

Concentration of the given unknown solution and double distilled water and shake well. Switch on the instrument, turn the gas supply on and light the gas at the burner. Adjust the air supply from the compressor to 10 lbs/sq inch using pressure regulator knob. Place the sodium filter (589nm) in position. Now dip the capillary tube in a cell containing double distilled water. The stream of air atomized as a fine mist draws up the liquid. Regulate the gas supply so that the colour of the flame completely turns to blue. Adjust the flame photometer to zero by means of zero control knob. Feed the various sodium solutions prepared through the flame one by one including the unknown solution. Note down the flame photometer readings, Plot a graph of flame photometer readings against the volume of the solution. Get the calibration curve using the curve obtained. Find out the volume of the unknown solution containing sodium and calculate the amount of sodium in it.

Calculation:

Amount of NaCl in the given 100 cm solution = 5g  
58.5 g of NaCl contains 23 g of Na.  
Therefore 1 cm of the given stock solution contains  $\frac{23}{58.5 \times 100}$  g of Na  
From the graph calculate the volume of unknown solution and amount of sodium present in the unknown solution.

Unknown Volume

Volume of Na solution in cm

Model Procedure/Flow Chart:

Test solution, A, is a standard sodium solution of known concentration. It is used to determine the concentration of sodium in the unknown solution. The test solution is compared with the standard solution using a flame photometer. The concentration of sodium in the unknown solution is determined by comparing the intensity of the flame with the intensity of the standard solution. The concentration of sodium in the unknown solution is determined by comparing the intensity of the flame with the intensity of the standard solution.

Model Calculation:

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Iem f<sub>NaCl</sub> =  $\frac{2}{S} \frac{3x}{S_{loo}}$  o-oD983 Na  
 h<sub>tr</sub> y<sub>Erd</sub> olune      unkrun Salap

Model graph:

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Tabulation:

SI. No.	Vol of NaCl in cm <sup>3</sup>	Flame Photometer Reading	Wt. of Sodium in mg
1	2	24.0	19-6
2.		428	39-3
3.		\$81oe5	5849
	8	2 7 .86	6
	10	25- oa2	
	Unknown	9o	

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90

Conl<sup>n0</sup>

Vatme

Calculation:

Amount of Nacineveniosl-r

13Psol-ir 9P199 ~~Na~~

Hor of N 4x : 829 393-  
 6c Nac 69Vq - S89ad  
 8<sub>f</sub> Nacl = 989 6  
 10<sub>p</sub> N (ox<sup>98-9</sup> 98.29mg  
 66 Na<sup>c9</sup> = 66a9-89 = 64 82

Inference:

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Report:

1. Volume of unknown solution =  $6^{-6}$  cm<sup>3</sup>

2. Amount of Sodium in the given unknown solution =  $64:1$  mg.

Evaluation of experiment		07
Components	Max	Marks
Model Procedure, Model Graph & Calculation		Obtained
Expected Volume & Execution		16
Inference & Societal Relevance		19
		03
Total		
Signature of Teacher		