Question 28 (8 marks)

The flowchart shown outlines the sequence of steps used to determine the concentration of an unknown hydrochloric acid solution.

Describe steps A, B and C including correct techniques, equipment and appropriate calculations. Determine the concentration of the hydrochloric acid.

Step A is the preparation of a primary standard solution of sodium carbonate. This process involves accurately measuring out a known weight of dry solid of sodium carbonate, dissolving it in distilled water in a beaker, until the solution has completely dissolved. Using a funnel, carefully transfer the solution of sodium carbonate into a 500mL volumetric flask. Non-continuously, rinse the beaker with distilled...
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Describe steps A, B and C including correct techniques, equipment and appropriate calculations. Determine the concentration of the hydrochloric acid.

**Step A - Preparation of Standard Solution**

1. Measure approximately 5.30 g of powder sodium carbonate on electronic balance in a 250 mL beaker. Tune the electronic balance before using the beaker in order to avoid Na₂CO₃.

2. Dissolve sodium carbonate in small amount of distilled water and stir with a spatula.

3. Collect a round-bottom flask and funnel, and add the sodium carbonate solution into the round flask. Wash the beaker into the flask.

Question 28 continues on page 18