

# Edexcel International Chemistry A-level

## Practical 16

### The Preparation of Aspirin



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

### Method

1. Weigh out 2g of 2-hydroxybenzoic acid and transfer to a pear shaped flask.
2. Add 5 cm<sup>3</sup> of ethanoic anhydride and 8 drops of concentrated sulfuric acid solution.
3. Warm the mixture in a hot water bath under reflux for 5 minutes so the 2-hydroxybenzoic acid dissolves. Gently swirl the flask while heating the mixture.
4. Add 10 cm<sup>3</sup> of ice to the solution and stand the flask in a bath of ice until precipitation is complete.
5. Filter the mixture under reduced pressure using a Büchner funnel and wash the crystals with a small amount of icy water.
6. Dissolve the impure product in the minimum amount of warm ethanol.
7. Add warm water.
8. Place the boiling tube into ice for 15 minutes.
9. Again, filter the purified derivative under reduced pressure.
10. Dry the purified product using filter paper.
11. Collect your sample in a dry, pre-weighed 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 to test its purity - the melting point of pure aspirin is 135 °C, the closer the melting point is to this value, the purer the product.

### Key points

- When washing the product with **ice cold water**, add as little as possible to minimise product loss.

### Safety

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

