

# Experiment A6: Gravimetric Analysis

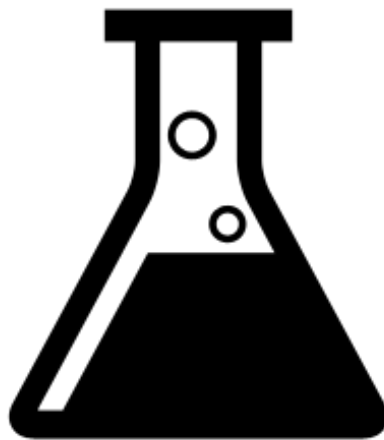
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**Full title:** Determination of the concentration of sulphate in epsomsalts.

**Demonstrator:**

**Group:** 7

**Date Performed:** 17/09/2018



## Aims

1. Determination of sulphate concentration in Epsom salt sample by:
  - (a) dissolution of epsom salt sample in heated water acidified with HCl.
  - (b) Precipitation of dissolved sulphate as  $BaSO_4$  by addition of  $BaCl$  solution
  - (c) purification of  $BaSO_4$  precipitate by digestion in heated mother solution.
  - (d) Filtration, dessication, and determination of dry mass of  $BaSO_4$  precipitate.

## Introduction

## Experimental Procedure

See second year analytic laboratory manual, pages 38-39 for full procedure. The following changes were made to the procedure:

1. No lids were used in the ignition of weighing crucibles.
2. In the filtration of the  $BaSO_4$  precipitate larger volumes of hot water ( $50 - 100ml$ ) were used for each wash.

## Results

Table 1: Masses of Epsom Salts samples used for analysis.

Analysis Number	1	2
Weighing bottle+Epsom Salts sample/g	8.4783	10.0992
Weighing Bottle+ residue/g	7.9370	9.5739
Mass of Barium Sulphate precipitate attained/g	0.5413	0.5253

Table 2: Masses of  $BaSO_4$  precipitates attained from reaction of epsom salt solutions with excess barium chloride.

Analysis Number	1	2
Dry Crucible/g	21.6976	19.8512
Dry Crucible containing Barium Sulphate Precipitate/g	22.1614	20.3549
Mass of Barium Sulphate precipitate attained/g	0.4638	0.5037

## Experimental Data

## Calculations

## Discussion

## References

1. University of the Witwatersrand; School of Chemistry, 2018, Second Year analytical laboratory manual, Johannesburg, South Africa, pp 37-38