

**PRACTICAL WORK SHEET 6****GRADE 12****STANDARDISATION OF A HYDROCHLORIC ACID SOLUTION WITH A STANDARD SOLUTION OF SODIUM HYDROXIDE****INSTRUCTIONS**

- You will work in groups.
- Follow the instructions as indicated under the procedure.
- Each learner must copy and complete the table.
- You will be assessed on your skills to
  - measure accurately.
  - interpret data.
  - follow the procedures correctly.

**AIM**

To standardise a HCl - solution with the standard NaOH - solution.

**EQUIPMENT**

|                          |                         |
|--------------------------|-------------------------|
| -250ml Erlenmeyer flasks |                         |
| -25 ml pipette           | -bromothymol blue       |
| -burette                 | -250ml reagent bottle   |
| -retort stand            | -wash-bottle            |
| -standard NaOH solution  | -filter paper           |
| -mass meter              | -500ml volumetric flask |
| -funnel                  | -10 ml measuring flask  |
| -concentrated HCl        |                         |

**PROCEDURE**

1. Prepare 500 ml of a  $\pm 0,1 \text{ mol.dm}^{-3}$  HCl-solution.
  - Add 5 ml conc. HCl into the 500 ml volumetric flask.
  - Fill the flask with water to the mark.
  - Shake well.
2. Rinse the burette with a standard NaOH solution.  
Fill the burette with NaOH solution.
3. Pipette 25 ml of the HCl-solution into each of three Erlenmeyer flasks.  
Add 2 - 3 drops BTB indicator (Bromothymol blue) to each flask.
4. Titrate the acid (HCl) against the NaOH solution.  
The colour change will indicate the point of neutralisation (end point).
5. Repeat the titration twice.

**ASSESSMENT OF PROCEDURE****Criteria**

1. Correct apparatus selected.
2. Correct acid selected.
3. Correct base selected.
4. Correct indicator selected.
5. Wash down the inside of the volumetric flask with distilled water from time to time.
6. Swirling of the mixture in the volumetric flask during the titration.
7. Correct handling of burette and pipette.
8. Cleaning of the apparatus afterwards.