

Chemguide – questions

ALKANES: CRACKING

1. In the petroleum industry, large hydrocarbons from the distillation of crude oil are often cracked to split them into smaller bits. Suggest reasons why this is done.
2. Cracking is a random process. The alkane $C_{14}H_{30}$ might split in a variety of different ways. Write equations for the cracking of $C_{14}H_{30}$ which lead to the formation of
 - a) 1 molecule of ethene, 1 molecule of propene and another hydrocarbon;
 - b) 3 molecules of ethene and another hydrocarbon.
3. Cracking methods include thermal cracking and catalytic cracking.
 - a) Give the conditions for thermal cracking.
 - b) Briefly, what happens to an individual alkane molecule as it splits into smaller bits during thermal cracking?
 - c) Give the conditions for catalytic cracking.
 - d) Briefly, what happens to an individual alkane molecule as it splits into smaller bits during catalytic cracking?