

Sarah Garrett  
Mrs. Parker  
Chemistry  
19 September 2023

## Lab Report

### Research Questions:

How are density units determined?

g/cm<sup>3</sup>

What is the real world application to density?

Determining whether or not an object will float on water. Most used with boats.

### Introduction:

Density is defined mathematically as the ratio of a substance mass and volume:

$$\rho = \text{mass/volume}$$

It uses derived units in chemistry, The Derived units are usually g/mL or g/cm<sup>3</sup>. The latter is equivalent to the former because 1ml = 1cm<sup>3</sup>.

### Procedures:

First, we measured the mass of the gray plastic PVC sample using an electronic scale. We filled our graduated cylinder with 50mL of water and then slid the sample into the cylinder. We then measured the new volume of the water, being careful each time to measure at the meniscus. Next, we subtracted these two volumes to obtain the sample's volume. The sample's mass was divided by its volume to obtain density. Each lab group then announced their findings and a comparison of these was made.

### Data/Observations:

The PVC pipe is 5.3g

The original volume of the water is 51mL

The new volume after adding the PVC pipe is now 55mL

You would then divide 5.30 by 4 and you would have an outcome of 1.325mL

1.325 has 4 sig figs

### Conclusion:

The units of density are determined by the units used for mass and volume and then dividing those units Within their respective quantities. These are derived units recommended by computation. density is a physical trait. that determines if an object sinks or floats in a liquid. if the object's density is greater than the liquid it sinks, and if it's less than the density then it floats. and then this lab the PVC was more dense than water so it's saying.

### Vocab:

The definition of Mass is a measure of the amount of matter in an object.

The definition of Density is the measurement of how tightly a material is packed together

The definition of Buoyancy is the tendency of an object to float in a fluid.

The definition of Physical property is a characteristic of a substance that can be observed or measured without changing the identity of the substance