SOP: Preparation of Reagent 1 – Hydrochloric Acid Solution (Approx. 1.2 M)

Purpose

To define the method for preparing Reagent 1, an aqueous hydrochloric acid solution, for use with CO230 and NO230 instruments.

Materials

- Hydrochloric Acid, **AR grade**, 37% w/w
- Deionised or distilled water
- Graduated cylinder or volumetric container
- Chemically resistant mixing vessel
- Appropriate PPE (laboratory gloves, eye protection)

Procedure

Measure 450 parts of deionised water into a suitable container. Slowly add 50 parts of hydrochloric acid (37% w/w, AR grade) to the water while gently mixing, ensuring that acid is added to water and not the reverse. Allow the solution to mix thoroughly and cool to ambient temperature if any heat is generated during dilution. The resulting solution is an aqueous hydrochloric acid reagent with an approximate concentration of **1.2 mol/L (≈4% w/w)**.

Safety and Handling

Prepare the reagent in a well-ventilated area while wearing appropriate PPE. Avoid skin and eye contact. Store the prepared reagent in a clearly labelled, chemically resistant container.

Labelling

Label as:

Reagent 1 – Hydrochloric Acid Solution, approx. 1.2 M (prepared by 1:9 dilution of 37% AR HCl)

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