Exp. No. Ex 4	Experiment/Subject Density of solution	Date 10/1/2023	
Name Emmeen Kailash Ramesh	Lab Partner	Locker/ Desk No. 24	Course & 213 Section No. 203

Density of Solution

Reference: "An Experiment in thinking of Scientifically", D. J Sardella Chem. Ed. 69. 933 (1992).

Purpose: to determining an unknown concentration of a solution by perparing a series of Standard Solution and measuring the densities as accurate as possiable.

Material: Electronic balance, Ring stand, Biuret, 10 mL Volumentric Flask, 250 mL breaker

Procdure:

. Clean the volumetric flask and dry it.

Weight the volumetric flask in the electronic balance.

Rise the buret with small amount of 3.00 -M stock Solation and pour it out.

Pour 15 mL of 3.00M stock in tble buret and record the initial volume of solution and pour directly in to 10. volumetric flask and record the final volume of solution in buret.

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Add distilled or deionzed water in volumetric until half to three quaters then shake and mix the flash.

Continues add crater and if need pour out. do something until it reaches the bottom of meniscus just touches the callbration mark on the volumetic flash.

- Mix it again and measure the mass of it.
- Calculate the actual concentration of solution in the flash.

Densities.

Calcute the density with mass of solution and volume.

Empty and rise the volumetric flash with distilled water and water.

do same predure for contretion and calcate the density of each remaing dituted solution.

Determine the density of 3.00M stock solution. use flash for next step.

measur the water density.

Plot a graph of density veras concentration. and with straight line

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Obtain a sample of solution of unknown form a TA and Write down the letter of it.

determine the density and concentation based on the data on your graph

determin the density of salt solution by pouring 10ml of solution in volumetric flash

Weigh the weight of flash.

Calution: density $d = \frac{M}{V}$

Equtaion: $V_S = \frac{V_{solution} \times M_{solution}}{M_{solute}}$

			M of solution.
10	3.0	3.0	10 mL
10	2.0	3.0	6.67 mL
10	1.0	3.0	3.33 mL
10	0.5	3.0	1.67 mL
10	0	3.0	0 mL

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Theoretical Concentration (M)	Vol stock Solution Theoretical (mL)	Buret Initial Vol (mL)	Buret Final Vol (mL)	Vol stock solution actual (mL)	Total Volume of Solution mL	Actual Concentration m	Mass of Volumetric Flask (g)	Mass Total VF + Solution g	Mass of solution g	Df δ
3.00	10 mL	35	45.1	10.1	10.00		17.884	24.479	6.595	
2.00	6.67	27	33.7	6.7	10.00		17.884	25.607	7.723	
1.00	3.33	39	41.6	2.6	10.00		17.884	20.949	3.065	
0.50	1.67	38.4	39	0.6	10.00		17.884	18.570	0.686	
0.00	0	29.9	39.1	9.2 / 0.00	10.00	0.00	17.884	27.501 / 27.562	9.617	
Unknown					10.00		17.884	28.512	10.628	

Density	
3.00	0.652 g/cm³
2.00	1.152 g/cm³
1.00	1.175 g/cm³
0.50	0.874 g/cm³
0.00	1.045 g/cm³
unknown	1.0628 g/cm³

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Obuersation:

Thent Contentrion have Very varies may because of Wrong cacletion.

Samll concentrion have higher density than higher concentrion. the Mg experiment have error occur during the meassment. it hard prection and control buterl pipes volume when its open.

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