# BCH202

# Lab1: Buffer Solutions

**Objectives**

* To understand the nature of buffer solution
* Understanding of buffer capacity

To learn how to prepare buffer solutionMateriel

# Two beakers 50ml and glass spatula for mixing

# Monosodium dihydrogen phosphate NaH2PO4

* Disodium hydrogen phosphate Na2HPO4

# pH meter to measure the pH

* volumetric flask 100 ml

# Phosphate buffer pH=7.4, that we prepare previously

# Hydrochloric acid with 0.1M (HCl)

# Sodium hydroxide with 0.1M (NaOH)

**Preparing of buffer solution and studying its properties.**

# Prepare 500ml from phosphate buffer with concentration 0.25M and pH= 7.4, if you know that (pKa=7.2)

# Buffer solution content, which are

# \* Monosodium dihydrogen phosphate NaH2PO4

# \* Disodium hydrogen phosphate Na2HPO4

**Calculations :**

Calculate the Acid and conjunct base percentage (ratio) by using Henderson equation

Calculate the weight for both compounds

wg= Number of mols × Molecular weight × 100 / 1000

**method :**

# Dissolve both component in 250ml distilled water in beaker

# pH will measured by pH meter which will be around 7.4 however to get the exact pH by adding those amounts of acid (HCl) or base (NaOH)

# All of these amounts will placed in volumetric flask there we complete to the final volume 500ml by adding distilled water.

# Studying the properties of buffer solutions

# Put 40ml of distilled water in beaker (A) and in another Beaker (B) put 40ml from phosphate buffer that we’re previously prepared.

# Both beaker consonant will be measured the will be measured the pH by using pH meter

# Add to both particular amount of hydrochloric acid or sodium hydroxide and mix it gently

# Measure the hydrogen number pH for both beakers again.

# Write down your observation in the table below

# Results:

|  |  |  |
| --- | --- | --- |
| Volume of HCl o.1M | pH value for Phosphate buffer after the addition | pH value for Water after the addition |
| 0.5ml |  |  |
| 1ml |  |  |
| 2ml |  |  |
| pH average after the addition |  |  |

|  |  |  |
| --- | --- | --- |
| Volume of NaOHo.1M | pH value for Phosphate buffer after the addition | pH value for Water after the addition |
| 0.5ml |  |  |
| 1ml |  |  |
| 2ml |  |  |
| pH average after the addition |  |  |