

Chemistry

Organic chemistry

Hydrocarbons = any compound that is formed from only Hydrogen + Carbon.

Alkanes

• is a homologous series
↳ similar properties (react in a similar way)

• General formula: C_nH_{2n+2}

• are saturated compounds

↳ only single bonds

Methane 1 MP & BP increases as more Carbons (longer)

Ethane 2 ~~less~~ less than $4^\circ C$ = gas @ room temp

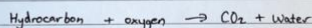
Propane 3 more than $4^\circ C$ = liquid @ room temp

butane 4

Shorter = more volatile + more flammable

longer = more viscous (sticky)

Combustion reactions

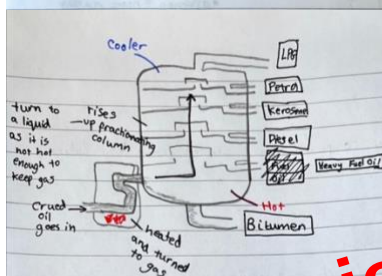


Hydrogen + Carbon are oxidised

Fractional Distillation

Crude oil contains lots of Hydrocarbons ~ different compounds = different BP

Crude oil = finite fossil fuel



Petrol + Diesel = car fuel

Kerosene = aircraft fuel

Heavy fuel oil (fuel) = Heating oil

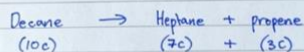
Bitumen = road surfacing

Cracking

• is a thermal decomposition reaction

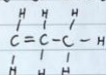
1. heat long chain hydrocarbon and vaporise ~~split~~ (into gas)
2. (a) Catalytic cracking: put hydrocarbon vapour over hot powdered aluminium oxide = ~~split~~ into shorter chains
- (b) Steam cracking: mix vapour with steam then heat to v high temp = split

Long chain alkane $\rightarrow$ short chain alkane + alkene



Alkenes

• alkenes have a double bond



• alkenes = Homologous series

• alkenes = more reactive

• alkene + alkene = polymer

• Bromine water to alkenes = the alkenes turn bromine water colourless