First and Last Name: _____

Student ID Number: _____

TA: _____

Lab Section: _____

Date Performed: _____

Vernier #: _____

Part III. Data collection to determine the volume (*V*) of the system. Reaction with a known amount of $CaCO_3$.

- What is your numerical prediction for your system's final volume? Please, include units.

Table 1. System's volume prediction

- Please report the exact mass of $CaCO_3$ sample used in each trial and the measured initial and final **P** and **T** values with the correct number of significant figures in Table 2
- Record $CaCO_3$ sample purity, w/w% = _____

Table 2.

Trial #	m($CaCO_3$), g	Initial Values		Final Values	
		P_i (kPa)	T_i (°C)	P_f (kPa)	T_f (°C)
1					
2					
3					

- Use the table for the water vapor pressure to find the partial water vapor pressure at the measured T_i and T_f and report is with the correct number of significant figures for each trial

Table 3.

Trial #	Initial Values		Final Values	
	T_i (°C)	p_{iH2O} (kPa)	T_f (°C)	P_{fH2O} (kPa)
1				
2				
3				

- Convert the T_i and T_f from °C to K. Calculate the P'_i and P'_f for each trial by subtracting the partial water vapor pressure. Report all the values with the ***correct number of significant figures***.

Table 4.

Trial #	Initial Values			Final Values		
	T_i (°C)	T_i (°K)	P'_i (kPa)	T_f (°C)	T_f (K)	P'_f (kPa)
1						
2						
3						

Part IV. Data collection to determine the *w/w* % of $CaCO_3$ in an antacid tablet. Rection with the antacid tablet.

- Report the number on the antacid tablet vial and the tablet's mass in grams.

Table 5. Antacid Tablet

Antacid tablet code #	
Tablet mass (g)	

- Please report the exact mass of the antacid tablet portion used in each trial and the measured initial and final P and T values with the ***correct number of significant figures*****.**

Table 6. Initial and final P and T values in the antacid trials

Trial #	**m(antacid sample), g**	**Initial Values**		**Final Values**	
		P_i (kPa)	**T_i (°C)**	**P_f (kPa)**	**T_f (°C)**
1					
2					
3					

- Use the table for the water vapor pressure to find the partial water pressure at the measured T_i and T_f and report is with the correct number of significant figures

Table 7. Water vapor pressure values for the initial and final temperatures in each antacid trial

Trial #	Initial Values		Final Values	
	T_i (°C)	p_{iH2O} (kPa)	T_f (°C)	p_{fH2O} (kPa)
1				
2				
3				

- Convert the T_i and T_f from °C to K. Calculate the P'_i and P'_f for each trial by subtracting the partial water vapor pressure. Report all the values with the correct number of significant figures.

Table 8. Correction for the water vapor pressure

	Initial Values			Final Values		
	T_i (°C)	T_i (°K)	P'_i (kPa)	T_f (°C)	T_f (K)	P'_f (kPa)
1						
2						
3						

- Look at your final pressure $\mathbf{P'_f}$ values and estimate, based on your results, whether you started with more $CaCO_3$ in a TUMS tablet portion or less than in a corresponding trial from **Part III** and choose one of the three options.

Table 9. Estimation of the amount of $CaCO_3$ in each antacid portion

Trial #	The amount of $CaCO_3$ in TUMS tablet portion is:		
1	less	more	approximately the same
2	less	more	approximately the same

3	less	more	approximately the same