Introduction:

The laboratory method used in the experiment is titration. Titration is a method used in measuring the amount of an analytical reagent necessary to react quantitatively with the sample. Acid-base titrations are important for counting concentrations of acids and bases. The point at which the equivalence point has been reached is called the theoretical end point. The titration is detected by some physical change, such as colour change, to indicate the end point. The indicator solution used in this experiment is phenolphthalein which is a colourless in acidic solution. When the reaction reached the endpoint, the solution becomes pale pink. One or two drops of phenolphthalein are sufficient for the titration. Addition of too much indicator will necessitate an indicator blank. The indicator should give a clear visual change in the liquid being titrated once the reaction between the standard solution and the substance is practically complete. The indicators can change colour because their ions have colours that are different from the undissociates molecule (Tan. 2010). The acid and base titrations used the Arrhenius theory. This theory stated that acid are substance which produce hydrogen ions in solution and bases are substance which produce hydroxide ion in solution. In titration, standard solutions are now usually expressed in terms of molarity, M.

Molarity, M = moles of solute/volume of solutions in litres

Objective:

One of the purposes of this experiment is to demonstrate the basic laboratory technique of titration towards the students. This experiment enables a hand-on practice done by the students themselves. Thus, the students will know how to handle the materials, apparatus and the correct way to conduct the experiment as well as being careful to avoid any experimental error. Moreover, this experiment also teach the students on the correct steps to calculate percentage of substance, molarity of solution and other calculations involve throughout the experiment.

Apparatus :

Burette with stand Pipette 1-L volumetric flask with stopper 250 mL Erlenmeyer flasks Retort stand with clamp

Reagents:

Sodium hydroxide pellets Potassium hydrogen phthalate (KHP) Phenolphthalein Unknown vinegar

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Lingjun Ying

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