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IGCSE Chemistry

Complete Revision Summary

Rates and Equilbrium

Organic Chemistry

Chemical Analysis

Chemistry of the Atmosphere

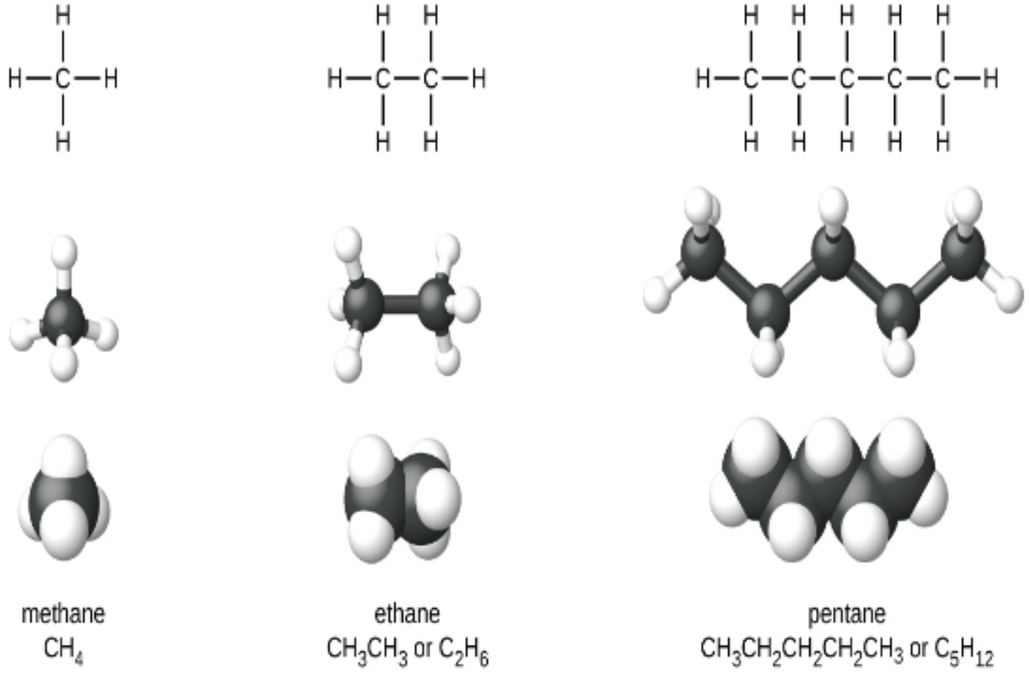
Using Resources

Alkanes

Hydrocarbons and Crude Oil
Alkanes
Fractional Distillation
Properties of Hydrocarbons
Cracking
Alkenes
Reaction of Alkenes
Alcohols
Carboxylic Acid
Addition Polymerization
Condensation Polymerization
Amino Acids
DNA

www.expertguidance.co.uk
mahima.laroyia@expertguidance.co.uk
+447448352272

ALKANES



Saturated Hydrocarbon

- carbon carbon single bond
- made up of carbon and hydrogen only

GENERAL FORMULAE — C_nH_{2n+2}

METHANE — CH_4

ETHANE — C_2H_6

PROPANE — C_3H_8

BUTANE — C_4H_{10}

PENTANE — C_5H_{12}

Members of the same family have similar functional group similar chemical properties and general formulae but different physical property and each members differs from successive by CH2

Homolgous Series

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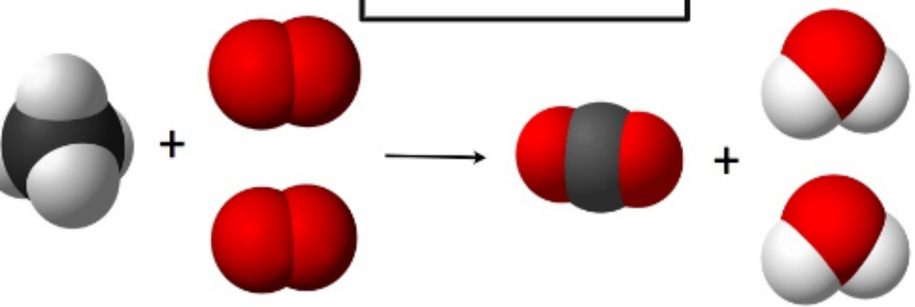
mahima.laroyia@expertguidar
+447448352272

COMBUSTION

COMPLETE



$CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$

FUEL IS COMPLETELY BURNED

PRODUCES CARBON DIOXIDE AND WATER

IT IS NOT TOXIC

INCOMPLETE

$CH_4 + O_2 \rightarrow CO + 2H_2O$

FUEL IS PARTIALLY BURNED DUE TO LIMITED SUPPLY OF OXYGEN

PRODUCES CARBON MONOXIDE AND WATER

CARBON MONOXIDE IS TOXIC AS IT DECREASES THE OXYGEN CARRYING CAPACITY OF RED BLOOD CELLS

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mahima.laroyia@expertguidance.co.uk
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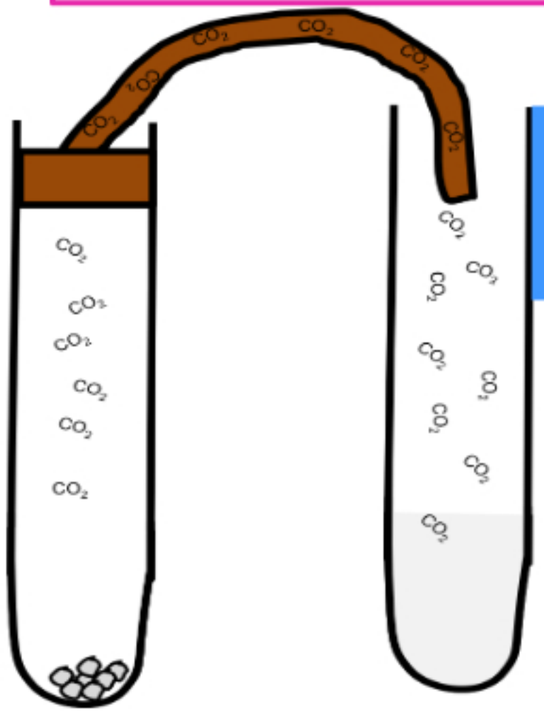
PRODUCTS OF COMBUSTION

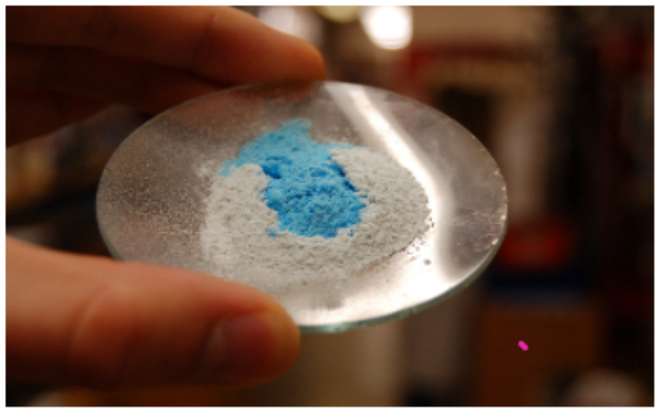
Carbon Dioxide Test



Limewater Test.

Carbon Dioxide will turn limewater milky

Water Test



Anhdrous copper sulphate test

Water will turn anhydrous white copper sulphate crystals to blue.

blue cobalt chloride paper test

Cobalt chloride blue paper will turn pink in the presence of water

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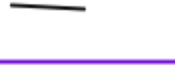
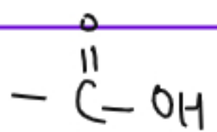
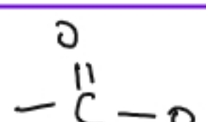
FUNCTIONAL GROUPS

Groups of atoms that give special properties and reactions to the organic molecule

	Functional Group	Examples	Formation
ALKENES		Ethene, propene, butene, pentene	Cracking of crude oil
ALCOHOLS		methanol, ethanol, propanol, butanol, pentanol	Reaction of alkene with water
CARBOXYLIC ACID		methanoic acid, ethanoic acid, propanoic acid, butanoic acid.	Oxidation of alcohols
ESTERS		methyl ethanoate, ethyl ethanoate	Reaction of alcohols and carboxylic acid

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NEXT STEP

- CHECK SPECIFICATION
- EXAM QUESTIONS ON THIS TOPIC

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