



Chemistry

CHM6T/Q13/task

Unit 6T A2 Investigative Skills Assignment

Task Sheet

An investigation of some transition metal compounds

Most transition metal compounds are coloured. Some of them are used as dyes and pigments. A dye is a soluble coloured compound. A pigment is an insoluble coloured compound. Both dyes and pigments have to be resistant to chemical change.

Three solutions, labelled **P**, **Q** and **R**, have been provided by a supplier as possible dyes.

- You will carry out tests on these solutions.
- You will record what you **observe** for each test in a table of your own design on the Candidate Results Sheet.
- Where no visible change is observed, write 'no visible change'.

In this task, you are **not** required to identify any of the solutions or any of the reaction products.

Procedure

- **Wear eye protection at all times.**
- **Assume that all solutions are toxic and corrosive.**
- **Use a separate sample in each of the following tests.**

Test 1(a) Place about 10 drops of solution **P** in a test tube.
Add sodium hydroxide solution, dropwise with gentle shaking, until in excess.
Do not discard this mixture.

Repeat this test with solution **Q** and then solution **R**.

Test 1(b) Half fill a 250 cm³ beaker with the freshly boiled water provided.
Allow the three test tubes containing the mixtures from **Test 1(a)** to stand in the beaker of hot water for about 10 minutes.

While you are waiting, begin **Test 2**.

Test 2 Place about 10 drops of sodium carbonate solution in a test tube.
Add about 10 drops of solution **P** and shake the mixture gently.

Repeat this procedure with solution **Q** and then with solution **R**.

Test 3 Place about 10 drops of solution **P** in a test tube.
Add about 10 drops of silver nitrate solution and shake the mixture gently.

Repeat this procedure with solution **Q** and then with solution **R**.
Allow the three test tubes to stand for about 10 minutes.

ISA CHM6T/Q13 Candidate Results SheetCentre Number

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Teacher Group

Candidate Name Candidate Number

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Results

Record your observations in an appropriate table in the space below.

(8 marks)

For Teacher's use only			
R		A	