Table 1. Weights of different masses that were attached onto the plunger platform. **Besides the plunger, note that the weights are different from Lab 2.1 data.**

|  |  |
| --- | --- |
| **Material** | **Weight (g)** |
| Plunger | 35.0 +/- 0.5 |
| Weight 1 | 75.695 +/- 0.001 |
| Weight 2 | 74.167 +/- 0.001 |
| Weight 3 | 74.643 +/- 0.001 |

Calibration trials used air as the gas medium. Three trials, labeled **T1-T3**, are provided for each calibration condition. Each trial uses a cumulative sum of the weights. Explicitly, **Calibration\_1** only has the plunger weight, **Calibration\_2** consists of the plunger and weight 1, etc.

Oscillating piston trials, labeled with prefix **Osc**, are provided for the Argon and CO2 gas medium. **NoWeight** trials consist only of the plunger. **Mass1** trials consist of the plunger and weight 1, and **Mass** 2 trials consist of the plunger, weight 1, and weight 2.

Table 2. Length measurements of experimental equipment and setup. Tube refers to the tubing connecting the main air chamber to the pressure sensor.

|  |  |
| --- | --- |
| **Material** | **Length (mm)** |
| Plunger diameter | 32.56 +/- 0.01 |
| Tube length | 280 +/- 1 |
| Tube inner diameter (from 3 measurements) | 3.59 +/- 0.02 |

Piston heights varied for each trial condition. Tables 3 and 4 provide the average piston height for the trial conditions.

Table 3. Average piston height for Ar trials.

|  |  |
| --- | --- |
| Argon Trial Condition | Average piston height (mm) |
| No weight | 68 +/- 1 |
| Mass 1 | 56 +/- 8 |
| Mass 2 | 56 +/- 3 |

Table 4. Average piston height for CO2 trials.

|  |  |
| --- | --- |
| CO2Trial Condition | Average piston height (mm) |
| No weight | 68 +/- 1 |
| Mass 1 | 60 +/- 3 |
| Mass 2 | 57 +/- 2 |