Nomenclature of Columns & Other Information:

* **Mass1 of Empty Tube:** this is the mass of the empty conical tube used
* **Mass Tube+Water:** the mass of the conical tube after adding water as a first step to creating the ethanol-water solution.
* **Mass Tube+Water+Ethanol:** the mass of the conical tube after adding water followed by ethanol.
* **Mass of Water:** the mass of the water added into the conical tube. This is simply the difference between “Mass Tube+Water” and “Mass of Empty Tube”
* **Mass of Ethanol:** the supposed mass of ethanol added into the conical tube2.
* **Mass Percent:** the supposed percent mass of ethanol that is in the final ethanol-water solution3.
* **Temperature Pycnometer:** the temperature recorded by the pycnometer when filled with the ethanol-water mixture and weighed
* **Weight Pycnometer:** the recorded weight of the pycnometer when filled with the ethanol-water mixture.
* **Temperature Densitometer:** the temperature recorded by the Anton-Paar densitometer when measuring the density of the ethanol-water mixture.
* **Densitometer Density:** the density of the ethanol-water mixture recorded directly by the Anton-Paar densitometer
* Again, the empty pycnometer weighs 35.069 grams
* All mass measurements have an uncertainty of 0.001 grams.
* The densitometer’s specs are found in page 60 of the “DMA 35 Instruction Manual”.

Footnotes:

1. For this lab, mass and weight are used interchangeably.
2. The experimentalist thought this was the mass of ethanol added into the conical tube. In reality, this corresponds to the mass of the empty conical tube with ethanol.
3. As a result of the experimentalist’s mistake in footnote number 2, these values are all inaccurate. However, a comparison can still be made between the pycnometer and densitometer since they were used to characterized the same fluid.