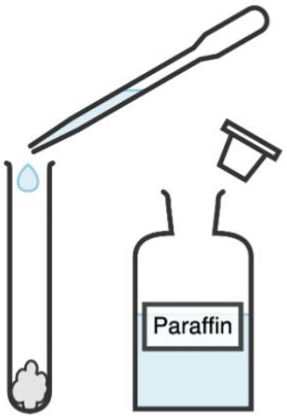
Science Mastery

Integrated Instructions

Aim: To simulate industrial process of producing smaller alkanes for petrol by cracking large hydrocarbons

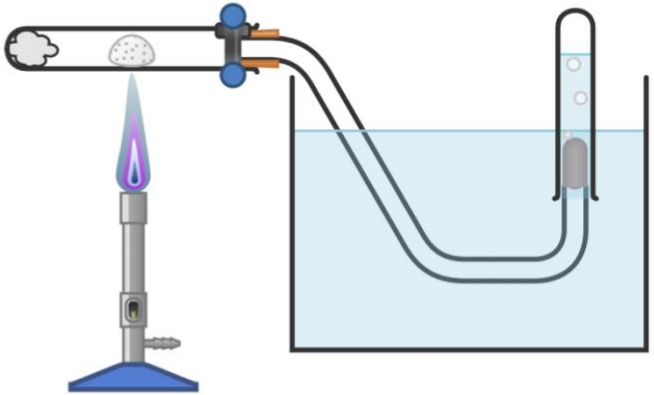
START

1. Place mineral wool in the bottom of a boiling tube and soak it with approx. 2 ml liquid paraffin. Ensure the paraffin does not drip out of the wool when the boiling tube is angled horizontally.

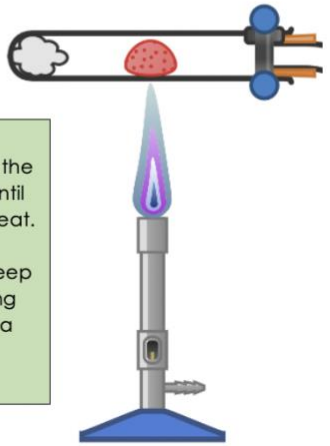


2. Angle the tube horizontally and place some porous pot fragments in the centre, then clamp the boiling tube at the open end.

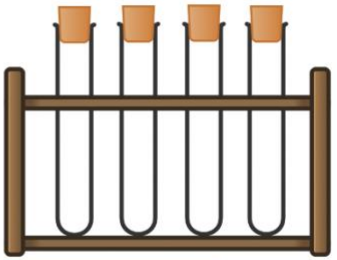
3. Insert a bung and delivery tubing into the boiling tube with a Bunsen valve into an upturned test tube full of water inside a water trough at the other end of the delivery tubing (as per diagram).



4. Heat the porous pot catalyst in the middle of the tube for a few minutes until you observe a dull red heat. Do not heat the rubber bung as this can melt. Keep the catalyst hot by flicking the flame on and off for a few seconds in order to vaporise liquid paraffin.



5. When a steady stream of gas bubbles is being produced, fill four test tubes, seal with bungs, and place these in a test tube rack.



6. The collected gas can be tested for appearance, smell, flammability, and with bromine water/acidified potassium(VII) manganate solution.

END