CLIL Crude Oil

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Catalytic Cracking and Reforming

The heaviest fractions of refined oil need to be broken apart to produce some higher-value products such as gasoline and jet fuel. The process is called **cracking** and is useful to increase the quantity of the products.

The composition of the hydrocarbon chain is changed by chemical reactions under pressure. This catalytic process consists of **breaking down the larger, heavier and more complex hydrocarbon molecules into lighter ones.** The gasoline, which is obtained, contains a high proportion of unsaturated hydrocarbons.

$C_{10}H_{22} \rightarrow C_8H_{18} + C_2H_4$

decane →octane + ethene

Catalytic reforming processes are employed **to increase the proportion of aromatics and branched-chain alkanes** under controlled heat and pressure.

The process results in **better quality gasoline** due to its higher octane number and wider boiling range.

Paraffinic and naphthenic hydrocarbons are converted into **manufacture and petrochemical products** such as plastics (polyethene).

Petrol is a good fuel for a car engine because it ignites very easily. It has low viscosity and a low boiling point due to its short-chain molecules.

https://www.youtube.com/watch?v=XsqIv4rWnEg
(Hydrocarbon Cracking and Why It Is Done | The Chemistry Journey | The Fuse School)