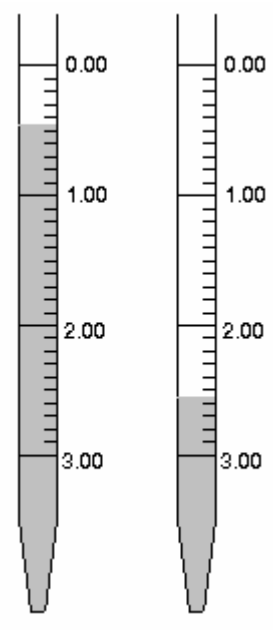
Name_____ Period: _____ Date:_____

# TITRATION PRE-LAB

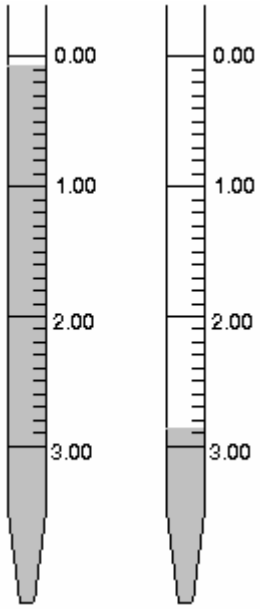
The purpose of titration is to determine the concentration of an unknown solution. This may be accomplished with an acid-base reaction utilizing a balanced equation, the known molarity of the titrate and volumes of both the titrant and analyte determined by experiment. In this example, the titrant is 0.957 M NaOH. The analyte is $H_2SO_4$.

When reading a buret always remember to read from top to bottom. The following is an illustration of the initial and final volumes of a buret reading:

Analyte Solution: Titrant Solution: given: 0.957 M NaOH




Initial Final




Initial Final

Recall that to determine the volume delivered: $V_{final} - V_{initial} = V_{delivered}$

Compute the volumes delivered as illustrated in the burets above:

Analyte Volume:

| Initial | Final | Delivered |
|---|---|---|
| | | |

Titrant Volume:

| Initial | Final | Delivered |
|---|---|---|
| | | |

To compute the molarity of the analyte take the volume delivered of the titrant, multiplied by the molarity (known) to determine the number of moles of titrant utilized, then utilizing a balanced equation and mole ratios the number of moles of analyte may be determined. Dividing the moles of analyte by the volume delivered of analyte will determine the experimental molarity of the analyte.

Volume NaOH (L) x Molarity (NaOH) = moles NaOH x $\frac{1 \text{ mole } H_2SO_4}{2 \text{ moles NaOH}}$ = moles $H_2SO_4$

Molarity = Moles/L Unknown Molarity = $\frac{\text{moles } H_2SO_4}{\text{Volume Delivered (Analyte)}}$

Divide these two quantities to find Molarity

Based on the information above, calculate the molarity of the $H_2SO_4$:

$$\text{_____mL NaOH} \times \frac{1\text{ L}}{1000\text{ mL}} \times \frac{0.957\text{ mol NaOH}}{\text{L}} \times \frac{1\text{ mol } H_2SO_4}{2\text{ mol NaOH}} = \text{_____mol } H_2SO_4$$

$$= \text{_____M}$$

$$\text{_____ mL } H_2SO_4 \text{ (used)} \times \frac{1\text{ L}}{1000\text{ mL}} = \text{_____ L}$$