

Tutorial 2



Lecture 5

Questions

- Q1: Describe how to prepare a 400 ml ,1:8 dilution of a disinfectant solution from a stock solution provided using water as your diluent. ?
- Since $DF = V_f / V_i$ thus $V_i = V_f / DF$
 - DF is 8
 - $V_i = 400 / 8$
 - $= 50 \text{ ml.}$
 - To prepare, we need 50ml of the stock solution and make up the volume to 400ml with water.

Questions Continue

➤ Q2: You are provided with 3ml of a 100 mg/ml stock solution of ampicillin and requested to dilute it to a final concentration of 25mg/ml and final volume of 200µl. Calculate the volume of stock solution needed? describe the preparation process .

- $C1 * V1 = C2 * V2$
- $C1 = 100\text{mg/ml}$, $C2 = 25\text{mg/ml}$, $V2 = 200\mu\text{l}$, $V1 = ?$
- $C1 * V1 = C2 * V2$
- $100 * V1 = 25 * 200$
- $V1 = (25 * 200) / 100$
- $= 50\mu\text{l}$.
- To prepare, we need 50µl of the stock solution and make up the volume to 200µl with water.

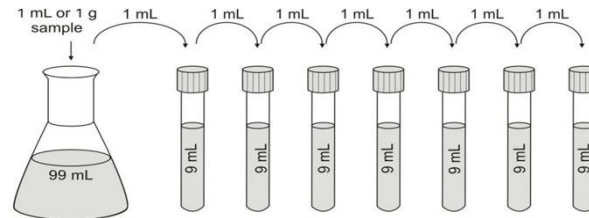
Questions Continue

➤ Q3: An 100.0 mL of 2.500 M KBr solution is on hand. You need 0.5500 M. What is the final volume of solution which results?

- $C1 * V1 = C2 * V2$
- $C1 = 2.5\text{M}$, $C2 = 0.55\text{M}$, $V1 = 100\text{ml}$, $V2 = ?$
- $C1 * V1 = C2 * V2$
- $2.5 * 100 = 0.55 * V2$
- $V2 = (2.5 * 100) / 0.55$
- $V2 = 454.55\text{ml}$.
- The final volume of the solution is 454.55ml.

Questions Continue

- Q4: From the following serial dilution answer the following (stock solution is 0.4M); A) The dilution factor ?
- B) Calculate the concentration of tube 4 and 7 in the serial dilution .



- **A) DF:**
- $DF = V_f / V_i$
- $= 10 / 1$
- $DF = 10$

B) Serial dilution:

For tube 4 $= 10 * 10 * 10 * 10 = 10000$. The concentration is $0.4 / 10000 = 4 * 10^{-5} \text{ M}$

For tube 7 $= 10 * 10 * 10 * 10 * 10 * 10 * 10 = 10000000$. The concentration is $0.4 / 10000000 = 4 * 10^{-8} \text{ M}$