high demand for fuels with small molecules.

Orange bromine water is added to the hydrocarbon. The mixture is shaken. It is an alkene if the orange bromine water will become colourless. It is an alkane if the bromine water stays orange.

A single element or compound that is not mixed with any other substance.

They are used to produce polymers and are the starting materials for many chemicals.

Chemical analysis

How can pure substances be distinguished from mixtures?

Pure substances.

Chemical analysis

What is a formulation?

Formulations.

Chemical analysis

How are formulations made?

Formulations.

Chemical analysis

Name seven examples of formulations.

Formulations.

Chemical analysis

What is chromatography?

Chromatography.

Chemical analysis

What is the mobile phase?

Chromatography.

Chemical analysis

What is the stationary phase?

Chromatography.

Chemical analysis

Explain how samples are separated by chromatography.

Chromatography.

Chemical analysis

What is the origin?

Chromatography.

Chemical analysis

What is the solvent front?

Chromatography.

A mixture which has been designed as a useful product.

Pure substances have specific melting and boiling points.

Fuels, cleaning agents, paints, medicine, alloys, fertilisers and foods.

Formulations are made by mixing specific chemicals in measured quantities.

The solvent in which the stationary phase is placed.

Chromatography is a method of separating mixtures and identifying substances.

Separation by chromatography depends on the distribution of substances between the mobile and stationary phases.

Usually a solid on which the samples are placed.

The line to denote the distance travelled by the mobile phase.

The line at the bottom of the paper where the samples are placed.

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.

Rf = distance moved by substance / 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.