

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use Total Task 1



General Certificate of Education
Advanced Level Examination
June 2011

Chemistry

CHM6X/PM1

Unit 6X A2 Externally Marked Practical Assignment

Task Sheet 1

To be completed before Task Sheet 2

For submission by 15 May 2011

For this paper you must have:

- a ruler
- a calculator.

The investigation of a weed killer

Some transition metal compounds are used to kill weeds in garden lawns. These transition metal compounds make the soil slightly acidic. Some weeds cannot tolerate the acidic conditions and therefore die. The grass is unaffected.

This practical assessment is in two parts.

The aim of Task 1 is to confirm that iron(II) ions are present in a weed killer by a series of observation exercises on solutions of some transition metal compounds. The results of these exercises, along with results for a solution of a weed killer published by the manufacturer, will be used in **Section A** of the Written Test.

The aim of Task 2 is to determine the concentration of iron(II) ions in the weed killer by titration of a solution of the weed killer with a $0.0200 \text{ mol dm}^{-3}$ solution of potassium manganate(VII).

Task 1 Observation exercise

You are provided with solutions of chromium(III) sulfate, iron(II) sulfate and iron(III) sulfate.

Record your observations in a table of your own design on the Candidate Results Sheet for Task 1.

Where no visible change is observed, write 'no visible change'.

You are **not** required to identify any of the reaction products in this part of the task.

Wear eye protection at all times.

Assume that all of the solutions are toxic and corrosive.

Procedure**Test 1 Test with ammonia solution**

Place about 10 drops of chromium(III) sulfate solution in a test tube.
Add ammonia solution, dropwise with shaking, until in excess.

Repeat this test replacing chromium(III) sulfate solution with

- iron(II) sulfate solution
- iron(III) sulfate solution.

Test 2 Test with sodium carbonate solution

Place about 10 drops of chromium(III) sulfate solution in a test tube.
Add 10 drops of sodium carbonate solution and shake the mixture.

Repeat this test replacing chromium(III) sulfate solution with

- iron(II) sulfate solution
- iron(III) sulfate solution.

Test 3 Test with potassium thiocyanate solution

Place about 10 drops of chromium(III) sulfate solution in a test tube.
Add 10 drops of potassium thiocyanate solution and shake the mixture.

Repeat this test replacing chromium(III) sulfate solution with

- iron(II) sulfate solution
- iron(III) sulfate solution.

Test 4 Test with potassium hexacyanoferrate(II) solution

Place about 10 drops of chromium(III) sulfate solution in a test tube.
Add 10 drops of potassium hexacyanoferrate(II) solution and shake the mixture.

Repeat this test replacing chromium(III) sulfate solution with

- iron(II) sulfate solution
- iron(III) sulfate solution.

Turn over ►

Candidate Results Sheet for Task 1

Teacher Group

Results

Record your observations in a table of your own design in the space below.

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