Analysis of Aspirin

Objectives

1) To determine the percentage purity of the sample of Aspirin prepared in the laboratory

2) To compare the percentage purity of the sample of aspirin synthesised in the laboratory and the commercial aspirin tablets provided.

Introduction

To determine the percentage purity of aspirin (2 acetoxybenzoic acid) by the method of back titration employed.

The determination depends upon the alkaline hydrolysis of aspirin to ethanoic acid and 2-hydroxybenzoic acid (salicylic acid), and the immediate formation of their sodium salts, followed by back titration of the excess alkali, using phenolphthalein as indicator.

Procedure

1) Collect aspirin product that was synthesised from previous lab.

2) Place aspirin product into a small beaker and put into oven to dry.

3) Accurately weigh the dried product and compare its mass from the previous lab.

4) From your dried product accurately weigh 0.2 to 0.25 g of aspirin.

5) Place sample into a 250 mL conical flask and add 25 mL of standardised NaOH (0.2 M) solution, using a pipette.

6) Place a small funnel in the neck of the conical flask and reflux contents on a water bath for fifteen (15) minutes. Carry out duplicate determination.

7) Cool flask to room temperature (under tap) and titrate contents with standardised HCl, using phenolphthalein as indicator.

8) Accurately weigh 4 aspirin tablets together (do not crush the tablets as yet)

9) Crush the 4 aspirin tablets and weigh accurately about 0.2 g of sample.

10) Repeat steps 5 – 7.

Exercises

1) Calculate the % purity of aspirin in the sample prepared in the lab and the commercial sample.

2) Comment on any differences observed in the percentage purity of the samples analysed.