

# Chemistry

# CHM3T/P14/task

## Unit 3T AS Investigative Skills Assignment

### Task Sheet

#### The determination of the composition of a mixture

Hydrochloric acid is used to clean the surface of bricks and concrete. After use, any unreacted acid is collected in holding tanks, then neutralised by adding sodium hydroxide. In practice, a slight excess of alkali is used so that a mixture of sodium chloride and unreacted sodium hydroxide remains. The composition of this mixture can be determined by titration.

You are provided with solution **A**, containing sodium chloride and sodium hydroxide. Solution **A** will be titrated with hydrochloric acid.

#### Procedure

- **Wear eye protection at all times.**
  - **Assume that all solutions are toxic and corrosive.**
- 1 Rinse a burette with solution **A**. Set up the burette and use a funnel to fill it with solution **A**. Record the initial burette reading in a table of your own design on the Candidate Results Sheet.
  - 2 Use a pipette filler to rinse a pipette with the hydrochloric acid provided. Use this pipette to transfer  $25.0\text{ cm}^3$  of the hydrochloric acid to a  $250\text{ cm}^3$  conical flask.
  - 3 Add 3 or 4 drops of phenolphthalein indicator to the conical flask.
  - 4 Add solution **A** from the burette until the mixture in the conical flask just turns pink. The colour may fade on standing. You should therefore record the burette reading when the colour first changes and not add more solution **A**.
  - 5 Rinse the conical flask with distilled or deionised water. Repeat the titration until you obtain **two** titres that are within  $0.10\text{ cm}^3$  of each other. You should do no more than five titrations.  
**Have one of your final burette readings checked by your teacher.**
  - 6 Calculate and record the average titre on the Candidate Results Sheet. Show clearly the titres that you used in calculating this average titre.

You are **not** required to carry out any further calculations on the Candidate Results Sheet. You will use your results in **Section A** of the Written Test.

**ISA CHM3T/P14 Candidate Results Sheet**Centre Number 

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Teacher Group .....

Candidate Name ..... Candidate Number 

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**Results**

Record your titration results in an appropriate table in this space.

**[8 marks]**Average titre / cm<sup>3</sup> .....

For Teacher's use only					
B		R		P	
C		A			

<b>8</b>
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