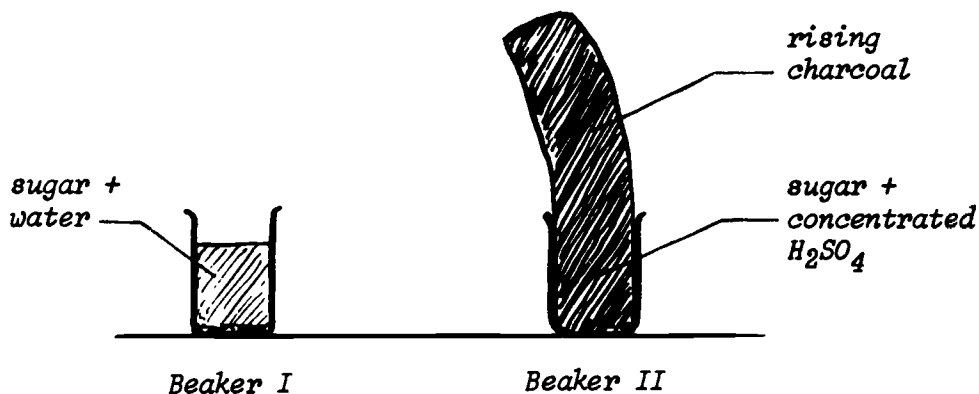


5.1. THE CHARCOAL SAUSAGE

- Materials:
1. About 100 ml of sugar crystals.
 2. Two 100 ml beakers, two glass stirrers.
 3. Concentrated sulfuric acid (H_2SO_4).

Procedure:

1. Fill each beaker half full with sugar.
2. Add about 40 ml of water to the first beaker and the same amount of concentrated sulfuric acid to the second beaker; stir and let stand.
3. Observe the difference between the two changes in the sugar. Ask: "In which beaker do the reactants still have the same properties?" (the reaction should preferably be carried out under a fume hood or close to an open window, or in the outdoors).

Questions:

1. What is the difference between the processes in beaker I and II?
2. How can we recognize or distinguish between a physical change and a chemical change?
3. In which of the two beakers could we get the sugar back as sugar?
4. What do you think happened in the second beaker?
5. What property do you think concentrated sulfuric acid has?
6. What do you think the black material in beaker two is?

Explanation:

In beaker I, where the sugar was mixed with the water, a physical change was taking place. This means that the components of the mixture retained their properties; they could be separated and still have the exact properties as before the change. The water could be left to evaporate and the sugar would crystallize out of the solution.

In beaker II a chemical change took place, leaving products, which have properties that are completely different from the original components of the mixture. A black charcoal mass is produced, which is expanding up because of the gases (SO_2) and water vapor being released. This is caused by the dehydrating properties of concentrated sulfuric acid.