

Experiment No. (4)

Quantitative Determination of Water in aqueous salt:

Reagents Required:

1. $\text{KAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$
2. Crucible
3. Crucible tongs
4. Bunsen burner

Procedure:

- 1) Weight your Alum sample before starting this section.
- 2) Weight the clean and dry crucible and record this mass in your notebook.
- 3) Put the weight of your Alum in crucible and then heat it by Bunsen burner on the porcelain triangle supported by a ring and ring stand for few minutes until Alum properties change .
- 4) Cool the crucible to room temperature and then weight your crucible with anhydrous Alum, record the second mass in your notebook.

Calculations:

$$w_1 = \text{Mass of Alum}$$

$$w_2 = \text{Mass of Anhydrous Alum}$$

$$w_2 - w_1 = w_3 (\text{The Mass of Water})$$

$$\% \text{H}_2\text{O} = \frac{w_3}{w_1} \times 100$$

$$\begin{aligned} \text{Water Molecules Per formula Unit of Alum} &= \frac{w_2}{\text{M.Wt of Anhydrous Alum}} \\ &= \frac{w_1}{\text{M.Wt of Anhydrous Alum} + 18x} \end{aligned}$$

$$x = \text{Water Molecules}$$

Questions:

1. Why we heated the crucible before using it?
2. What are the factors on which the number of water in hydrous Alum relies on?
3. What is the anhydrous Alum basic?
4. Give examples of hydrous salt?