

## Key points to learn

1. Mixture	Not pure. Different compounds / elements not chemically bonded
2. Hydrocarbon	Compound containing only hydrogen and carbon eg CH <sub>4</sub>
3. Crude oil	Fossil fuel mixture of hydrocarbons
4. Distillation	Separating liquid from a mixture by evaporation and condensation
5. Compound	Two or more different elements chemically bonded
6. Molecule	Two or more atoms chemically bonded
7. Fractions	Hydrocarbons with similar boiling points separated from crude oil
8. Alkanes	Hydrocarbon with only single covalent bonds eg C–C
	Known as saturated hydrocarbons
	Methane (CH <sub>4</sub> )  
	Ethane (C <sub>2</sub> H <sub>6</sub> )  
	Propane (C <sub>3</sub> H <sub>8</sub> )  
Butane (C <sub>4</sub> H <sub>10</sub> )  	
9. Boiling point	Temperature liquid turns to gas. (Long hydrocarbons have higher)
10. Volatility	How easily it evaporates (Long hydrocarbons have lower)
11. Flammability	How easily it lights and burns (Long hydrocarbons have lower)

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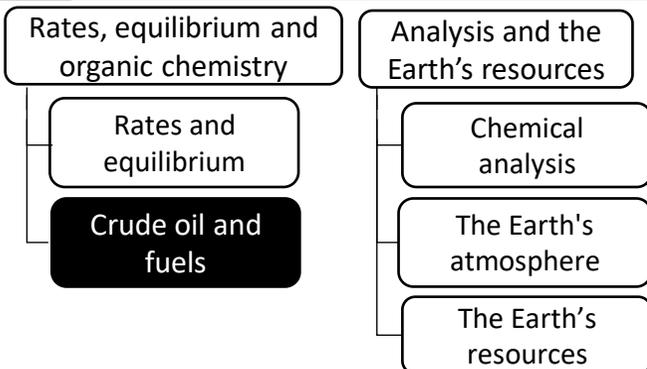
12. Viscosity	The resistance of a liquid to flowing or pouring. (Long hydrocarbons have higher)
13. Fractional distillation	Separating liquids from a mixture by boiling then condensing at different temperatures
14. Burning hydrocarbons	Hydrocarbon + Oxygen → Water + Carbon Dioxide
	eg CH <sub>4</sub> + 2O <sub>2</sub> → 2H <sub>2</sub> O + CO <sub>2</sub>
15. Oxidised	Oxygen added or electrons lost
16. Test for CO <sub>2</sub>	Turns limewater colourless → cloudy
17. Incomplete combustion	When a fuel burns with insufficient oxygen. Produces toxic Carbon Monoxide (CO)
18. Cracking	Breaking large alkanes into smaller, more useful ones
19. Thermal decomposition	Breaking down a compound by heating it
20. Catalyst	Chemical which speeds up a reaction without being used itself
21. Alkenes	Hydrocarbon with a double covalent bond eg C=C
	Known as unsaturated hydrocarbons
	Has twice as many H as C atoms
	eg Ethene  Propene 
22. Testing for alkenes	Unsaturated hydrocarbons turn bromine water colourless

# Trilogy C9: Crude Oil and Fuels

Part of: Organic Chemistry

## Knowledge Organiser

### Big picture (Chemistry Paper 2)



## Background

Fossil fuels are non-renewable which means they are running out. But why is oil so useful? This topic explores that very question.

## Additional

Remember that non-metals bond by covalent bonding (sharing electrons) and that Carbon is in group 4 so needs 4 electrons to fill its outer shell.

## Maths skills

Balancing equations:

Number of atoms on reactant side = Number of atoms on product side

Alkane general formula: C<sub>n</sub>H<sub>2n+2</sub>

Alkene general formula: C<sub>n</sub>H<sub>2n</sub>