

WJEC (Eduqas) Chemistry GCSE

10 - Carbon Compounds

Flashcards

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What is crude oil?



What is crude oil?

- A finite resource found in rocks.
- It is the remains of an ancient biomass consisting mainly of plankton that was buried in mud.



What are the properties of crude oil?



What are the properties of crude oil?

- Main source of hydrocarbons
- Is a feedstock for the petrochemical industry
- Is a finite resource
- Substances in the mixture can be separated by fractional distillation



What is the name of the method used to separate mixtures of crude oil?



What is the name of the method used to separate mixtures of crude oil?

Fractional distillation

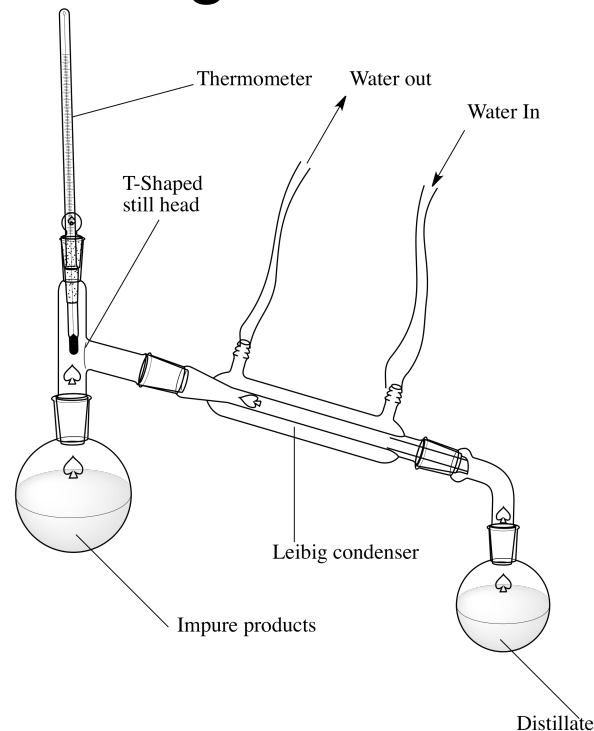


Explain the separation of crude oil through fractional distillation.



Explain the separation of crude oil through fractional distillation.

- The liquids have different boiling points so can be separated into different fractions within a fractionating column.
- Heated crude oil is piped in at the bottom of the column.
- The oil is heated and it evaporates and condenses at a number of different temperatures.
- The fractions are constantly tapped off at the different levels where they condense.



List some uses of fractions obtained from fractional distillation of crude oil.



List some uses of fractions obtained from fractional distillation of crude oil.

- 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



What are hydrocarbons?



What are hydrocarbons?

Hydrocarbons are molecules that are made up of hydrogen and carbon atoms only.



Describe a general formula for alkanes.



Describe a general formula for alkanes.

- C_nH_{2n+2} (where n is the number of carbon atoms in the molecule).



Explain how the size of hydrocarbon molecules affects its properties.



Explain how the size of hydrocarbon molecules affect its properties.

- The shorter the molecules, the less viscous (more runny) it is.
- The shorter the molecules, the lower the temperature at which that fraction vaporises or condenses – and the lower its boiling point.
- The shorter the molecules – the more flammable it is.



What is a cracking process?



What is a cracking process?

- A process that involves breaking down larger hydrocarbons to produce smaller more useful molecules.
- Cracking can be done by catalytic cracking or steam cracking.



What are the products of cracking?



What are the products of cracking?

Alkanes and unsaturated hydrocarbons called alkenes.



Draw the functional group for alkane.



Draw the functional group for alkane?



Draw the functional group for alkene.



Draw the functional group for alkene.



Draw the functional group for alcohol.



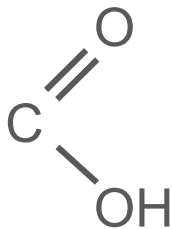
Draw the functional group for alcohol.



Draw the functional group for carboxylic acid.



Draw the functional group for carboxylic acid.



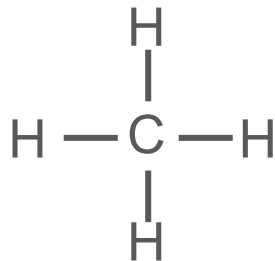
Draw the structural and the displayed formula of methane.



Draw the structural and the displayed formula of methane.

- Structural formula - CH_4

- Displayed formula -



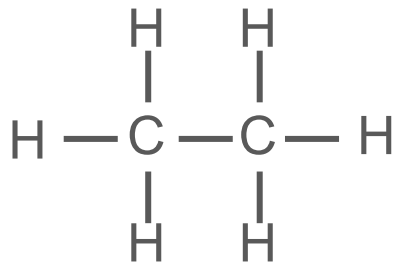
Draw the structural and the displayed formula of ethane.



Draw the structural and the displayed formula of ethane.

- Structural formula - CH_3CH_3

- Displayed formula -



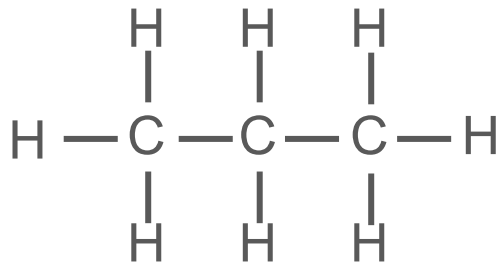
Draw the structural and the displayed formula of propane.



Draw the structural and the displayed formula of propane.

- Structural formula - $\text{CH}_3\text{CH}_2\text{CH}_3$

- Displayed formula -



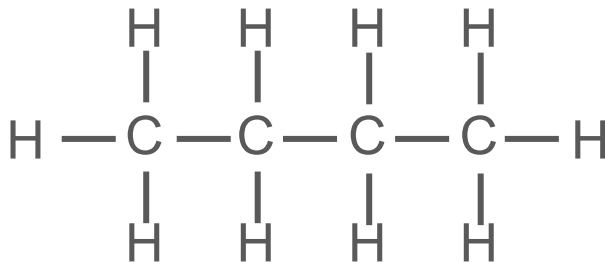
Draw the structural and the displayed formula of butane.



Draw the structural and the displayed formula of butane.

- Structural formula - $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$

- Displayed formula -

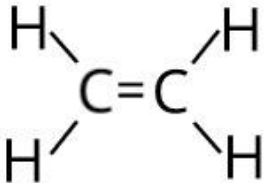


Draw the structural and the displayed formula of ethene.



Draw the structural and the displayed formula of ethene.

- Structural formula - CH_2CH_2

- Displayed formula - 



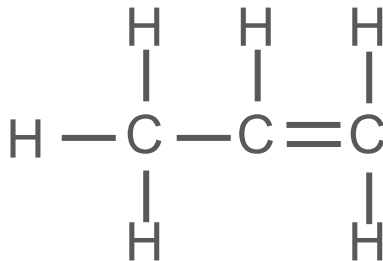
Draw the structural and the displayed formula of propene.



Draw the structural and the displayed formula of propene.

- Structural formula - CH_3CHCH_2

- Displayed formula -



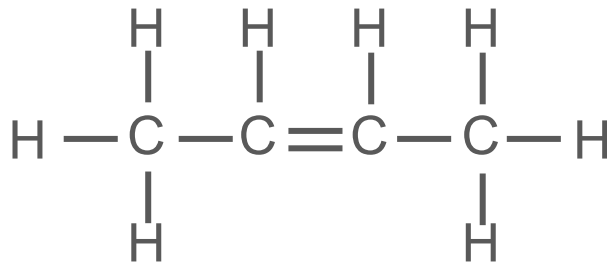
Draw the structural and the displayed formula of butene.



Draw the structural and the displayed formula of butene.

- Structural formula - $\text{CH}_3\text{CHCHCH}_3$

- Displayed formula -



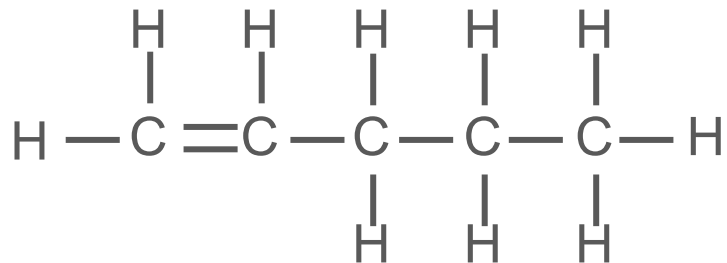
Draw the structural and the displayed formula of pentene.



Draw the structural and the displayed formula of pentene.

- Structural formula - $\text{CH}_2\text{CHCH}_2\text{CH}_2\text{CH}_3$

- Displayed formula -



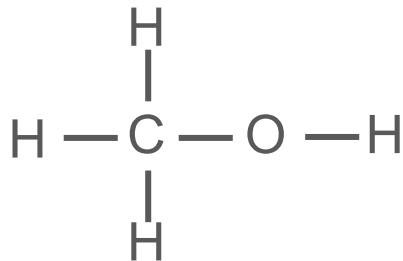
Draw the structural and the displayed formula of methanol.



Draw the structural and the displayed formula of methanol.

- Structural formula - CH_3OH

- Displayed formula -



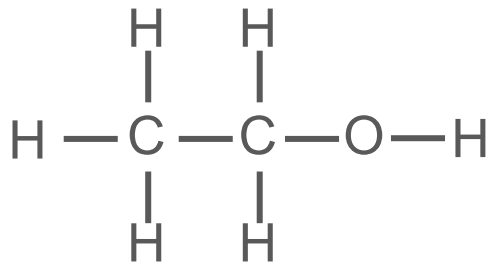
Draw the structural and the displayed formula of ethanol.



Draw the structural and the displayed formula of ethanol.

- Structural formula - $\text{CH}_3\text{CH}_2\text{OH}$

- Displayed formula -



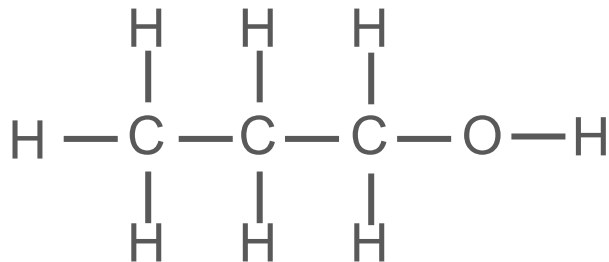
Draw the structural and the displayed formula of propanol.



Draw the structural and the displayed formula of propanol.

- Structural formula - $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$

- Displayed formula -



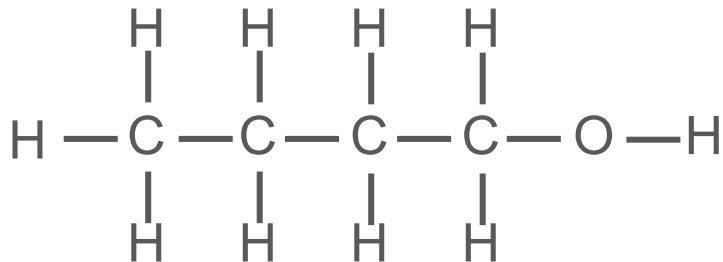
Draw the structural and the displayed formula of butanol.



Draw the structural and the displayed formula of butanol.

- Structural formula - $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$

- Displayed formula -



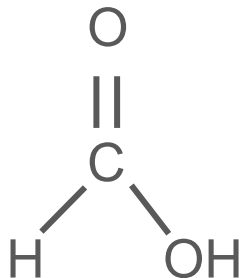
Draw the structural and the displayed formula of methanoic acid.



Draw the structural and the displayed formula of methanoic acid.

- Structural formula - CHOOH

- Displayed formula -



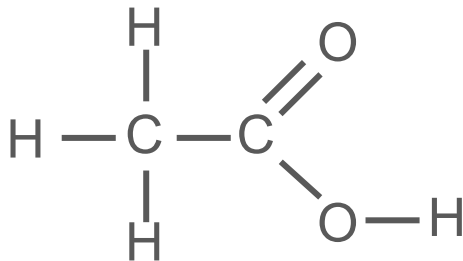
Draw the structural and the displayed formula of ethanoic acid.



Draw the structural and the displayed formula of ethanoic acid.

- Structural formula - CH_3COOH

- Displayed formula -



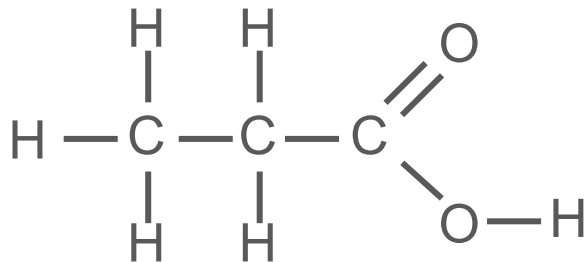
Draw the structural and the displayed formula of propanoic acid.



Draw the structural and the displayed formula of propanoic acid.

- Structural formula - $\text{CH}_3\text{CH}_2\text{COOH}$

- Displayed formula -



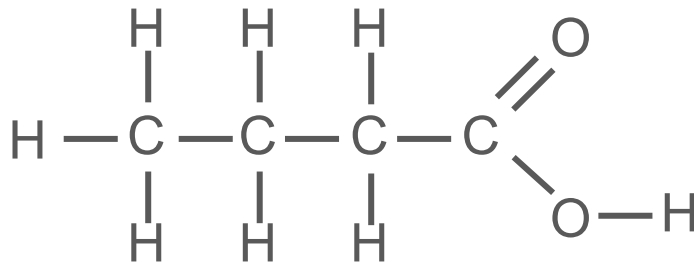
Draw the structural and the displayed formula of butanoic acid.



Draw the structural and the displayed formula of butanoic acid.

- Structural formula - $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$

- Displayed formula -



Give a formula for the combustion of alkanes.



Define a formula for the combustion of alkanes.

alkane + oxygen \rightarrow carbon dioxide + water



Suggest a formula that indicates a reaction between alkene and hydrogen.



Suggest a formula that indicates a reaction between alkene and hydrogen.

alkene + hydrogen \rightarrow alkane



Suggest a formula that indicates a reaction between alkene and bromine.



Suggest a formula that indicates a reaction between alkene and bromine.

alkene + bromine \rightarrow dibromoalkane



Suggest a formula that indicates a reaction between alkene and water.



Suggest a formula that indicates a reaction between alkene and water.

alkene + water \rightarrow alcohol



What is the product that is formed from oxidation reactions of alcohols?



What is the product that is formed from oxidation reactions of alcohols?

Carboxylic acid



What is addition polymerisation?



What is addition polymerisation?

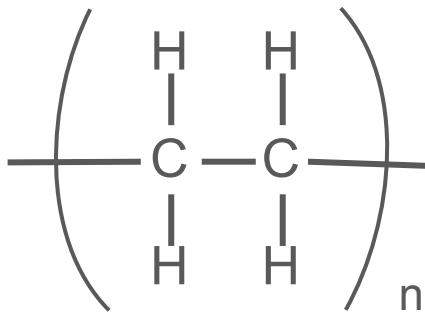
The reaction in which many small molecule monomers bond together to form a long chain polymer.



Draw the repeat unit of polyethene.



Draw the repeat unit of polyethene.



What is condensation polymerisation?



What is condensation polymerisation?

- Reactions in which monomers join together and lose small molecules, such as water.
- These reactions involve monomers with two functional groups.



What is a DNA and what is it made from?



What is a DNA and what is it made from?

- A molecule which encodes genetic instructions for the development and functioning of living organisms and viruses.
- Most DNA molecules are two polymer chains, made from four different nucleotides, in the form of a double helix.

