

Standardization of EDTA Solution

1. Enter the volume of EDTA used to reach the endpoint for your *best* 2 or 3 trials and the average of these trials.

Table 1. Volume of EDTA used to reach the endpoint in the titration with 0.01000 M Ca²⁺

Volume EDTA (mL)			
Trial 1	Trial 2	Trial 3	Average Volume EDTA (mL)

2. Calculate the *Molarity of your EDTA solution* using the *average* volume of EDTA from *table 1*, above. Show your work using dimensional analysis using units and correct significant figures for all numbers. Circle your answer and record the molarity of the EDTA in the space below.

Molarity of EDTA: _____

Show your work below:

Analysis of your Ca²⁺ Unknown

1. Enter your *unknown number* in the space provided in the *caption for table 2*.
2. Enter the volume of EDTA used to reach the endpoint for your *best* 2 or 3 trials and the average of these trials.

Table 2. Volume of EDTA used to reach the endpoint in the titration with *Unknown Number* _____ .

Volume EDTA (mL)			
Trial 1	Trial 2	Trial 3	Average Volume EDTA (mL)

3. Calculate the *concentration of Ca²⁺ in in mol/L in your unknown solution* using the *average* volume of EDTA from *table 2*, above. Show your work using dimensional analysis using units and correct significant figures for all numbers. Circle your answer and record your unknown number and the molarity of the Ca²⁺ in the spaces below.

Molarity of Ca²⁺ in Unknown Number _____: _____

Show your work below:

4. Use the molarity of Ca²⁺ in your unknown to calculate concentration of Ca²⁺ in your unknown solution expressed in *parts per million calcium carbonate, ppm CaCO₃*. Show your work using dimensional analysis using units and correct significant figures for all numbers. Circle your answer and record your unknown number and the molarity of the Ca²⁺ in the spaces below.

Concentration of Ca²⁺ in unknown # _____ *expressed in ppm CaCO₃*: _____

Show your work below:

Grade for Accuracy for the Determination of the Concentration of Ca^{2+} in your Unknown

The following will be completed by your instructor!!

|% Error| = _____ Your Grade for Accuracy: $\overline{30}$

Source of Error (if applicable)

- a. _____ There is/are one or more errors in the calculations on the previous page. *Review your work, make the necessary correction(s) and resubmit* on a new form. **Staple this form to the back of the new form that you submit.**

- b. _____ Your calculations are correct, but there is an error in the experimental determination of the EDTA concentration and/or the experimental determination of the Ca^{2+} concentration of your unknown. *Find where you went wrong, correct the error(s) and resubmit* on a new form. **Staple this form to the back of the new form that you submit.**

Grading Scale

If your results have a percent error of...	... then your grade will be:		
	First Attempt	Second Attempt	Third Attempt
± 5.0%	100% (30 pts)	90% (27 pts)	80% (24pts)
± 7.5%	90%	80%	70%
± 10%	80%	70%	60%
± 15%	70%	60%	0%
± 20%	60%	0%	0%
> 20%	0%	0%	0%