

Edexcel Chemistry A-level

Practical 16

Synthesis of Aspirin.



In this experiment, a sample of acetylsalicylic acid is prepared by acetylation of 2-hydroxybenzoic acid with acetic anhydride. It is then purified by recrystallisation and the melting point of the product recorded.

Method

1. Weigh out 2-hydroxybenzoic acid and transfer to a pear shaped flask.
2. Add acetic anhydride and 8 drops of concentrated H_3PO_4 solution.
3. Warm the mixture under reflux for 5 minutes.
4. Add cold deionised water to the solution and stand the flask in a bath of iced water until precipitation is complete.
5. Filter the mixture under reduced pressure.
6. Dissolve the impure product in the minimum amount of warm ethanol.
7. Add warm water.
8. Place the boiling tube into ice water for 15 minutes.
9. Filter the purified derivative under reduced pressure.
10. Dry the purified product using filter paper.
11. Collect your sample in a dry, pre-weighed sample vial and calculate the mass of the product. Use this information to calculate the percentage yield of the product.
12. Measure the melting point of the product.

Key points

- When washing the product with **ice cold water**, don't add too much as to minimise product loss).

Safety

- Ethanoic anhydride and conc. acid are **corrosive**, so use gloves.

