

Solution Preparation



https://img.clipartfest.com/c4c26104c059a39fc5988023fab2ee4f_-kool-aid-man-clipart-kool-aid-man-clipart_400-361.jpeg

Outcomes:

- Prepare a solution of known concentration given the amount of solute (in grams) and volume of solution.

Making a Solution:

We need to be able to make solutions of known concentrations so that we know the “strength” of the solutions we are working with.

Procedure for Preparing a Solution:

1. Determine the **CONCENTRATION** of the solution you **WANT**, in **MOLES** per **LITRE**. Lets say: **0.8 mol/L NaCl solution (100mL)**
2. Since we cannot measure out **MOLES**, we need to **CONVERT** the **MOLES** we **NEED** into **GRAMS**.

$$100 \text{ mL} = 0.1 \text{ L} \times \frac{0.8 \text{ mol}}{1 \text{ L}} = 0.08 \text{ mol} \times \frac{58.5 \text{ g}}{1 \text{ mol}} = \boxed{4.68 \text{ g}}$$

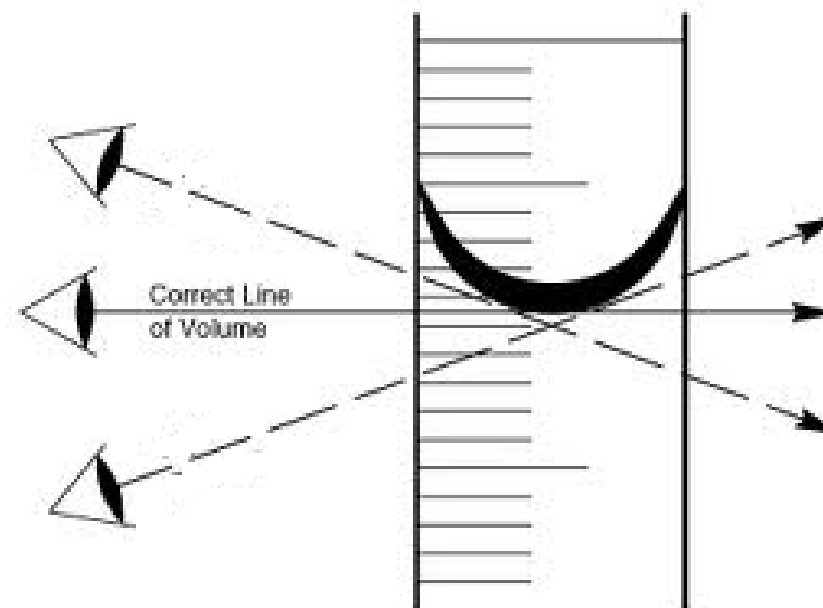
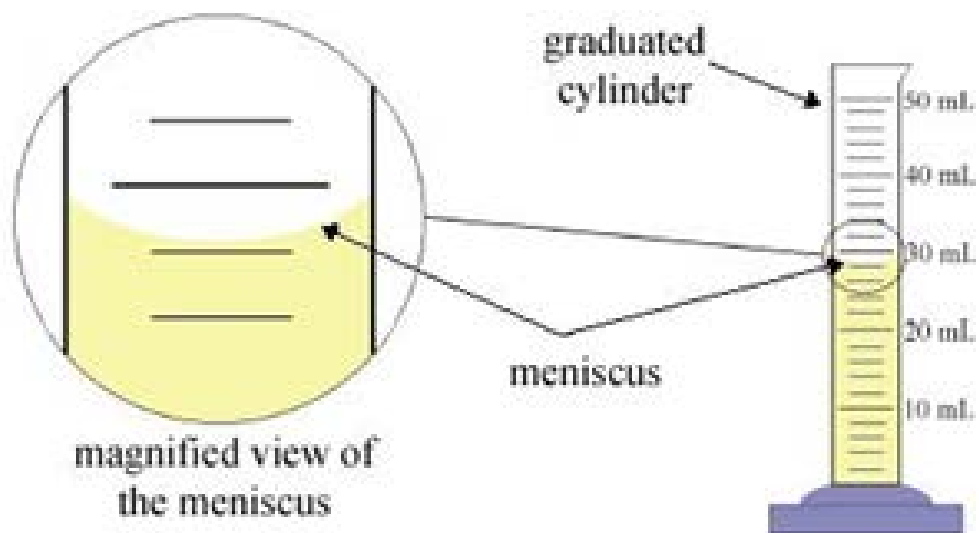
3. **MEASURE** out the mass of solute and add to a volumetric flask (if possible). **Why a volumetric flask?**

Very accurate

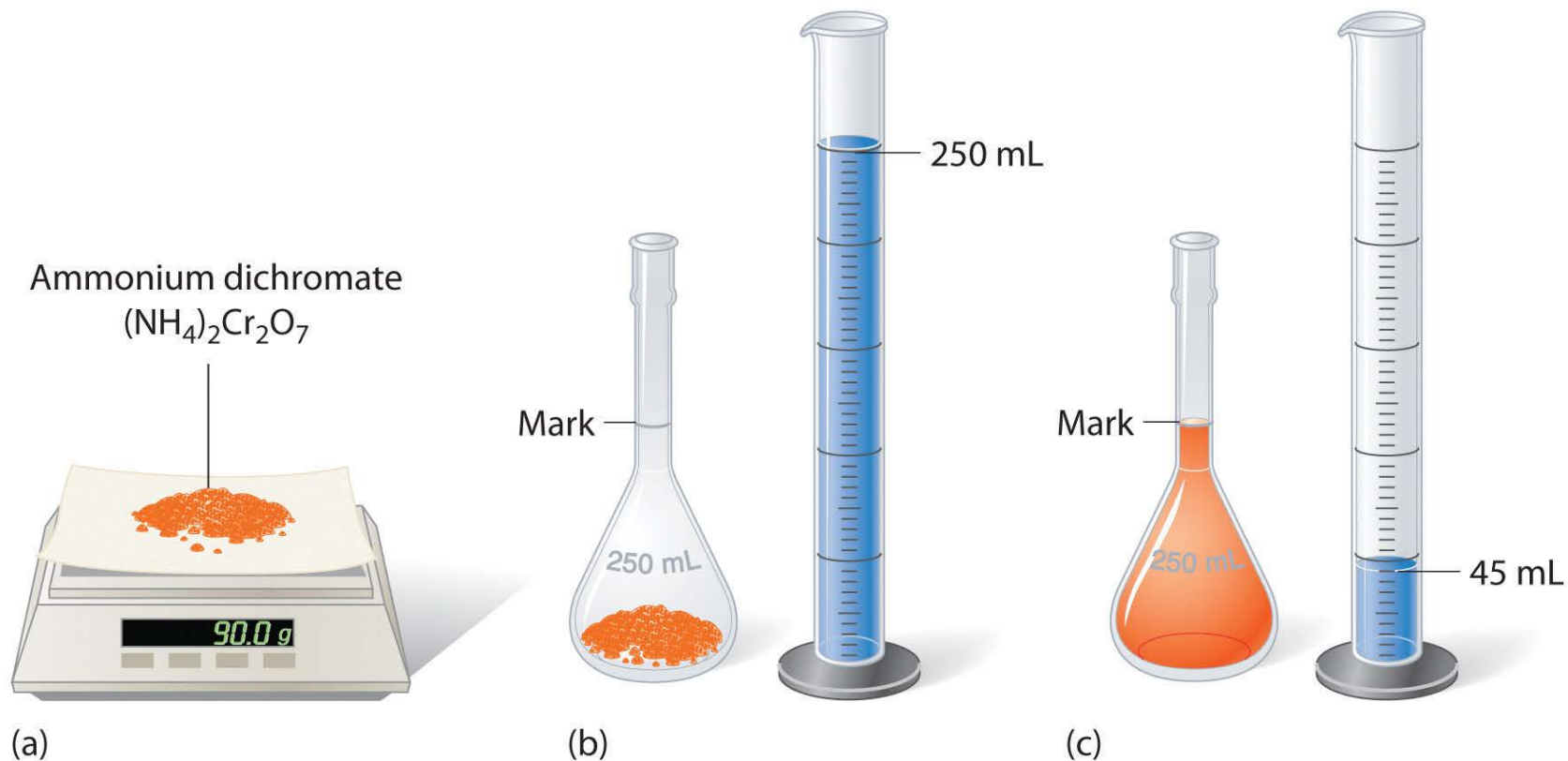
Making a Solution:

Procedure for Preparing a Solution Con't:

4. **DISSOLVE** solute in **LESS** than the **FINAL** volume of **WATER**. *Why less than the final volume?*
5. Dilute to the **MARK**.
 - Use a **DROPPER PIPET** to add the **LAST BIT** of **WATER**.
 - Be sure to measure to the **BOTTOM** of the **MENISCUS**



Making a Solution:



http://2012books.lardbucket.org/books/principles-of-general-chemistry-v1.0/section_08/3d3c33730a0c1644e3166fa6be1a8b38.jpg

Question:

Why do we “dilute to the mark”? Why would we not just add the total volume to the solute?