**Student worksheet**

**Practical 1: The reactions of a benzene substituted compound - methoxybenzene**

**Questions**

1. Explain the colour of the flame and any other observations made during the combustion process.
2. Were the observations of bromination the same with methoxybenzene as cyclohexene?
3. Does bromine react with methoxybenzene in the same way as cyclohexene?
4. What type of reaction is the bromination of an alkene?
5. What type of reaction is the bromination of methoxybenzene? (Clue: 2 product were made)
6. Why is benzene not used?
7. Methyl benzene is about as reactive as benzene but methoxybenzene is used to illustrate the reactions. Comment about the reactivity of cyclohexene.

**Analysis of results**

* Write a balanced chemical reaction for the complete combustion of methoxybenzene.
* Write a balanced chemical reaction for the bromination of methoxybenzene.
* Write a balanced chemical reaction for the nitration of methoxybenzene.

**Procedure**

**Carry out the following experiments with methoxybenzene then with methyl benzene:**

**Combustion:**

1. Pour about 1cm depth of methoxybenzene into a test tube and bung. This is your source of methoxybenzene, keep it bunged and away from naked flames.
2. Use a pipette to transfer a small amount to a combustion spoon. Place this in a Bunsen burner until alight then record the colour and any other observations of the flame.

**Bromination:**

1. In a fume cupboard add about 0.5cm3 methoxybenzene. Add a few drops of bromine while holding the neck of a bottle of ammonia near the top of the test tube.
2. Repeat with cyclohexene.
3. Record all observations.

**Nitration:**

1. Add 1cm3 of water to a test tube and carefully add 1cm3 of concentrated nitric acid.
2. Add a few drops of methoxybenzene to the mixture and warm in a water bath.
3. Record all observations.

**Equipment/materials**

* Combustion spoons
* Pipettes
* Test tube bungs
* Methoxybenzene
* Methyl benzene
* Cyclohexene
* Conc nitric acid
* 2M ammonia
* 2% bromine dissolved in an inert solvent (fume cupboard)

 

Corrosive Oxidising

 

Harmful Flammable

**Safety**

* Perform the experiment in a well-ventilated room.
* Wear a lab coat and tie long hair back.
* Wear safety goggles.
* Wear chemical-resistant gloves when handling bromine

**Objective**

* Identify the properties and reactions of benzene

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