

Cambridge IGCSE Chemistry

Topic 14: Organic chemistry

Fuels

Notes





Name the fuels:

- Coal, natural gas and petroleum

Name methane as

- The main constituent of natural gas
- methane = CH_4

Describe petroleum as...

- A mixture of hydrocarbons

... and its separation into useful fractions by fractional distillation

- different hydrocarbons have different carbon chain lengths, with longer chain carbon chains having higher boiling points
- their different boiling points means petroleum can be separated by fractional distillation:
 - a large fraction column with petroleum is heated
 - different hydrocarbons boil and rise up as gases, which can then be collected separately

Describe the properties of molecules within a fraction

- Some properties of hydrocarbons depend on the size of their molecules. These properties influence their use as fuels.
- The shorter the molecules, the lower the temperature at which that fraction evaporates or condenses – and the lower its boiling point.
- Shorter the molecules, the less viscous it is. (more runny)

Name the uses of the fractions as:

- Refinery gas for bottled gas for heating and cooking
- Gasoline fraction for fuel (petrol) in cars
- Naphtha fraction for making chemicals
- Kerosene/paraffin fraction for jet fuel
- Diesel oil/gas oil for fuel in diesel engines
- Fuel oil fraction for fuel for ships and home heating systems
- Lubricating fraction for lubricants, waxes and polishes
- Bitumen for making roads

