Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

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Total Task 1

General Certificate of Education
Advanced Subsidiary Examination
June 2013

Chemistry CHM3X/PM1

Unit 3X AS Externally Marked Practical Assignment

Task Sheet 1

To be completed before Task Sheet 2

For submission by 15 May 2013

For this paper you must have:
- a ruler
- a calculator.

An investigation of baking powder

Task 1 Thermal decomposition of sodium hydrogencarbonate

Baking powder contains sodium hydrogencarbonate. It is added to cake and bread mixtures so that they rise when cooked. During cooking, sodium hydrogencarbonate decomposes and releases carbon dioxide. This causes the mixture to rise.

In this Task, you will investigate the thermal decomposition of sodium hydrogencarbonate by measuring the mass of a sample before and after heating. The decomposition occurs readily above 80 ºC and carbon dioxide is evolved. The solid remaining is sodium carbonate which is stable at temperatures below 1000 ºC.

The equation for the decomposition is

$$2NaHCO_3 \longrightarrow Na_2CO_3 + CO_2 + H_2O$$

Procedure

- **Wear eye protection at all times.**
- **Assume that all solids are toxic.**
- **Read all of the following instructions and then design a table, on the Candidate Results Sheet for Task 1, to record your results.**
- **Record all masses to two decimal places.**

1 Weigh a clean, dry crucible. Record this mass.

2 Tip the sodium hydrogencarbonate provided into the clean, dry crucible. Record the total mass of the crucible and contents.

3 Set up a tripod and Bunsen burner on a heat-proof mat. Place a pipe-clay triangle on the tripod to support the crucible during heating.

4 Use the Bunsen burner, with the air hole half open, to heat the crucible and contents for about 10 minutes. After heating, leave the crucible to cool for about 5 minutes.

5 Carefully use the tongs to transfer the cooled crucible and contents to the balance. Record this total mass.

6 Return the crucible to the tripod and heat for a further 5 minutes. After heating, leave to cool for about 5 minutes. Again, carefully use the tongs to transfer the cooled crucible and contents to the balance. Record this total mass.

7 Repeat step 6. Record the final mass of the crucible and contents.

You are **not** required to do any further work in Task 1.
You will use your results in Section A of the Written Test.

Candidate Results Sheet for Task 1

Teacher Group .....

Results

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

(7 marks)

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R		P	
C		A	

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There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED