**Density of Metals**

**Objective:** To determine the mass and volume of selected metals and calculate the density.

**Procedure:**

1. Record the mass of the DRY metal in the data table to 2 decimal places.
2. Fill a graduated cylinder half way with water and record the volume. The volume must be recorded to 1 decimal place!
3. Add the metal to the water. Record volume.
4. Determine the volume of the metal by water displacement.
5. Repeat for other metals.

**Data Table:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name of metal | Symbol | Mass of metal | Volume of water | Volume of water and metal | Volume of metal |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Equations:**

$Density =$ $\frac{Mass}{Volume}$ $\% error=\left|\frac{(accepted-experimental)}{accepted}\right|x100$

**Calculations:**

Calculate the density and % error for each metal. (Actual densities are listed in Appendix B of your textbook). Show all work!!!!

|  |  |  |  |
| --- | --- | --- | --- |
|  | Metal #1 | Metal #2 | Metal #3 |
| Density |  |  |  |
| % error |  |  |  |

**Post-Lab Questions:**

1. If a student has a piece of aluminum with a volume of 35.0 ml, what is the mass?
2. If a piece of iron has a mass of 160.0 grams, what is the volume?
3. A friend received a gift – a gold ring. You are questioning whether or not it is real gold. You find the mass to be 58.21 g and the volume to be 3.64ml. Is it pure gold? Why or why not? Explain.
4. Determine if the following will float or sink in water and explain. (Refer to table 3.6 on pg. 81)
	1. Mercury
	2. Corn oil
	3. Ethyl alcohol

**Conclusion:**