E5 IDENTIFICATION OF INORGANIC COMPOUNDS

Anion and Cation Tests
Any process that can provide a qualitative determination of the anion present in a simple inorganic compound is based upon knowledge of acid/base chemistry, redox chemistry and solubility. In this regard, the identification of a single pure compound is therefore very much simpler than the identification of a mixture. Two difficulties encountered with mixtures are that:

- the reactions of one species can interfere with the reactions of another;
- interference can be overcome by separation, but this may be very difficult.

In this practical exercise only the identification of single compounds is dealt with. These contain only one kind of cation and one kind of anion, possibly together with water-of-crystallisation.

Systematic Identification
In most instances a specific reaction is needed in order to identify a particular ion. A general procedure involving all of these reactions is dealt with in this exercise. This procedure has several fundamental steps, as outlined below:

1. Observation of colour of solid.
2. Solubility in water and colour of solution (if applicable).
3. Anion tests.
4. Cation tests.

*It is important to carry out these tests in the order indicated.*

These tests have been designed to progressively eliminate certain ions. Consequently, the later tests assume that particular types of ions have been eliminated in the earlier tests, and if this has not been done then incorrect results will ensue. Since the unknowns used in this practical exercise will contain only one type of anion and one cation, it is unnecessary to continue with the tests once the ion has been identified.

Online Quiz
There is no quiz associated with this pre-work. Instead familiarise yourself with the chemistry involved by reading through the experimental procedure and complete the equations in the laboratory manual at the time you perform the experiment.