

CHEMISTRY

Lab 4: Ideal Gas Laws Using a Data Logger

- Before you start, study the three aspects of the Data Collection and Processing criterion.
- Use Excel for Tables and Graphs. Otherwise, use Word and graph (millimeter) paper.
- Make two tables (one for the syringe without the piece of chalk and one with it) including the volume (V), the pressure (P) and the inverse of pressure (1/P) with units and uncertainties.
- Plot V versus P for both cases on one graph.
- Plot V versus 1/P for both cases on one graph.
- What is the shape of the curves on each graph? Why? Explain briefly using the ideal gas law.
- Observe the second graph (V vs. 1/P) and determine (a) any systematic error of the instrument and (b) the volume of the piece of chalk in the syringe.
Hint: the atmospheric pressure is $1 \text{ atm} = 101 \text{ kPa} = 1.01 \times 10^5 \text{ Pa}$
- You don't have to write a complete lab report.