Lab sheet #2

-Preparation of solutions-

Objectives:

▪ To learn how to prepare solutions with different concentration expressions

Method:

(1) You are provided with solid NaOH, Prepare 50ml with 0.08M NaOH solution.

Calculation:

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▪ To prepare the 0.08M NaOH solution ……………..g of solid NaOH should be dissolved in a little volume of water then the volume made up to ………….ml, by the addition of water.

(2) You are provided with solid NaCl, Prepare 50ml with 1.5 w/v% solution of NaCl.

Calculation:

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▪ To prepare the 1.5 w/v% solution ………….g of NaCl should be dissolved in little water and the volume made up to ……….ml by the addition of water.

(3) Prepare 100ml with 0.4 M HCl solutions starting with the concentrated HCl solution you are provided with: (w/w%= 36 , S.Gr =1.15).

Calculation:

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- To prepare the 100ml of 0.4M HCl solution ……….ml of stock (i.e. concentrated HCl) solution is needed and the volume made up to ……..ml by the addition of water.
- <u>Measure</u> and record the pH value of the acid you prepared……………………
- <u>Calculate</u> the pH of the acid (pH= - log [H+]) …………………………………………
- Determine your accuracy…………………………..

<u>**Note:**</u> Atomic weights: Na = 23, Cl= 35.5, O = 16, H = 1

Formulas

$$\text{Molarity} = \frac{moles\ of\ solute\ (mole)}{volume\ of\ solution\ in\ (L)}$$

$$\text{Moles} = \frac{weight\ (g)}{Molecular\ weight\ (\frac{g}{mole})}$$

$$\text{W/V\%} = \frac{weight\ of\ solute\ in\ (g)}{volume\ of\ solution\ in\ (ml)}\ x100$$

$$\text{W/W\%} = \frac{weight\ of\ solute\ in\ (g)}{weight\ of\ solution\ in\ (g)}\ x100$$

Weight (wt) = volume (ml) x SG x w/w% (as decimal)