



General Certificate of Education  
Advanced Level Examination  
June 2010

# Chemistry

# CHM6T/P10/task

## Unit 6T A2 Investigative Skills Assignment

### Task Sheet

#### The investigation of an organic compound

Ethanoic acid is manufactured in industry from methanol and carbon monoxide in a multi-step process involving hydrogen iodide. Ethanoic acid is obtained from the reaction mixture by fractional distillation. Methanoic acid is a useful by-product of this process. The compounds in the reaction mixture can be distinguished by test tube reactions which test for specific functional groups.

You are provided with a sample of one of these compounds, labelled **X**, along with samples of ethanoic acid, methanoic acid and methanol. Your task is to complete a series of observation exercises. The results of these exercises will allow you to identify **X**.

#### Use a separate sample in each of the following tests.

Record what you **observe** in a table of your own design on the Candidate Results Sheet. Where no visible change is observed, write 'no visible change'.

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

#### Wear eye protection at all times.

**For the purpose of this task assume that all of the solutions are toxic, flammable and corrosive.**

**Procedure****Test 1 Test with acidified potassium manganate(VII) solution**

Half fill a 250 cm<sup>3</sup> beaker with the hot water provided. Place about 10 drops of **X** in a test tube. Add about 10 drops of acidified potassium manganate(VII) solution and shake the mixture. Stand the test tube in the beaker for about 10 minutes.

Repeat this test replacing **X** with

- ethanoic acid
- methanoic acid
- methanol.

**While you are waiting, begin the tests below.**

**Test 2 Test with methyl orange**

Place about 10 drops of **X** in a test tube. Add about 5 drops of methyl orange and shake the mixture.

Repeat this test replacing **X** with

- ethanoic acid
- methanoic acid
- methanol.

**Test 3 Test with sodium hydrogencarbonate**

Place about 10 drops of **X** in a test tube. Add a small amount of the solid sodium hydrogencarbonate.

Repeat this test replacing **X** with

- ethanoic acid
- methanoic acid
- methanol.

**ISA CHM6T/P10 Candidate Results Sheet**Centre Number 

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Teacher Group .....

Candidate Name ..... Candidate number 

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**Results**

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

For Teacher's use only			
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