GRTT INTERNATIONAL GCSE CHEMISTRY

ACTIVITY 2 - PRACTICAL APPROACH

Core practical 1: Solubility

1.7C Core practical: Investigate solubility of a solid in water

Links to the specification content

1.4	Know what is meant by the terms *solvent*, *solute*, *solution*, and *saturated solution*
1.5C	**Know what is meant by the term solubility in the units g per 100g of solvent**
1.6C	**Understand how to plot and interpret solubility curves**

Introducing the practical

- Place approximately 50 cm^3 of water into a beaker
- Add the solid a little at a time, with stirring, until no more will dissolve
- Weigh an empty evaporating basin
- Filter the mixture and collect the filtrate in the evaporating basin
- Weigh the evaporating basin and filtrate
- Evaporate the water

This could be done by direct heating with a Bunsen as long as the chosen solid does not decompose on heating or if it contains water of crystallisation. If direct heating is used, care must be taken not to allow any of the solid to spit out. One method of avoiding this is to place the evaporating basin on top of a beaker containing water, then to heat the water in the beaker. Alternatively the basin could be placed in a warm oven, if available.

Weigh the evaporating basin and the solid:

A typical set of results for sodium chloride is:

- mass of empty evaporating basin = 30.45 g
- mass of evaporating basin and filtrate = 95.95 g
- mass of evaporating basin + sodium chloride = 47.75 g
- mass of water = 48.20 g
- mass of sodium chloride = 17.30 g
- solubility of sodium chloride = (17.30 ÷ 48.20) × 100

= 35.9 g/100 g of water

If you wish to determine the solubility at different temperatures, then boiling tubes could be used with smaller volumes of water. The tubes can be heated in water baths to reach the desired temperatures.